



NOTICE OF PREPARATION

DATE: March 16, 2020

TO: State Clearinghouse
1400 10th Street, Suite 222
Sacramento, CA 95814
(916) 445-0613

FROM: City of Antioch

SUBJECT: Creekside/Vineyards at Sand Creek Project
Notice of Preparation of a Draft Environmental Impact Report

LEAD AGENCY: City of Antioch
Community Development Department
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PROJECT APPLICANT: GBN Partners, LLC

Notice is hereby given that the City of Antioch will be the Lead Agency and will prepare an environmental impact report (EIR) for the proposed Creekside/Vineyards at Sand Creek Project. We are requesting comments on the scope of topics addressed in this EIR.

Please provide comments on the scope of the EIR to Alexis Morris, Planning Manager, at the address listed above. Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but not later than 5:00 PM on April 14, 2020. In your response, please identify a contact person in your agency for future correspondence.

The Lead Agency will hold a **public scoping meeting** to receive verbal comments on **Thursday, April 9, 2020 at 3:00 PM** in the second floor conference room of the City Hall, Third and "H" Streets, Antioch, CA 94509. This EIR Notice of Preparation, the Initial Study and technical appendices are available online at: <https://www.antiochca.gov/community-development-department/planning-division/environmental-documents/>.

INTRODUCTION:

The purpose of an EIR is to inform decision-makers and the general public of the environmental effects of a proposed project. The EIR process is intended to provide environmental information sufficient to evaluate a proposed project and its potential to cause significant effects on the environment; examine methods of reducing adverse environmental impacts; and consider alternatives to the proposed project. The Creekside/Vineyards at Sand Creek Project EIR will be prepared and processed in accordance with the

California Environmental Quality Act (CEQA) and the CEQA Guidelines. The EIR will generally include the following:

- Description of the project;
- Description of the existing environmental setting for each topic, potential environmental impacts of the project, and mitigation measures;
- Cumulative impacts; and
- Alternatives to the project.

PROJECT LOCATION:

The Creekside/Vineyards at Sand Creek Project (proposed project) consists of 158.2 acres located south of the future Sand Creek Road in the southeastern portion of the City of Antioch, California. The City of Antioch is located within eastern Contra Costa County and is bordered to the north by the San Joaquin River Delta; to the east by the City of Brentwood and the City of Oakley; to the west by the City of Pittsburg and unincorporated portions of Contra Costa County; and to the south by unincorporated portions of Contra Costa County (see Figure 1).

The project site is bordered by the City of Antioch/Contra Costa County line to the south and the City of Antioch/City of Brentwood limit to the east. Sand Creek is located to the north of the site, and State Route (SR) 4 is located approximately 0.38-mile east of the site (see Figure 2). The site is identified by Assessor's Parcel Number (APN) 057-050-024. The project site is situated within the Sand Creek Focus Area of the General Plan, which contains lands designated by the City of Antioch General Plan for open space, residential, commercial, and mixed-use development.

PROJECT SETTING AND SURROUNDING LAND USES:

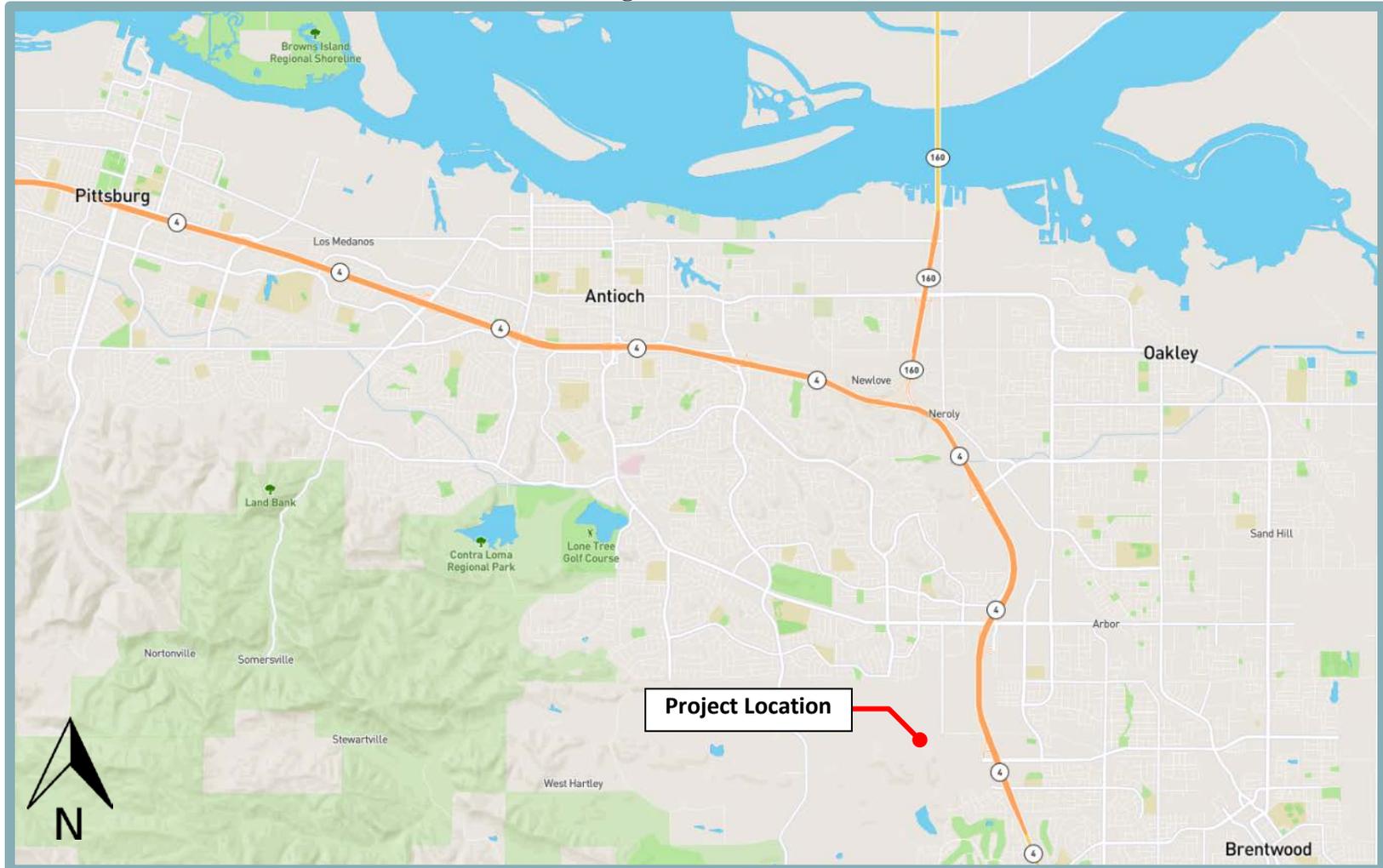
Per the City's General Plan, the eastern portion of the project site is designated Open Space/Senior Housing, while the western portion is designated Hillside, Estate and Executive Residential/Open Space. The site is zoned Study Area (S). Currently, the site consists primarily of ruderal grasses and is absent of structures or other indications of prior development.

The project site has been dry-land farmed since the 1930s and consists primarily of non-native vegetation. A total of nine energy and communication access and utility easements exist on the project site. Within the northeastern portion of the site, PG&E maintains an access easement that includes a bridge over Sand Creek, which allows PG&E to drive through the project site to access existing off-site utility infrastructure to the west of the project site. An existing PG&E tower line easement extends through the western portion of the project site. In addition, existing oil and gas pipelines within the project site run below ground and cross Sand Creek and the natural drainage area in a number of locations. A 10-foot-wide pole line easement extends along the length of the southern site boundary.

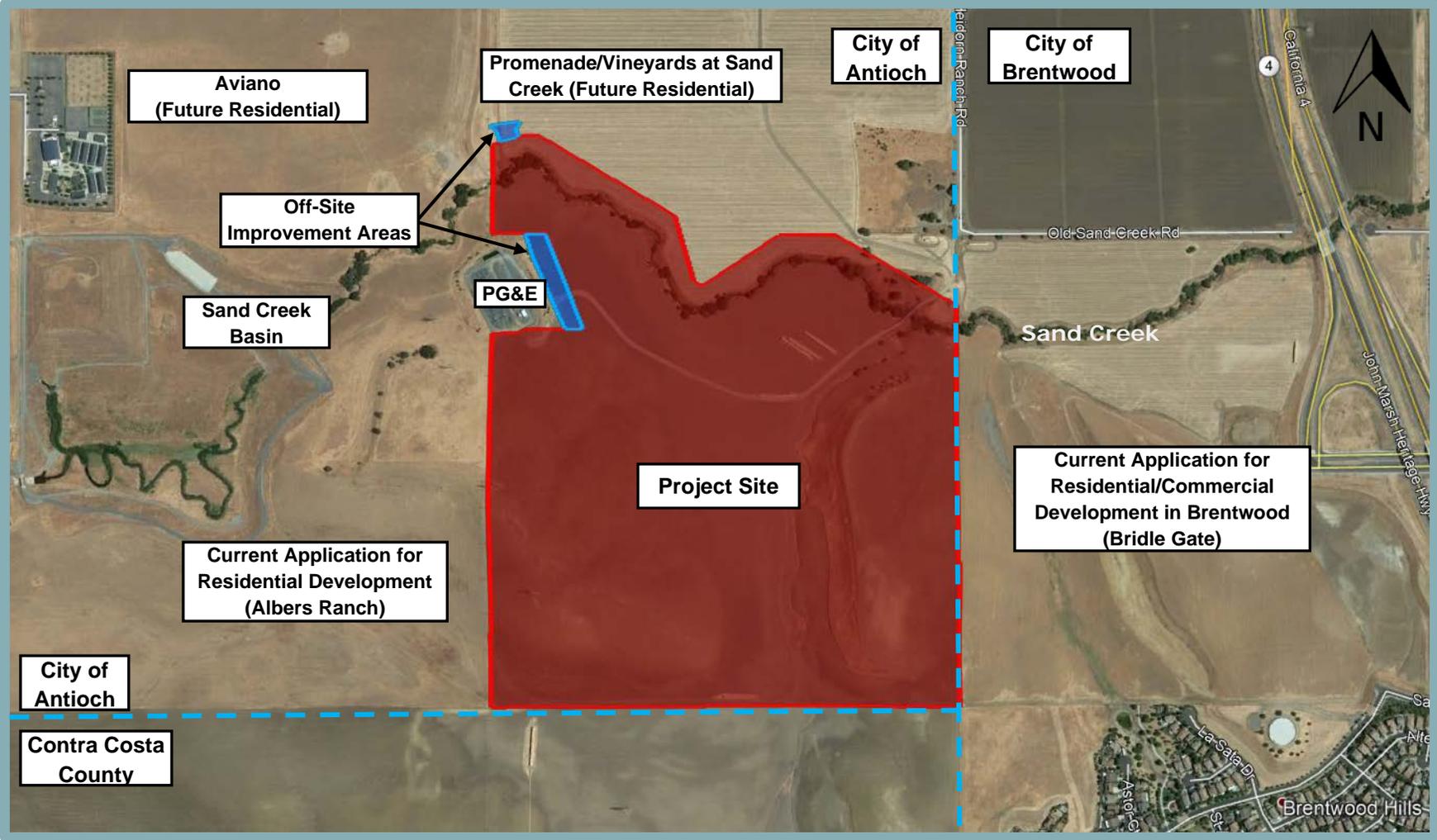
The site is generally rectangular; however, the northern boundary shifts north and south in an irregular shape, following the alignment of Sand Creek. The site's terrain is characterized by a flat valley bordered by hill forms on the west and east sides. Elevations on-site range from 150 to 325 feet above mean sea level (msl). A shallow area exists at the base of the eastern hillslope and appears to collect local natural drainage during rainfall events, draining into Sand Creek. Sand Creek, a tributary of Marsh Creek, flows through the northern portion of the project site in an easterly direction.

As shown in Figure 2, the majority of the surrounding area has been approved or planned for residential development. Within the City of Antioch, the area to the north of the project site is currently approved for development with residential uses as part of the Promenade/Vineyards at Sand Creek project.

Figure 1
Regional Location



**Figure 2
Project Location**



The area to the northwest of the site is approved for residential development. The area to the southwest of the project is anticipated for buildout with residential uses per the City's General Plan, and an application to develop the area with residential uses (Albers Ranch) has been received by the City. To the east of the eastern project site boundary, which is contiguous with the Brentwood city limits, the City of Brentwood has received an application for development of the Bridle Gate project, which, if approved, would include both single-family and multi-family residential uses, and would allow for future development of commercial uses. An existing PG&E-owned parcel developed with an electrical substation, designated Public/Quasi Public per the General Plan, is located within a carve-out parcel at the site's western boundary. The area further to the west of the PG&E parcel includes the Sand Creek Basin, managed by the Contra Costa County Flood Control District. The area to the south of the project site consists of undeveloped dry-farmed land outside the City's Sphere of Influence and Planning Area, within unincorporated Contra Costa County.

PROJECT DESCRIPTION

The proposed project would include development of 220 single-family residential units and associated improvements on approximately 58.9 acres of the 158.2-acre project site, as well as 1.8 acres of off-site improvements (see Figure 3).

The project improvements would include, but would not be limited to, parks, trails, landscaping, circulation improvements, and utility installation. The remainder of the site, including Sand Creek and the associated buffer area, would be retained as open space.

The proposed project would require an amendment to the City of Antioch General Plan, a Rezone, a Use Permit, a Vesting Tentative Map, Design Review, and a Development Agreement. The project components are discussed in greater detail below.

General Plan Amendment

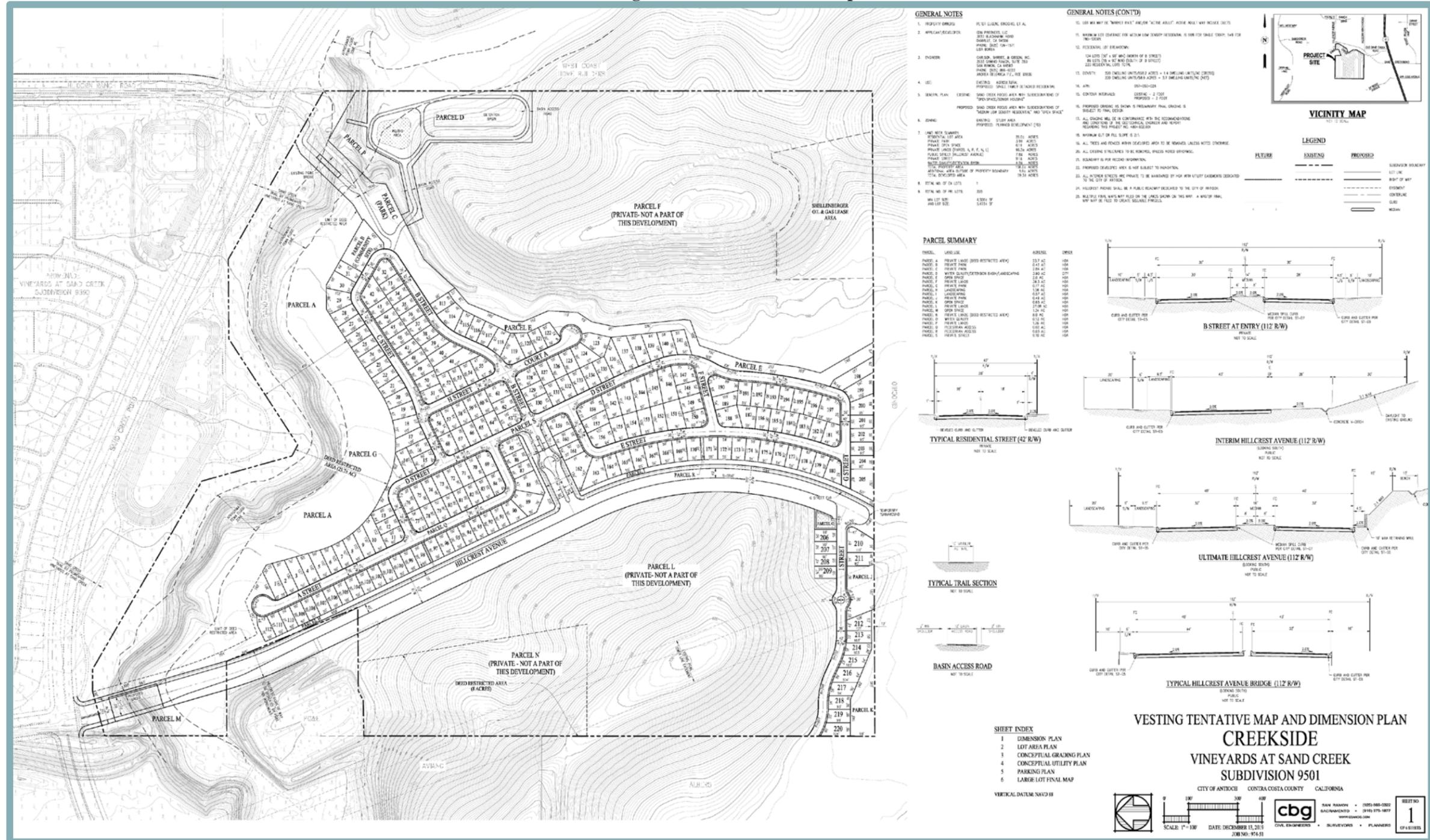
The proposed project would include a General Plan Amendment (GPA) to the Land Use Map for the Sand Creek Focus Area of the General Plan to change the land use designations of the site from Open Space/Senior Housing and Hillside, Estate and Executive Residential/Open Space to Medium Low Density Residential/Open Space, as well as an amendment to the text of the Sand Creek Focus Area of the General Plan in order to add the option of market rate or senior residential on small lots.

Master Development Plan/Rezone/Use Permit/Development Agreement

The proposed project would require approval of a Rezone to change the zoning designation of the site from S to Planned Development District (PD), subject to a Master Development Plan. The Master Development Plan and PD district would list the development standards applicable to the project site, including setbacks, lot sizes and building heights. Such details are included in the Creekside/Vineyards at Sand Creek Project Design Guidelines that have been prepared for the proposed project. A Use Permit would be required to further clarify the details of each phase of the proposed project and to ensure that each phase complies with established provisions of the proposed PD district.

In addition, the project would require a Development Agreement, which would allow the City and the applicant to enter into an agreement to assure the City that the proposed project would be completed in compliance with the plans submitted by the applicant, and assure the applicant of vested rights to develop the project.

Figure 3
Vesting Tentative Subdivision Map



Vesting Tentative Subdivision Map

The proposed project would include a Vesting Tentative Subdivision Map (see Figure 3) to subdivide the project site into 220 single-family residential lots, as well as parcels for associated improvements. Table 1 provides a summary of the proposed land uses. Each of the proposed land uses are described in further detail below.

Proposed Land Use	Parcels	Acreage
Residential	--	28.0
Private Parks	B, C, G, J	3.9
Landscaping/Private Open Space	E, H, I, K, M, Q, R	6.1
Public Street (Hillcrest Avenue)	--	7.8
Private Streets	S	9.1
Water Quality/Detention	D, O	4.0
Private Land*	A, F, L, N, P	99.3
Total Project Site	--	158.2

* With the exception of approximately 11 acres proposed to be graded, the proposed project would not include disturbance of Parcels A, F, L, N, or P.

Residential Uses

The proposed residential uses would represent a continuation of other planned development in the project vicinity, specifically the Promenade/Vineyards at Sand Creek Project to the north of the site. Thus, the neighborhood design, lot size, density, and house design included in the proposed project would be similar to what was proposed for the Promenade/Vineyards at Sand Creek Project. The average density of the proposed residential development would be approximately 3.7 units/acre (net) (220 units / 58.9 acres). Similar to the Promenade/Vineyards at Sand Creek project, at least six different models, each with three different elevations, would be constructed, on lots ranging from approximately 4,500 to 5,473 square feet (sf). The proposed residential units would consist of either market-rate units, senior/active adult units, or a combination of both.

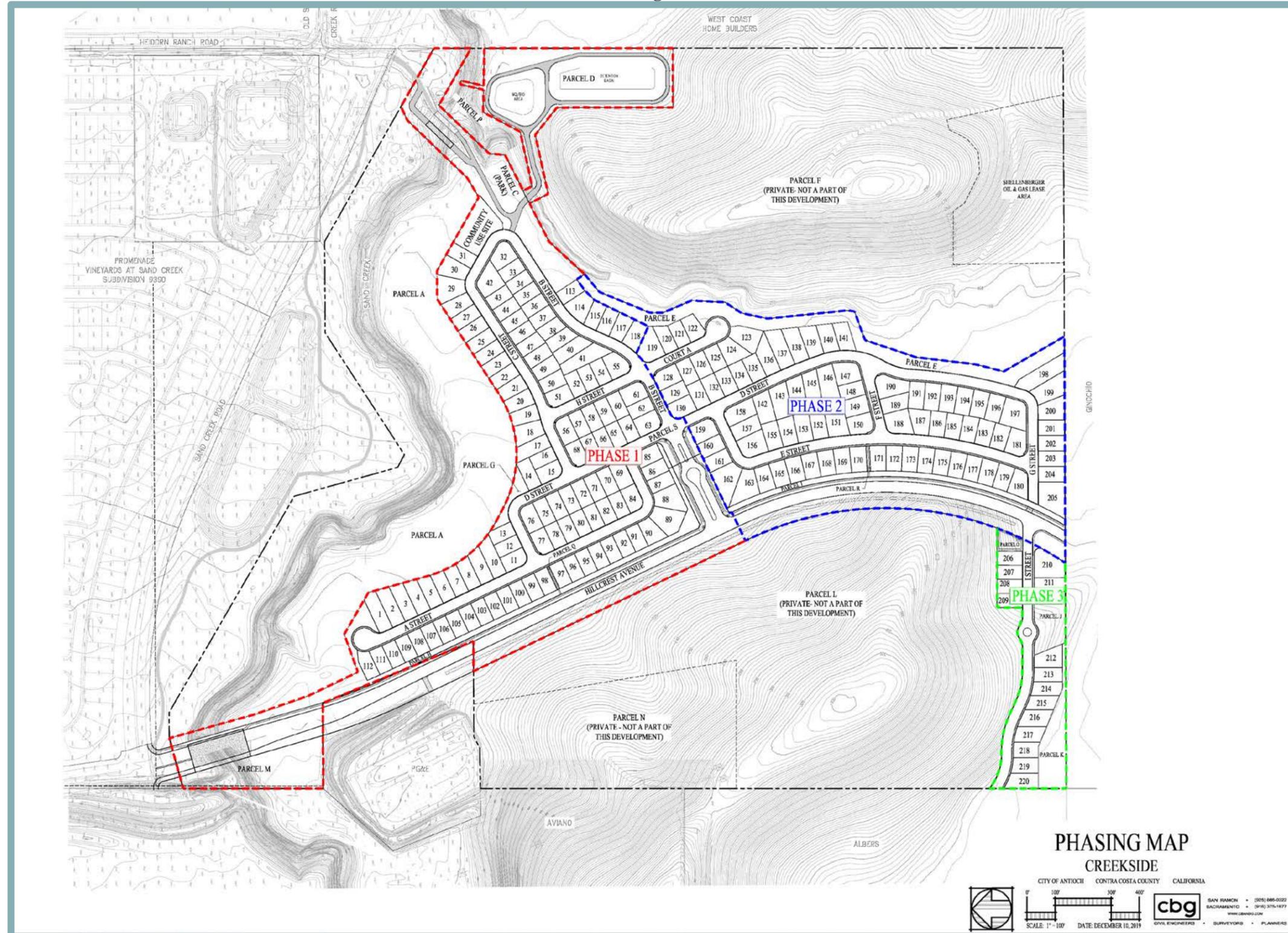
The site is anticipated to be developed in three phases (Phases I, II, and III) (see Figure 4). Phase I would include construction of the residential lots east of Hillcrest Avenue and north of the main entry. Phase I would also include the community pool and associated recreational amenities within Parcels B and C. Phase II would include the residential lots east of Hillcrest Avenue and south of the main entry. Phase III would include the residential lots west of Hillcrest Avenue and a park area within the PG&E tower easement along Hillcrest Avenue.

If developed as market-rate units, the majority of the proposed homes would be two-story, with two car garages. If developed as senior/active adult units, the proposed homes would include a mix of two-story and single-story homes.

Access and Circulation

As part of the project, Hillcrest Avenue would be extended through the project site. Hillcrest Avenue at the proposed location is identified in the City General Plan, and would provide connection to future residential uses on the area to the west of the project site. The alignment of the roadway has been designed to span Sand Creek and provide permanent access to the existing PG&E facility and beyond.

**Figure 4
Phasing Plan**



Vehicular ingress and egress to the proposed project would be provided from Hillcrest Avenue by way of a centrally located main entry, and an emergency vehicle access (EVA)/secondary entry intersection to the south. In addition, a clear span EVA/pedestrian bridge may be constructed adjacent to the existing PG&E bridge spanning Sand Creek in the northeastern portion of the project site, subject to final negotiations with PG&E and final utility designs. The Hillcrest Avenue extension would include sidewalk and landscaping on the east side of the roadway. The Hillcrest Avenue bridge over Sand Creek would be constructed in the ultimate width to facilitate two southbound and two northbound lanes. Right-of-way improvements would be limited to the necessary roadway width, utilities, and pedestrian facilities within the area of the Sand Creek crossing.

Phase I of the proposed project would include construction of approximately 1,500 lineal feet of Hillcrest Avenue in a two-lane undivided roadway configuration from south of the future Sand Creek Road right-of-way to the main entry and all necessary turning lanes at intersections, as well as right-of-way for the ultimate four-lane configuration. Phase I would also include construction of the main entry and the potential EVA/pedestrian bridge.

Phase II of the proposed project would include construction of approximately 1,000 additional lineal feet of Hillcrest Avenue in a two-lane undivided roadway configuration from south of the main entry to the southerly EVA/secondary entry intersection. Phase II would also include construction of the southern EVA into the eastern neighborhood area. Phase III of the proposed project would include construction of the southern secondary entry on the west side of Hillcrest Avenue, across from the Phase II EVA. It should be noted that the main entry to the Phase I and II development is proposed to be gated, while the proposed Phase III development west of Hillcrest Avenue would not be gated. Ultimate construction of the four-lane Hillcrest Avenue configuration would occur as part of buildout of future residential uses on the area to the west of the project site (Albers Ranch), when such development necessitates connection to Hillcrest Avenue.

A new traffic signal would be installed at the main entry. Pedestrian access to the site would be provided by a sidewalk located on Hillcrest Avenue, adjacent to the project site, as well as by the proposed pedestrian trail connection within the northeast corner of the project site. Pedestrian facilities are not proposed on the west side of Hillcrest Avenue.

Interior vehicular circulation would be provided by a traditional grid pattern of private two-way streets that connect back to the entrances. The private streets are proposed with a 41-foot right-of-way, including 36 feet curb-to-curb with a five-foot attached monolithic sidewalk on one side of the street. The streets would allow two-way traffic and parking on both sides. Each residential unit would have a two-car garage and driveway with additional street parking.

Parks, Trails, Open Space, Landscaping, and Fencing

As part of the proposed project, a total of 3.9 acres would be developed as private parks (Parcels B, C, G, and J) (see Figure 5).

Parcels B and C, located in the northeastern portion of the site are anticipated to include a children's play area, picnic areas, a community pool, and a passive play area; however, the ultimate programming of the parks would be dictated by the City of Antioch Parks and Recreation Commission. As noted previously, the proposed project may include construction of a new EVA/pedestrian bridge within Parcel C, which includes an existing PG&E-owned bridge over Sand Creek. The project would include a new private pedestrian trail connection extending from the proposed residential neighborhood across either the new bridge or the existing PG&E bridge to connect to the public Sand Creek Trail included in the planned Promenade/Vineyards at Sand Creek development to the north of the site.

Figure 5
Preliminary Landscaping Plan



Parcel G, located at the northern edge of the proposed residential neighborhood, would consist of an open meadow with non-irrigated grasses and oak trees. Parcel J, located in the southwestern portion of the site, would include an open meadow area with a concrete pedestrian path, benches, and various other landscaping features.

Parcels A, P, and M, which include Sand Creek, as well as a 200-foot-wide buffer to the south of the creek, would be preserved as private land and would not be graded or otherwise disturbed as part of the project, with the exception of a storm drain outfall within Parcel M. Parcel A has been deed-restricted as open space for environmental purposes as part of the Promenade/Vineyards at Sand Creek project. The buffer would include the full extent of the 100-year floodplain associated with Sand Creek. In addition, the eastern and western hill forms within the site would be retained as private land and would not be developed with any residential uses or other permanent structures (Parcels F, L, and N). Minor grading activities totaling approximately 11 acres would be required within Parcels F and L; however, the upper portions of the hillsides would remain undisturbed. The grading activities would be required to accommodate the proposed detention basin, adjacent to Parcel F, and to accommodate the grade of the proposed Hillcrest Avenue extension, adjacent to Parcel L. Parcel N, which includes an 8.0-acre area located along the western site boundary, would continue to be deed-restricted.

Landscaping features would be provided throughout the proposed development area, and would conform to the requirements and provisions of Section 9-5.1001 of the City of Antioch Municipal Code. Project landscaping would consist of street trees, shrubs, groundcover, agricultural plantings, and open lawn areas. Both the project entries would be landscaped, as would the east side of Hillcrest Avenue and the roadway medians. Private landscaping and parks throughout the project site would be maintained by a Homeowners Association (HOA). Individual residences would also be landscaped with trees, shrubs, groundcover and some lawns, and would be maintained by either the individual owners or the HOA. Public spaces, common spaces, and private landscaping areas would have an emphasis on drought-tolerant and adaptive plant species.

Along the project frontage at Hillcrest Avenue, the project would include a new masonry sound wall with veneer pilasters (see Figure 6). In addition, the project would include six-foot-tall tube steel fencing at the rear of the residential lots adjacent to the proposed open space areas. Within the proposed residential neighborhoods, lots would be separated by six-foot-tall good neighbor fencing.

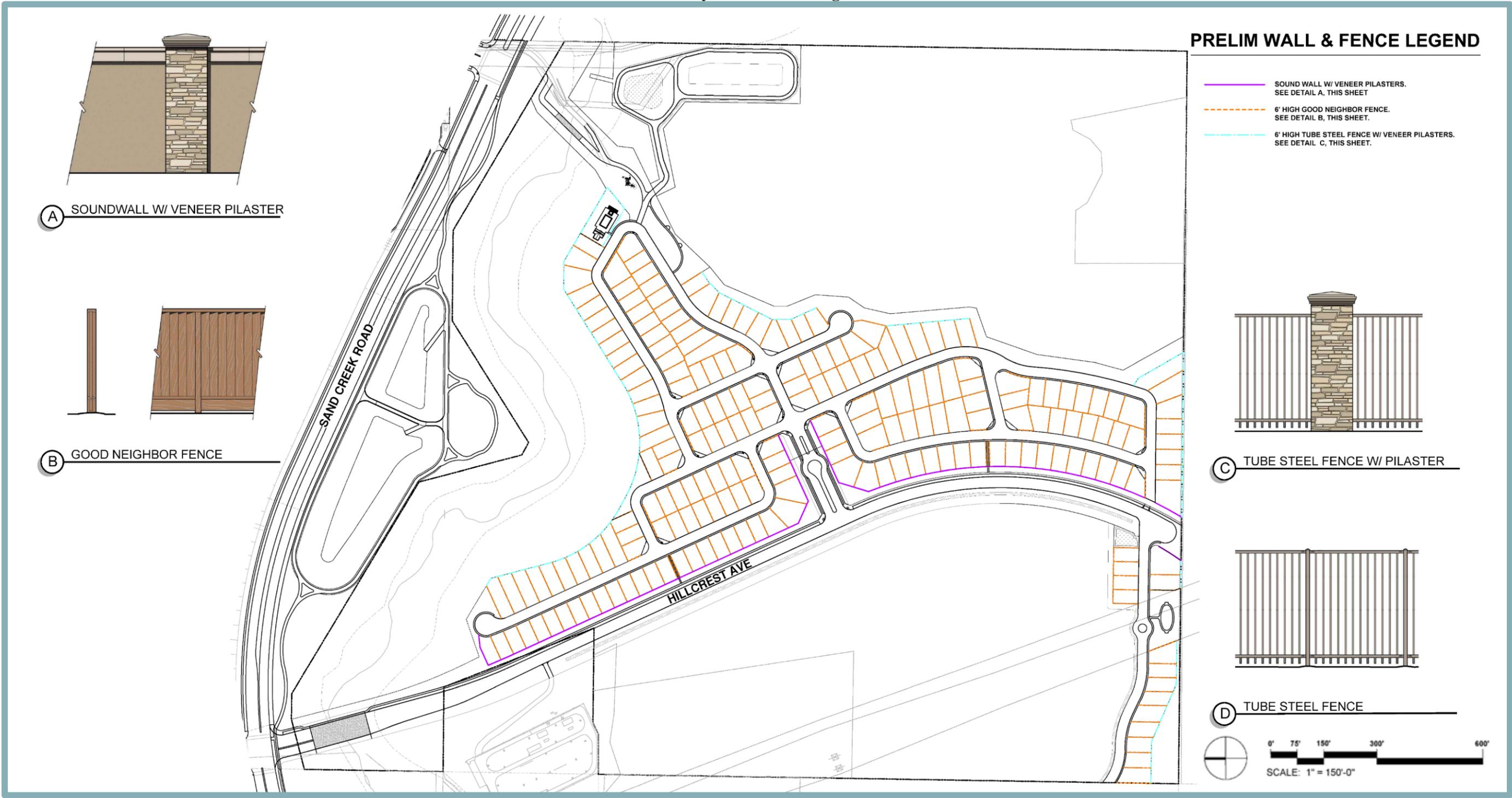
Utilities

Figure 7 provides an overview of the proposed water, sewer, stormwater, and electrical/communications utility improvements associated with the project.

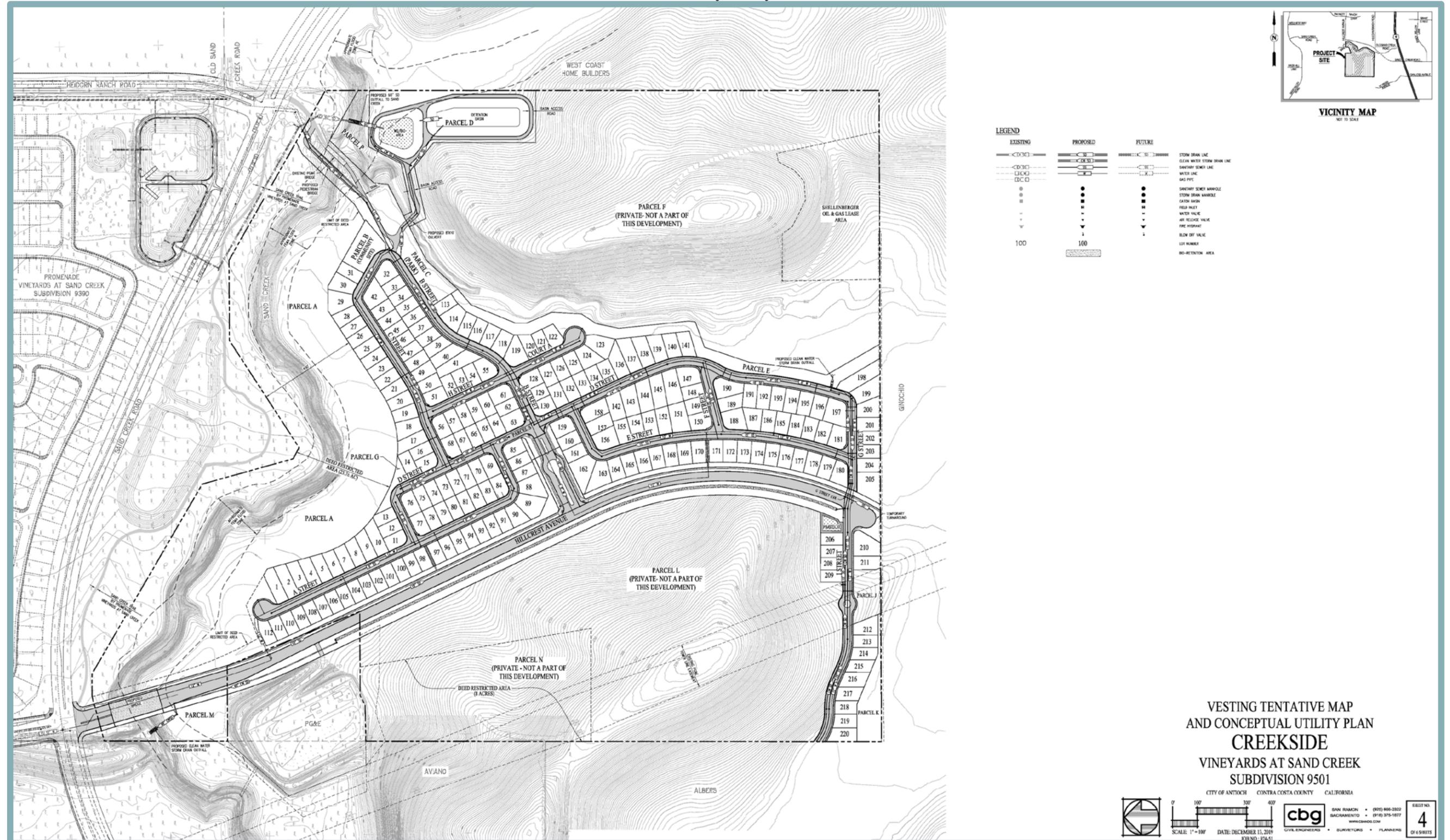
Potable water would be distributed to the project site by an extension of the existing 16-inch Zone III trunk line in Hillcrest Avenue. The waterline would be looped back to a Heidorn Ranch Road line by way of a connection over Sand Creek, at the same location as the existing PG&E bridge. The City has also indicated an interest in reserving space in Phase III of the project to facilitate looping of the waterline within Hillcrest Avenue for future residential development to the west of the project site. Sanitary sewer service would be provided to the project site by an extension of the existing 24-inch sanitary sewer pipe from the Promenade/Vineyards at Sand Creek Project through a connection over Sand Creek at the same location as the existing PG&E bridge.

The project site naturally drains to the northeast. The site is within the Sand Creek Drainage Area, and is located just downstream of Sand Creek Basin, a regional detention facility recently constructed by the Contra Costa County Flood Control District.

Figure 6
Preliminary Wall and Fencing Plan



**Figure 7
Preliminary Utility Plan**



While construction has been completed, the facility is not yet operational. Stormwater runoff from the proposed development area (Hillcrest Avenue and the proposed residential neighborhoods) would be directed to new detention and bio-retention basins located within the northeastern portion of the site (Parcel D). The basins would provide for treatment and detention of captured stormwater runoff. Treated stormwater runoff would flow into Sand Creek by way of a new outfall structure to be constructed on the south side of the existing outfall facility that was constructed by the Promenade/Vineyards at Sand Creek Project.

Stormwater runoff from the open space area in the western hillside of the project site (Parcels L and N) would be captured prior to reaching Hillcrest Avenue; a portion of the captured runoff would be directed north to a new clean water outfall adjacent to the Hillcrest Avenue bridge and the remainder would be directed east to a new clean water outfall releasing towards an existing natural drainage feature within the southern portion of the project site. The eastern hillslope (Parcel F) would continue to drain naturally into the same natural drainage area as occurs under existing conditions.

Electricity for the proposed project would be provided by PG&E. Telecommunications would be provided by AT&T, Comcast, and Astound. Dry utilities, electrical, gas, and technology lines would be extended from existing lines beneath Hillcrest Avenue.

Off-Site Improvements

In order to construct the proposed Hillcrest Avenue roadway extension, a total of 0.25-acre of off-site improvement area would be required to create the planned intersection with Sand Creek Road. The off-site improvement area is primarily flat and is located north of the project site, on the Promenade/Vineyards at Sand Creek Project site. Additional off-site improvements would be necessary to extend Hillcrest Avenue through the eastern edge of the PG&E carve-out parcel at the site's western boundary. The extension through the PG&E parcel has been anticipated by the landowners and is required to replace the overland access easement that PG&E currently uses.

In addition, the proposed project would include construction of new off-site sewer and water connections across Sand Creek near Heidorn Ranch Road. The Promenade/Vineyards at Sand Creek Project proposes to extend such utilities and their easements (located west of Parcel E, Subdivision 9360) to the south of the ultimate Sand Creek Road right-of-way. The proposed project would extend the utilities further south to the project site, crossing Sand Creek with a new pedestrian/EVA bridge, adjacent to the existing PG&E bridge. Overall, the off-site improvement areas would total 1.8 acres.

Project Construction

All project improvements, including off-site improvements, are anticipated to be built over three phases. Phase I of the project would commence after resource agency permits are obtained (anticipated in 2022), and Phase III is expected to be completed within four years of Phase I. All residential lots within the project site would be pad graded. Overall, the site is anticipated to balance; thus, substantial import or export of soil materials would not be required. Accounting for the proposed off-site improvements, as well as minor grading activities within Parcels F and L, the proposed project would include disturbance of approximately 71.7 acres.

Table 2 below provides a summary of the proposed disturbance area associated with the proposed project.

Table 2 Proposed Disturbance Area	
Proposed Use	Acreage
On-Site Development Area (Permanent Disturbance)	58.9
Off-Site Improvement Area (Permanent Disturbance)	1.8
Graded Open Space (Temporary Disturbance)	11.0
Undisturbed	88.3
Total Disturbance	71.7

PROJECT ENTITLEMENTS AND APPROVALS:

Requested project entitlements are anticipated to include the following:

- General Plan Amendment. The proposed project would require the approval of a General Plan text and map amendment to the Sand Creek Focus Area of the General Plan to change the land use designations of the site from Open Space/Senior Housing and Hillside, Estate and Executive Residential/Open Space to Medium Low Density Residential/Open Space.
- Master Development Plan/Rezone. The proposed project would require a Rezone from S to PD. The PD would include special development standards for the project.
- Vesting Tentative Subdivision Map. The proposed project would require approval of Small Lot and Large Lot Vesting Tentative Subdivision Maps for the subdivision of the project site into multiple parcels to accommodate a total of 220 single-family residential units, as well as public roadway, parks, and open space parcels;
- Use Permit. A Use Permit is required to further clarify the details of each phase of the proposed project and to ensure that each component complies with established provisions of the proposed PD district.
- Design Review. The proposed project would require Design Review to authorize the proposed building conceptual architecture, landscaping, and site design of the residential community and to ensure consistency with the City of Antioch’s General Plan and Zoning Ordinance design policies and criteria, except where specifically amended by the requested approvals.
- Resource Management Plan. Pursuant to section 4.4.6.7(t) of the City of Antioch General Plan, the applicant will prepare a Resource Management Plan for City approval.
- Development Agreement. The Development Agreement would allow the City and the applicant to enter into an agreement to assure the City that the proposed project would be completed in compliance with the plans submitted by the applicant, and assure the applicant of vested rights to develop the project.

In addition to approvals from the City of Antioch, the proposed project would require the following approvals/permits from other responsible and trustee agencies:

- Section 404 Nationwide Permit (or Letter of Permission) (U.S. Army Corps of Engineers);
- Section 401 Water Quality Certification (Central Valley Regional Water Quality Control Board); and
- Potential Section 1600 Lake or Streambed Alteration Agreement (California Department of Fish and Wildlife).

PROBABLE ENVIRONMENTAL EFFECTS:

The City has reviewed the proposed project and has prepared an Initial Study (see attached). Based on the analysis within the Initial Study, the City and has determined that an EIR should be prepared for the

proposed project to address potential project-related impacts to the following environmental resource areas: Air Quality, Greenhouse Gas Emissions, and Transportation. All other CEQA issue areas were determined to be less than significant with implementation of the mitigation measures included in the Initial Study.

Each resource area chapter will include a discussion of the existing setting, thresholds of significance, evaluation of potential impacts, and if necessary, feasible mitigation measures to reduce or eliminate potentially significant impacts. In addition, statutorily required sections and discussion of project alternatives will be included. Some refinement to the aforementioned issues may be required based on comments received during the NOP scoping process. The following section describes each of the technical Chapters of the EIR in further detail.

Air Quality and Greenhouse Gas Emissions

The Air Quality and Greenhouse Gas Emissions chapter of the EIR will summarize the regional air quality setting, including climate and topography, existing ambient air quality, regulatory setting, and presence of any sensitive receptors near the project site. The significance of air quality impacts will be determined in comparison to BAAQMD-recommended significance thresholds of significance. The chapter will additionally address toxic air contaminant (TAC) emissions, utilizing the California Air Resource Board (CARB) “Air Quality and Land Use Handbook: A Community Health Perspective.” The project’s cumulative contribution to regional air quality will be discussed, based in part on the modeling conducted at the project level. Air quality emissions will be modeling using project-specific information applied to the California Emissions Estimator Model (CalEEMod) software. The significance of air quality impacts will be determined in comparison to BAAQMD recommended significance thresholds. Mitigation measures will be incorporated to reduce any significant air quality impacts, and anticipated reductions in emissions associated with proposed mitigation measures will be quantified.

The Greenhouse Gas (GHG) section will also use CalEEMod to produce an estimate of carbon dioxide emissions, including indirect emissions of GHGs (e.g., electricity, natural gas). Emissions will be expressed in units of carbon dioxide equivalents. The analysis will include a discussion of Assembly Bill (AB) 32 and Senate Bill (SB) 32, in compliance with the California 2017 Climate Change Scoping Plan. Emission estimates will also be compared to the City of Antioch’s Community and Municipal Climate Action Plans and BAAQMD thresholds. With respect to AB 32 and SB 32, the chapter will include a comparison of the estimated emissions to appropriate statewide thresholds. The analysis will discuss the project’s applicable mitigation measures, if needed, for reducing GHG impacts.

Transportation

The Transportation chapter of the EIR will incorporate a Traffic Impact Analysis (TIA) provided to evaluate impacts of the proposed project on existing and future transportation systems. The TIA will be used to examine potential impacts of the proposed project on the following study intersections:

1. Lone Tree Way at Hillcrest Avenue
2. Lone Tree Way at Heidorn Ranch Road
3. Sand Creek Road at Deer Valley Road
4. Sand Creek Road at Hillcrest Avenue (Future Intersection)
5. Sand Creek Road at Heidorn Ranch Road (Future Intersection)
6. Sand Creek Road at State Route 4 Eastbound Ramps
7. Sand Creek Road at State Route 4 Westbound Ramps

The following freeway segments will also be analyzed in the Transportation chapter:

8. State Route 4, west (north) of Lone Tree Way
9. State Route 4, west (north) of Sand Creek Road
10. State Route 4, west (north) of Balfour Road
11. State Route 4, east (south) of Balfour Road

In addition, the chapter will evaluate the adequacy of site access, emergency access, possible design hazards, and on-site circulation. The chapter will also include additional analysis of Vehicle Miles Traveled (VMT) induced by the proposed project. Recommended mitigation measures will be incorporated, if necessary, to reduce significant transportation impacts.

Statutorily Required Sections

Pursuant to CEQA Guidelines Section 21100(B)(5), the Statutorily Required Sections chapter of the EIR will address the potential for growth-inducing impacts of the proposed project, focusing on whether removal of any impediments to growth would occur with the project. A summary of the significant and unavoidable impacts identified within the EIR will be included in this chapter, as well as a discussion of significant irreversible impacts. The chapter will also summarize the cumulative impact analyses, which will be provided in each technical chapter of the EIR.

Alternatives Analysis

In accordance with Section 15126.6(a) of the CEQA Guidelines, the EIR will include an analysis of a range of alternatives, including a No Project Alternative. Consideration will be given to potential off-site locations consistent with CEQA Guidelines, Section 15126.6(f)(2), and such locations will be determined in consultation with City staff. If it is determined that an off-site alternative is not feasible, the EIR will include a discussion describing why such a conclusion was reached. The project alternatives will be selected when more information related to project impacts is available in order to be designed to reduce significant project impacts. The chapter will also include a section of alternatives considered but dismissed, if necessary. The Alternatives Analysis chapter will describe the alternatives and identify the environmentally superior alternative. The alternatives will be analyzed at a level of detail less than that of the proposed project; however, the analyses will include sufficient detail to allow a meaningful comparison of the impacts. Such detail may include conceptual site plans for each alternative, basic quantitative traffic information (e.g., trip generation), as well as a table that will compare the features and the impacts of each alternative.



Alexis Morris
Planning Manager, City of Antioch

March 16, 2020

Date

Attachment

Creekside/Vineyards at Sand Creek Initial Study

**CITY OF ANTIOCH
COMMUNITY DEVELOPMENT DEPARTMENT**

**ANTIOCH
CALIFORNIA**

Creekside/Vineyards at Sand Creek

INITIAL STUDY

March 2020



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- Appendix B: Geotechnical Summary Report
- Appendix C: Phase I Environmental Site Assessment
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INITIAL STUDY

March 2020

A. PROJECT INFORMATION

1. Project Title: Creekside/Vineyards at Sand Creek Project
2. Lead Agency Name and Address: City of Antioch
Community Development Department
P.O. Box 5007
Antioch, CA 94531
3. Contact Person and Phone Number: Alexis Morris
Planning Manager
(925) 779-7035
4. Project Location: Southeast of future Sand Creek Road/
Hillcrest Avenue intersection
Antioch, CA 94513
5. Project Sponsor's Name and Address: GBN Partners, LLC
Lisa Borba
3820 Blackhawk Road
Danville, CA 94506
(925) 736-1571
6. Existing General Plan Designation: Sand Creek Focus Area: "Open Space/
Senior Housing" and "Hillside, Estate and
Executive Residential/Open Space"
7. Proposed General Plan Designation: Medium Low Density Residential/Open Space
8. Existing Zoning Designation: Study Area (S)
9. Proposed Zoning Designation: Planned Development District (PD)
10. Required Approvals from Other Public Agencies:
Section 404 Nationwide Permit (or Letter of Permission) (USACE)
Section 401 Water Quality Certification (RWQCB – Central Valley Region)
Potential Section 1600 Lake or Streambed Alteration Agreement (CDFW)
11. Surrounding Land Uses and Setting:

The majority of the surrounding area has been approved or planned for residential development. Within the City of Antioch, the area to the north of the project site is currently approved for development with residential uses as part of the Promenade/Vineyards at Sand Creek project. Other development is currently contemplated to the northwest, southwest, and east of the site. An existing PG&E-owned parcel developed with an

electrical substation, designated Public/Quasi Public per the General Plan, is located within a carve-out parcel at the site's western boundary. The area to the south of the project site consists of undeveloped dry-farmed land outside the City's Sphere of Influence and Planning Area, within unincorporated Contra Costa County. The City of Brentwood city limits are located to the east of the project site.

12. Project Description Summary:

The Creekside/Vineyards at Sand Creek Project (proposed project) would include development of 220 single-family residential units and associated improvements on approximately 58.9 acres of the 158.2-acre project site, as well as 1.8 acres of off-site improvements. The proposed project would require an amendment to the City of Antioch General Plan, a Rezone, a Use Permit, a Vesting Tentative Map, Design Review, and a Development Agreement.

13. Status of Native American Consultation Pursuant to Public Resources Code Section 21080.3.1:

In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Lone Band of Miwok Indians. In addition, because the proposed project includes a request for a General Plan Amendment (GPA), in compliance with Senate Bill (SB) 18, the City of Antioch also sent SB 18 notification letters to all the tribes included on the NAHC's tribal consultation list for Contra Costa County. The letters were distributed on January 31, 2020. Wilton Rancheria and the Northern Valley Yokuts Tribe and Nototomne Cultural Preservation provided responses, requesting copies of relevant cultural information and other project information; however, requests to initiate formal consultation were not received from Wilton Rancheria, the Northern Valley Yokuts Tribe and Nototomne Cultural Preservation, or any other of the contacted tribes. The City will continue to engage in discussions with local tribes as necessary throughout the CEQA process.

B. SOURCES

The following documents are referenced information sources used for the purposes of this Initial Study:

1. Balance Hydrologics, Inc. *Stormwater Control Plan for Creekside Vineyards at Sand Creek*. July 2019.
2. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.
3. California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed January 2020.
4. California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.
5. California Department of Transportation. *Scenic Highways*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed January 2020.
6. California Energy Commission. *2019 Building Energy Efficiency Standards*. March 2018.
7. City of Antioch. *2015 Urban Water Management Plan*. May 2016.

8. City of Antioch. *About APD*. Available at: <http://www.antiochca.gov/police/about-apd/>. Accessed January 2020.
9. City of Antioch. *Antioch General Plan Update EIR*. July 2003.
10. City of Antioch. *City of Antioch Housing Element 2015-2023*. Adopted April 14, 2015.
11. City of Antioch. *Citywide Design Guidelines Manual*. October 2009.
12. City of Antioch. *General Plan*. Updated November 24, 2003.
13. City of Antioch. *Vineyards at Sand Creek, Environmental Impact Report, SCH#2014092010*. February 10, 2016.
14. Contra Costa Clean Water Program. *Applicability of Hydromodification Management (HM) Requirements in Contra Costa*. Available at: <https://www.arcgis.com/apps/webappviewer/index.html?id=d8a16600921140b0ab5363a7d507a5da>. Accessed January 2020.
15. Contra Costa Clean Water Program. *Stormwater C.3. Guidebook, Stormwater Quality Requirements for Development Applications*. May 17, 2017.
16. Contra Costa County Department of Conservation and Development. *2016 Agricultural Preserves Map*. February 1, 2017.
17. California Geological Survey. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed March 2020.
18. ENGEO Inc. *Creekside, Antioch, California, Preliminary Geotechnical Summary Report*. February 27, 2019.
19. ENGEO, Inc. *Creekside, Antioch, California, Phase I Environmental Site Assessment*. March 1, 2019.
20. Fehr & Peers. *Transportation Impact Assessment, Creekside (Vineyards at Sand Creek)*. February 2020.
21. j.c. brennan & associates, Inc. *Creekside Vineyards at Sand Creek, Environmental Noise Assessment*. February 21, 2020.
22. Kimley-Horn and Associates, Inc. *Peer Review of the Creekside (Vineyards at Sand Creek) Project in Antioch, CA*. November 20, 2019.
23. Madrone Ecological Consulting. *Peer review for the proposed Vineyards at Sand Creek Project, City of Antioch, Contra Costa County, California*. February 4, 2020.
24. Monk & Associates, Inc. *Administrative Draft Biological Resource Analysis, Creekside Development Project, Antioch, Contra Costa County, California*. February 13, 2020.
25. Native American Heritage Commission. *Re: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, Creekside/Vineyards at Sand Creek Project, Contra Costa County*. January 22, 2020.
26. Natural Investigations Company. *Cultural Resources Assessment for the Creekside Vineyards at Sand Creek Subdivision Project, Antioch, Contra Costa County, California*. February 2020.
27. San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2019-0035, NPDES No. CA0038547*. Adopted December 11, 2019.
28. Stewarts Tree Service, Inc. *Tree Survey, Creekside, Antioch*. July 30, 2019.
29. SWT Engineering. *Joint Technical Document, Keller Canyon Landfill (SWIS NO. 07-AA-0032)*. May 2016.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|---|--|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology and Soils | <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

D. DETERMINATION

On the basis of this initial study:

- I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the applicant. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

Alexis Morris, Planning Manager
Printed Name

March 16, 2020

Date

City of Antioch
For

E. BACKGROUND AND INTRODUCTION

This Initial Study identifies and analyzes the potential environmental impacts of the Creekside/Vineyards at Sand Creek Project (proposed project). The information and analysis presented in this document is organized in accordance with the order of the California Environmental Quality Act (CEQA) checklist in Appendix G of the CEQA Guidelines. Where the analysis provided in this document identifies potentially significant environmental effects of the project, mitigation measures are prescribed.

The mitigation measures prescribed for environmental effects described in this Initial Study would be implemented in conjunction with the project, as required by CEQA. The mitigation measures would be incorporated into the project through project conditions of approval. The City would adopt findings and a Mitigation Monitoring/Reporting Program for the project in conjunction with approval of the project.

In 2003, the City of Antioch completed a comprehensive update of the City's General Plan and adopted an Environmental Impact Report (EIR) for the updated General Plan. The General Plan EIR is a program EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations, Sections 15000 *et seq.*). The General Plan EIR analyzed full implementation of the General Plan and identified measures to mitigate the significant adverse impacts associated with the General Plan. Consistent with Section 15150 of the CEQA Guidelines, applicable portions of the General Plan and General Plan EIR are incorporated by reference as part of this Initial Study.

In 2016, the City certified an EIR for the Promenade/Vineyards at Sand Creek Project, located directly to the north of the project site. The Promenade/Vineyards at Sand Creek Project, which is currently under construction, will include development of up to 650 single-family residential units and associated improvements, including extension of Sand Creek Road westward from Old Sand Creek Road, and extension of Hillcrest Avenue southward towards the project site. The proposed project is independent of the Promenade/Vineyards at Sand Creek project, but would connect to planned infrastructure improvements to be constructed as part of that project.

F. PROJECT DESCRIPTION

The following provides a description of the project site's current location and setting, as well as the proposed project components and the discretionary actions required for the project.

Project Location

The project site consists of 158.2 acres located south of Sand Creek Road in the southeastern portion of the City of Antioch, California. The City of Antioch is located within eastern Contra Costa County and is bordered to the north by the San Joaquin River Delta; to the east by the City of Brentwood and the City of Oakley; to the west by the City of Pittsburg and unincorporated portions of Contra Costa County; and to the south by unincorporated portions of Contra Costa County (see Figure 1).

The project site is bordered by the City of Antioch/Contra Costa County line to the south and the City of Antioch/City of Brentwood limit to the east. Sand Creek is located to the north of the site, and State Route (SR) 4 is located approximately 0.38-mile east of the site (see Figure 2). The site is identified by Assessor's Parcel Number (APN) 057-050-024.

Figure 1
Regional Location

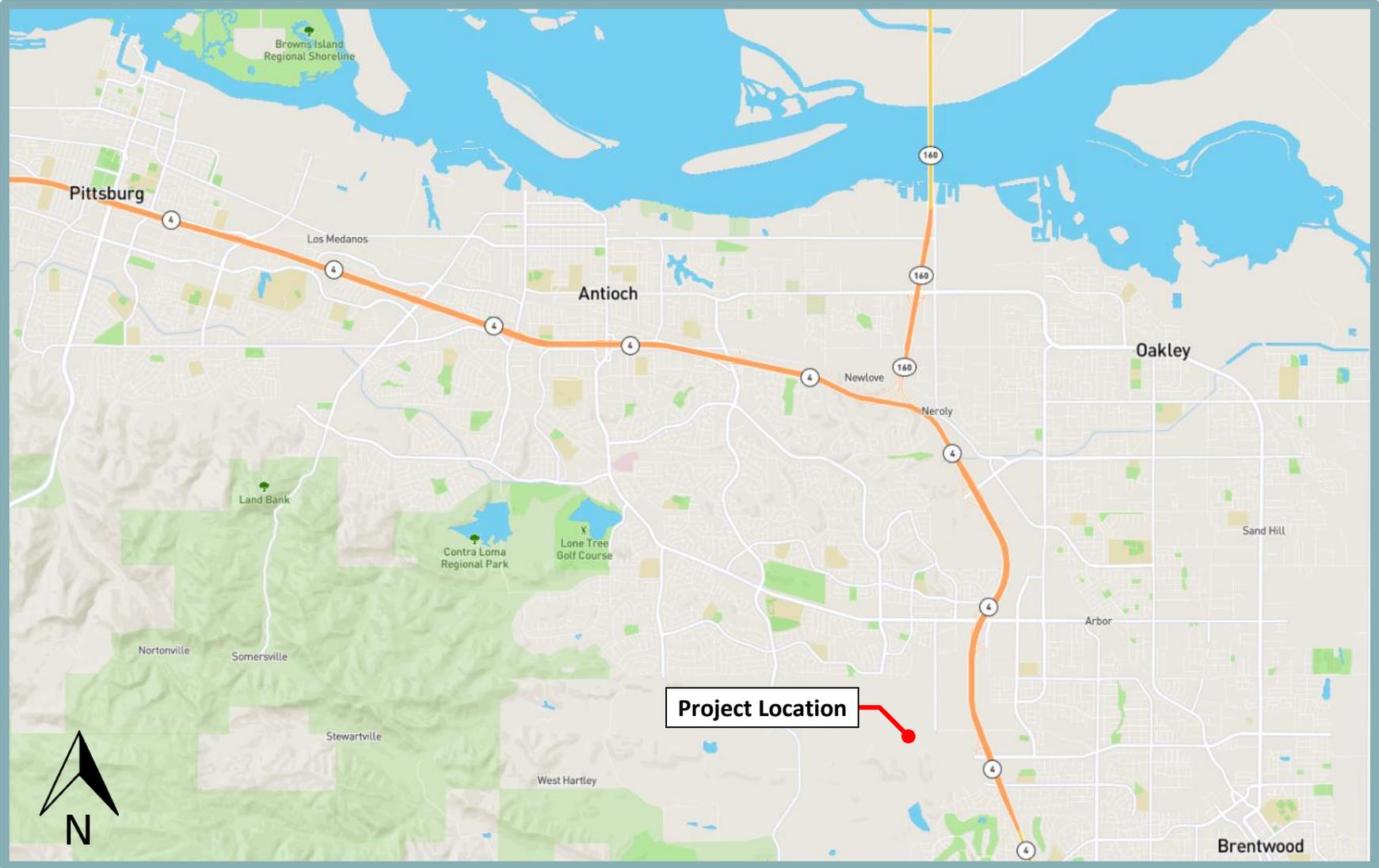
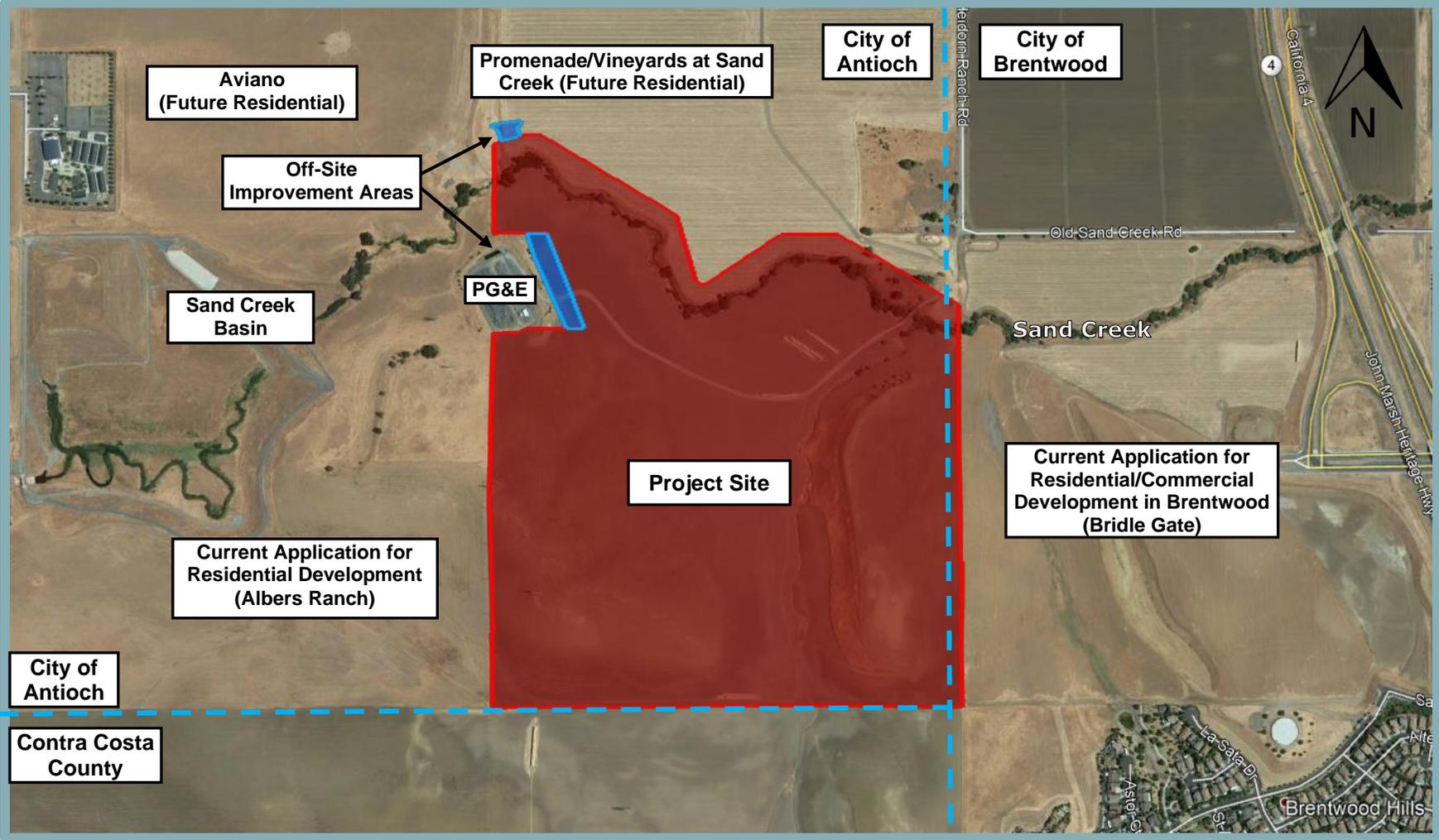


Figure 2
Project Location



The project site is situated within the Sand Creek Focus Area of the General Plan, which contains lands designated by the City of Antioch General Plan for open space, residential, commercial, and mixed-use development.

Project Setting and Surrounding Land Uses

The following sections describe the existing setting of the project site and the surrounding land uses in the project vicinity.

Project Site Setting

Per the City's General Plan, the eastern portion of the project site is designated Open Space/Senior Housing, while the western portion is designated Hillside, Estate and Executive Residential/Open Space. The site is zoned Study Area (S). Currently, the site consists primarily of ruderal grasses and is absent of structures or other indications of prior development.

The site is generally rectangular; however, the northern boundary shifts north and south in an irregular shape, following the alignment of Sand Creek. The site's terrain is characterized by a flat valley bordered by hill forms on the west and east sides. Elevations on-site range from 150 to 325 feet above mean sea level (msl). A shallow area exists at the base of the eastern hillslope and appears to collect local natural drainage during rainfall events, draining into Sand Creek. Sand Creek, a tributary of Marsh Creek, flows through the northern portion of the project site in an easterly direction.

The project site has been dry-land farmed since the 1930s and consists primarily of non-native vegetation. A total of nine energy and communication access and utility easements exist on the project site. Within the northeastern portion of the site, PG&E maintains an access easement that includes a bridge over Sand Creek, which allows PG&E to drive through the project site to access existing off-site utility infrastructure to the west of the project site. An existing PG&E tower line easement extends through the western portion of the project site. In addition, existing oil and gas pipelines within the project site run below ground and cross Sand Creek and the natural drainage area in a number of locations. A 10-foot-wide pole line easement extends along the length of the southern site boundary.

Surrounding Land Uses

As shown in Figure 2, the majority of the surrounding area has been approved or planned for residential development. Within the City of Antioch, the area to the north of the project site is currently approved for development with residential uses as part of the Promenade/Vineyards at Sand Creek project. The area to the northwest of the site is approved for development with the Aviano residential project. The area to the southwest of the project is anticipated for buildout with residential uses per the City's General Plan, and an application to develop the area with residential uses (Albers Ranch) has been received by the City. To the east of the project site, the City of Brentwood has received an application for development of the Bridle Gate project, which, if approved, would include both single-family and multi-family residential uses, and would allow for future development of commercial uses. An existing PG&E-owned parcel developed with an electrical substation, designated Public/Quasi Public per the General Plan, is located within a carve-out parcel at the site's western boundary. The area further to the west of the PG&E parcel includes the Sand Creek Basin, managed by the Contra Costa County Flood Control District. The area to the south of the project site consists of undeveloped dry-farmed land outside the City's Sphere of Influence and Planning Area, within unincorporated Contra Costa County.

Project Components

The proposed project would include development of 220 single-family residential units and associated improvements on approximately 58.9 acres of the 158.2-acre project site, as well as 1.8 acres of off-site improvements (see Figure 3). The project improvements would include, but would not be limited to, parks, trails, landscaping, circulation improvements, and utility installation. The remainder of the site, including Sand Creek and the associated buffer area, would be retained as open space.

The proposed project would require an amendment to the City of Antioch General Plan, a Rezone, a Use Permit, a Vesting Tentative Map, Design Review, and a Development Agreement. The project components are discussed in greater detail below.

General Plan Amendment

The proposed project would include a General Plan Amendment (GPA) to the Land Use Map for the Sand Creek Focus Area of the General Plan to change the land use designations of the site from Open Space/Senior Housing and Hillside, Estate and Executive Residential/Open Space to Medium Low Density Residential/Open Space, as well as an amendment to the text of the Sand Creek Focus Area of the General Plan in order to add the option of market rate or senior residential on small lots.

Master Development Plan/Rezone/Use Permit/Development Agreement

The proposed project would require approval of a Rezone to change the zoning designation of the site from S to Planned Development District (PD), subject to a Master Development Plan. The Master Development Plan and PD district would list the development standards applicable to the project site, including setbacks, lot sizes and building heights. Such details are included in the Creekside/Vineyards at Sand Creek Project Design Guidelines that have been prepared for the proposed project. A Use Permit would be required to further clarify the details of each phase of the proposed project and to ensure that each phase complies with established provisions of the proposed PD district.

In addition, the project would require a Development Agreement, which would allow the City and the applicant to enter into an agreement to assure the City that the proposed project would be completed in compliance with the plans submitted by the applicant, and assure the applicant of vested rights to develop the project.

Vesting Tentative Subdivision Map

The proposed project would include a Vesting Tentative Subdivision Map (see Figure 3) to subdivide the project site into 220 single-family residential lots, as well as parcels for associated improvements. Table 1 provides a summary of the proposed land uses. Each of the proposed land uses are described in further detail below.

Residential Uses

The proposed residential uses would represent a continuation of other planned development in the project vicinity, specifically the Promenade/Vineyards at Sand Creek Project to the north of the site. Thus, the neighborhood design, lot size, density, and house design included in the proposed project would be similar to what is anticipated for the Promenade/Vineyards at Sand Creek Project.

Figure 3
Vesting Tentative Subdivision Map

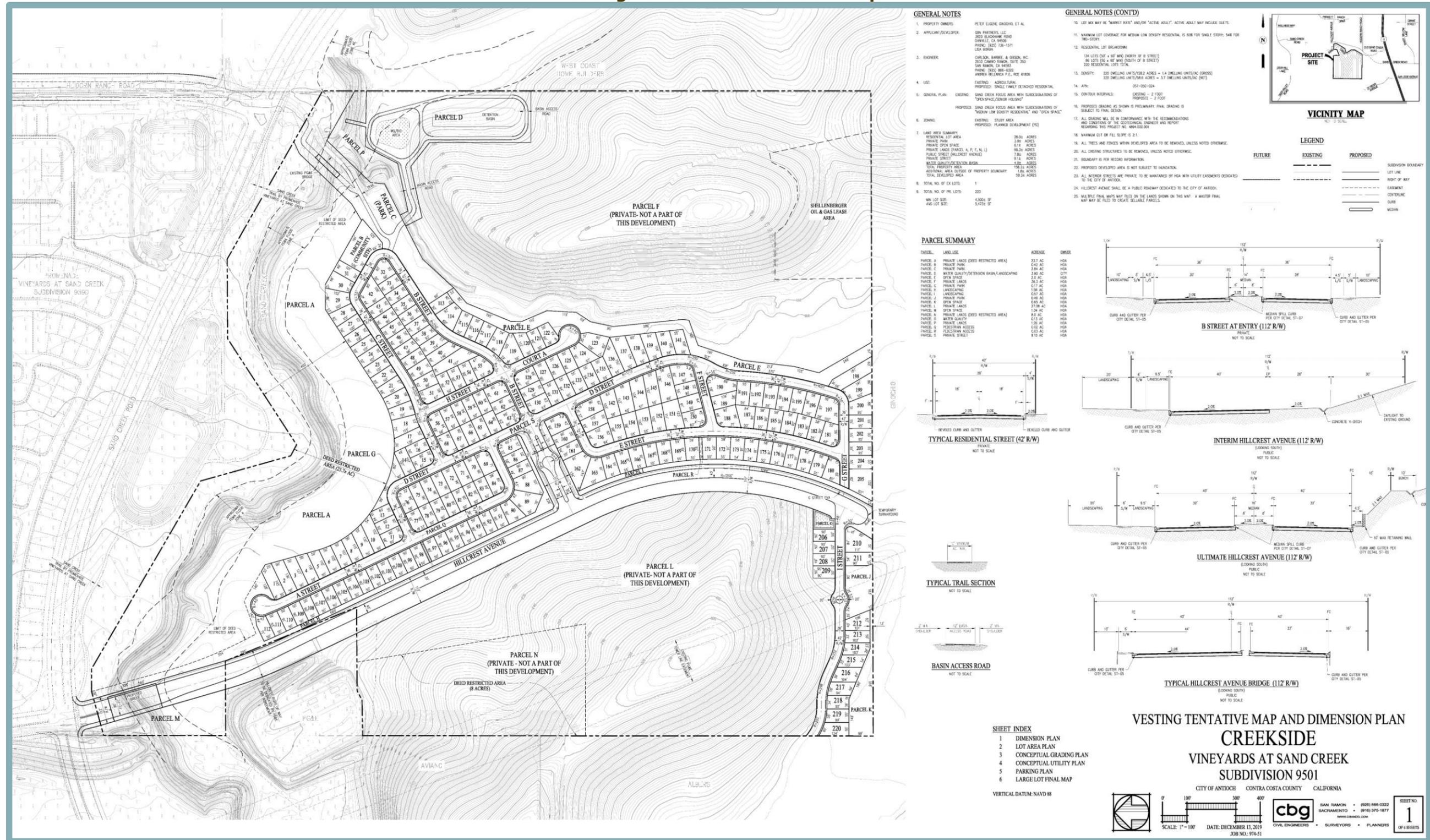


Table 1 Proposed Land Uses		
Proposed Land Use	Parcels	Acreage
Residential	--	28.0
Private Parks	B, C, G, J	3.9
Landscaping/Private Open Space	E, H, I, K, M, Q, R	6.1
Public Street (Hillcrest Avenue)	--	7.8
Private Streets	S	9.1
Water Quality/Detention	D, O	4.0
Private Land*	A, F, L, N, P	99.3
Total Project Site	--	158.2
* With the exception of approximately 11 acres proposed to be graded, the proposed project would not include disturbance of Parcels A, F, L, N, or P.		

The average density of the proposed residential development would be approximately 3.7 units/acre (net) (220 units/58.9 acres). Similar to the Promenade/Vineyards at Sand Creek project, at least six different models, each with three different elevations, would be constructed, on lots ranging from approximately 4,500 to 5,473 square feet (sf). The proposed residential units would consist of either market-rate units, senior/active adult units, or a combination of both.

The site is anticipated to be developed in three phases (Phases I, II, and III) (see Figure 4). Phase I would include construction of the residential lots east of Hillcrest Avenue and north of the main entry. Phase I would also include the community pool and associated recreational amenities within Parcels B and C. Phase II would include the residential lots east of Hillcrest Avenue and south of the main entry. Phase III would include the residential lots west of Hillcrest Avenue and a park area within the PG&E tower easement along Hillcrest Avenue.

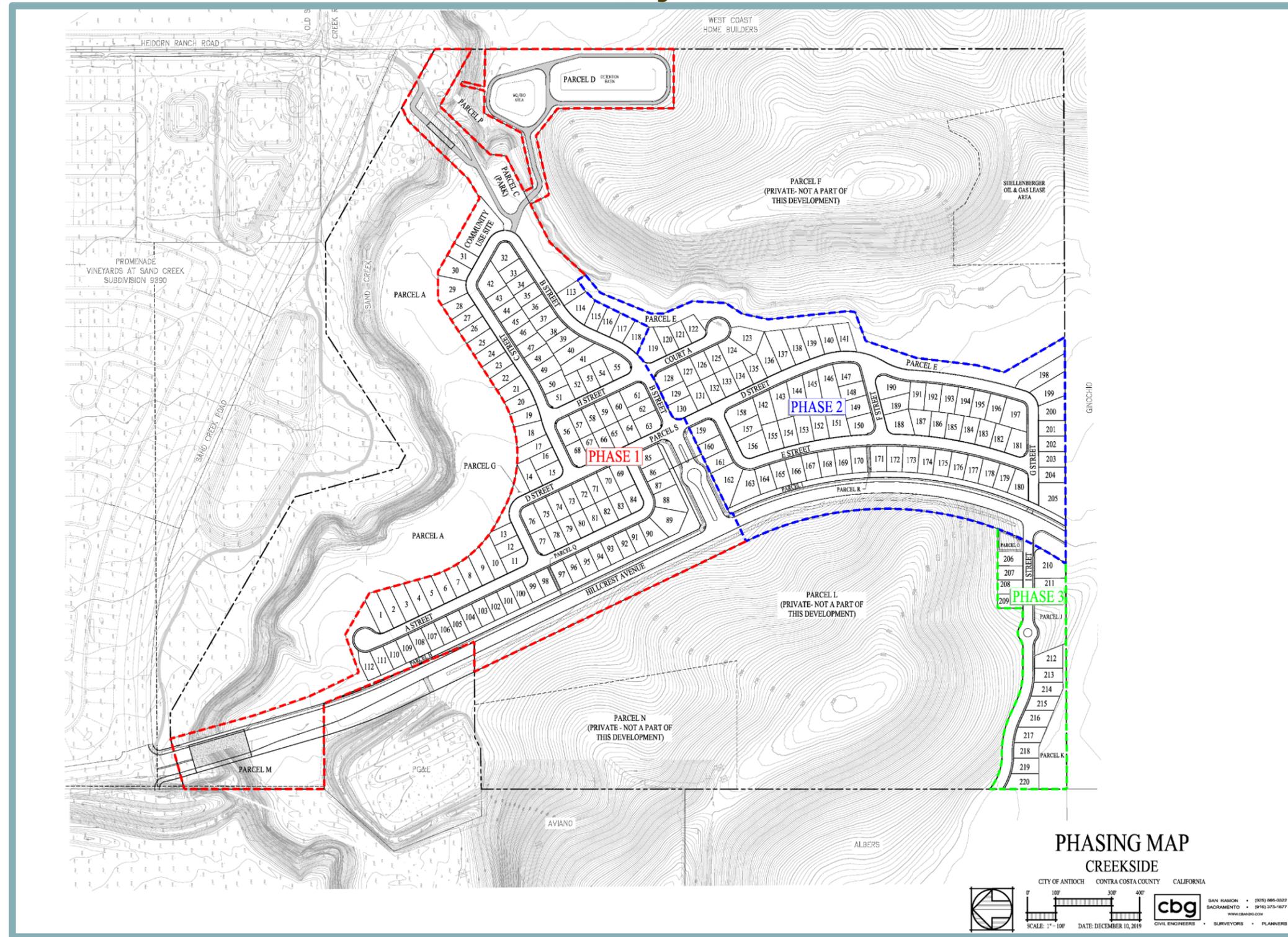
If developed as market-rate units, the majority of the proposed homes would be two-story, with two car garages. If developed as senior/active adult units, the proposed homes would include a mix of two-story and single-story homes.

Access and Circulation

As part of the project, Hillcrest Avenue would be extended through the project site. Hillcrest Avenue at the proposed location is identified in the City General Plan. The alignment of the roadway has been designed to span Sand Creek and provide permanent access to the existing PG&E facility and beyond.

Vehicular ingress and egress to the proposed project would be provided from Hillcrest Avenue by way of a centrally located main entry, and an emergency vehicle access (EVA)/secondary entry intersection to the south. In addition, a clear span EVA/pedestrian bridge may be constructed adjacent to the existing PG&E bridge spanning Sand Creek in the northeastern portion of the project site, subject to final negotiations with PG&E and final utility designs. The Hillcrest Avenue extension would include sidewalk and landscaping on the east side of the roadway. The Hillcrest Avenue bridge over Sand Creek would be constructed in the ultimate width to facilitate two southbound and two northbound lanes. Right-of-way improvements would be limited to the necessary roadway width, utilities, and pedestrian facilities within the area of the Sand Creek crossing.

Figure 4
Phasing Plan



Phase I of the proposed project would include construction of approximately 1,500 lineal feet of Hillcrest Avenue in a two-lane undivided roadway configuration from south of the future Sand Creek Road right-of-way to the main entry and all necessary turning lanes at intersections, as well as right-of-way for the ultimate four-lane configuration. Phase I would also include construction of the main entry and the potential EVA/pedestrian bridge.

Phase II of the proposed project would include construction of approximately 1,000 additional lineal feet of Hillcrest Avenue in a two-lane undivided roadway configuration from south of the main entry to the southerly EVA/secondary entry intersection. Phase II would also include construction of the southern EVA into the eastern neighborhood area. Phase III of the proposed project would include construction of the southern secondary entry on the west side of Hillcrest Avenue, across from the Phase II EVA. It should be noted that the main entry to the Phase I and II development would be gated, while the proposed Phase III development west of Hillcrest Avenue would not be gated and would provide access to the property to the west. Ultimate construction of the four-lane Hillcrest Avenue configuration would occur as part of buildout of future residential uses on the area to the west of the project site (Albers Ranch), when such development necessitates connection to Hillcrest Avenue.

A new traffic signal would be installed at the main entry. Pedestrian access to the site would be provided by a sidewalk located on Hillcrest Avenue, adjacent to the project site, as well as by the proposed pedestrian trail connection within the northeast corner of the project site. Pedestrian facilities are not proposed on the west side of Hillcrest Avenue.

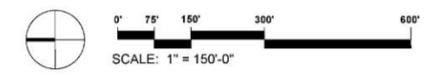
Interior vehicular circulation would be provided by a traditional grid pattern of private two-way streets that connect back to the entrances. The private streets are proposed with a 41-foot right-of-way, including 36 feet curb-to-curb with a five-foot attached monolithic sidewalk on one side of the street. The streets would allow two-way traffic and parking on both sides. Each residential unit would have a two-car garage and driveway with additional street parking.

Parks, Trails, Open Space, Landscaping, and Fencing

As part of the proposed project, a total of 3.9 acres would be developed as private parks (Parcels B, C, G, and J) (see Figure 5). Parcels B and C, located in the northeastern portion of the site are anticipated to include a children's play area, picnic areas, a community pool, and a passive play area; however, the ultimate programming of the parks would be dictated by the City of Antioch Parks and Recreation Commission. As noted previously, the proposed project may include construction of a new EVA/pedestrian bridge within Parcel C, which includes an existing PG&E-owned bridge over Sand Creek. The project would include a new private pedestrian trail connection extending from the proposed residential neighborhood across either the new bridge or the existing PG&E bridge to connect to the public Sand Creek Trail included in the planned Promenade/Vineyards at Sand Creek development to the north of the site. Parcel G, located at the northern edge of the proposed residential neighborhood, would consist of an open meadow with non-irrigated grasses and oak trees. Parcel J, located in the southwestern portion of the site, would include an open meadow area with a concrete pedestrian path, benches, and various other landscaping features.

Parcels A, P, and M, which include Sand Creek, as well as a 200-foot-wide buffer to the south of the creek, would be preserved as private land and would not be graded or otherwise disturbed as part of the project, with the exception of a storm drain outfall within Parcel M. Parcel A has been deed-restricted as open space for environmental purposes as part of the Promenade/Vineyards at Sand Creek project.

Figure 5
Preliminary Landscaping Plan



The buffer would include the full extent of the 100-year floodplain associated with Sand Creek. In addition, the eastern and western hill forms within the site would be retained as private land and would not be developed with any residential uses or other permanent structures (Parcels F, L, and N).

It should be noted that minor grading activities totaling approximately 11 acres would be required within Parcels F and L; however, the upper portions of the hillsides would remain undisturbed. The grading activities would be required to accommodate the proposed detention basin, adjacent to Parcel F, and to accommodate the grade of the proposed Hillcrest Avenue extension, adjacent to Parcel L. Parcel N, which includes an 8.0-acre area located along the western site boundary, would continue to be deed-restricted as a habitat area.

Landscaping features would be provided throughout the proposed development area, and would conform to the requirements and provisions of Section 9-5.1001 of the City of Antioch Municipal Code. Project landscaping would consist of street trees, shrubs, groundcover, agricultural plantings, and open lawn areas. Both the project entries would be landscaped, as would the east side of Hillcrest Avenue and the roadway medians. Private landscaping and parks throughout the project site would be maintained by a Homeowners Association (HOA). Individual residences would also be landscaped with trees, shrubs, groundcover and some lawns, and would be maintained by either the individual owners or the HOA. Public spaces, common spaces, and private landscaping areas would have an emphasis on drought-tolerant and adaptive plant species.

Along the project frontage at Hillcrest Avenue, the project would include a new masonry sound wall with veneer pilasters (see Figure 6). In addition, the project would include six-foot-tall tube steel fencing at the rear of the residential lots adjacent to the proposed open space areas. Within the proposed residential neighborhoods, lots would be separated by six-foot-tall good neighbor fencing.

Utilities

Figure 7 provides an overview of the proposed water, sewer, stormwater, and electrical/communications utility improvements associated with the project.

Potable water would be distributed to the project site by an extension of the existing 16-inch Zone III trunk line in Hillcrest Avenue. The waterline would be looped back to a Heidorn Ranch Road line by way of a connection over Sand Creek, at the same location as existing PG&E bridge. The City has also indicated an interest in reserving space in Phase III of the project to facilitate looping of the waterline within Hillcrest Avenue for future residential development to the west of the project site. Sanitary sewer service would be provided to the project site by an extension of the existing 24-inch sanitary sewer pipe from the Promenade/Vineyards at Sand Creek Project through a connection over Sand Creek at the same location as the existing PG&E bridge.

The project site naturally drains to the northeast. The site is within the Sand Creek Drainage Area, and is located just downstream of Sand Creek Basin, a regional detention facility recently constructed by the Contra Costa County Flood Control District. While construction has been completed, the facility is not yet operational. Stormwater runoff from the proposed development area (Hillcrest Avenue and the proposed residential neighborhoods) would be directed to new detention and bio-retention basins located within the northeastern portion of the site (Parcel D).

Figure 6
Preliminary Wall and Fencing Plan

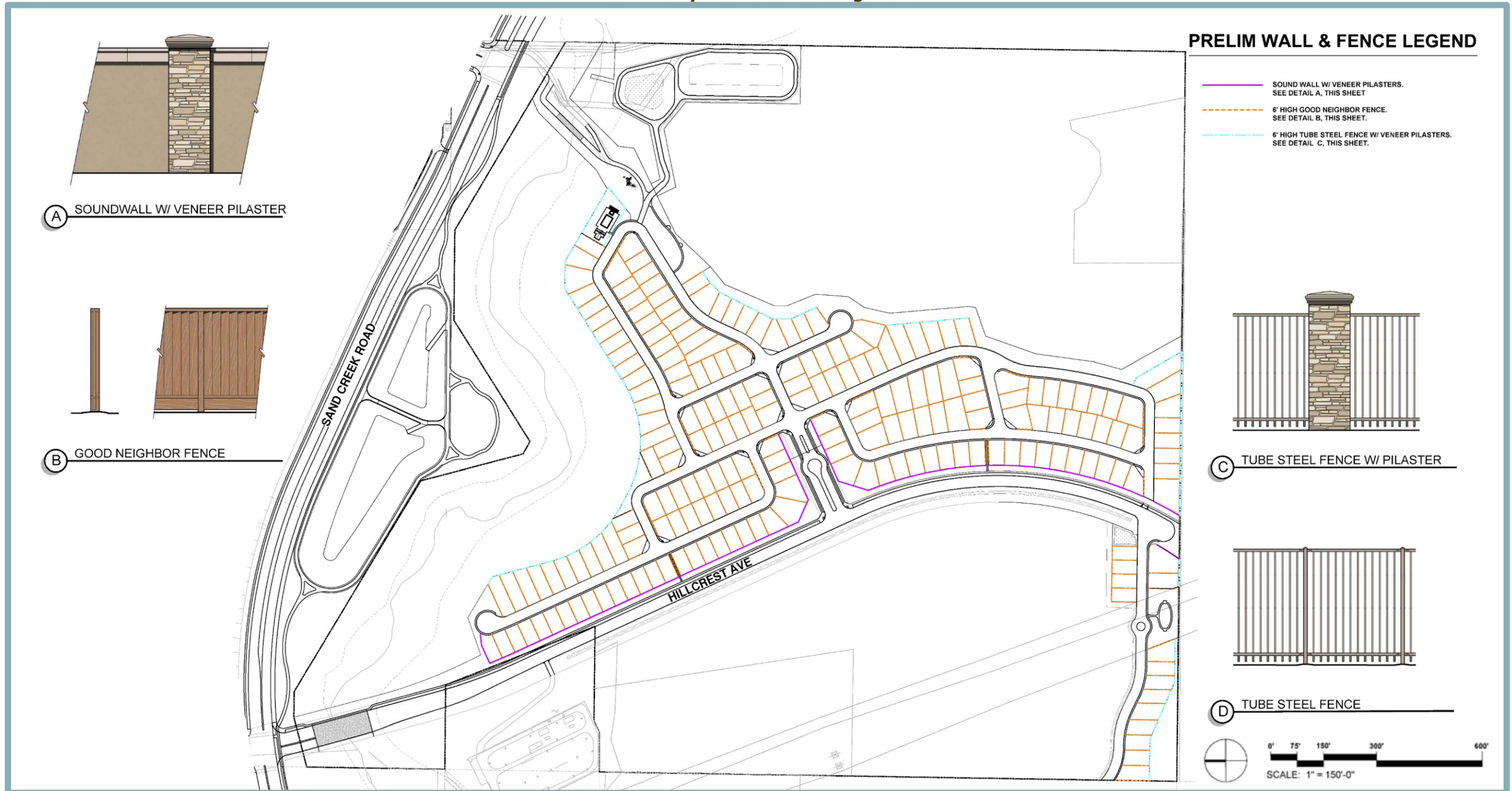
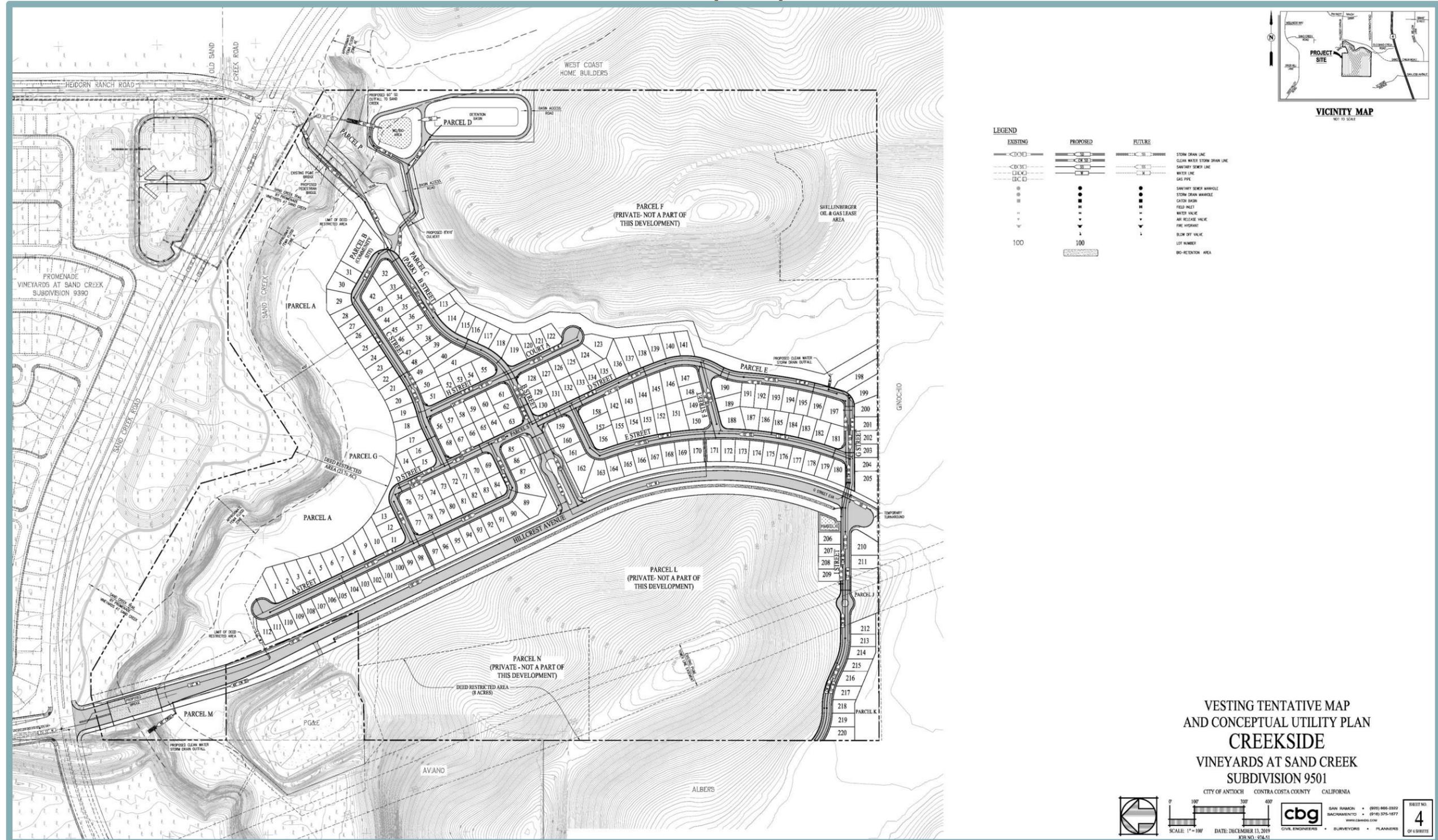


Figure 7
Preliminary Utility Plan



The basins would provide for treatment and detention of captured stormwater runoff. Treated stormwater runoff would flow into Sand Creek by way of a new outfall structure to be constructed on the south side of the existing outfall facility that was constructed by the Promenade/Vineyards at Sand Creek Project.

Stormwater runoff from the open space area in the western hillside of the project site (Parcels L and N) would be captured prior to reaching Hillcrest Avenue; a portion of the captured runoff would be directed north to a new clean water outfall adjacent to the Hillcrest Avenue bridge and the remainder would be directed east to a new clean water outfall releasing towards an existing natural drainage feature within the southern portion of the project site. The eastern hillslope (Parcel F) would continue to drain naturally into the same natural drainage area as occurs under existing conditions.

Electricity for the proposed project would be provided by PG&E. Telecommunications would be provided by AT&T, Comcast, and Astound. Dry utilities, electrical, gas, and technology lines would be extended from existing lines beneath Hillcrest Avenue.

Off-Site Improvements

In order to construct the proposed Hillcrest Avenue roadway extension, a total of 0.25-acre of off-site improvement area would be required to create the planned intersection with Sand Creek Road. The off-site improvement area is primarily flat and is located north of the project site, on the Promenade/Vineyards at Sand Creek Project site. Additional off-site improvements would be necessary to extend Hillcrest Avenue through the eastern edge of the PG&E carve-out parcel at the site's western boundary. The extension through the PG&E parcel has been anticipated by the landowners and is required to replace the overland access easement that PG&E currently uses.

In addition, the proposed project would include construction of new off-site sewer and water connections across Sand Creek near Heidorn Ranch Road. The Promenade/Vineyards at Sand Creek Project proposes to extend such utilities and their easements (located west of Parcel E, Subdivision 9360) to the south of the ultimate Sand Creek Road right-of-way. The proposed project would extend the utilities further south to the project site, crossing Sand Creek with a new pedestrian/EVA bridge, adjacent to the existing PG&E bridge. Overall, the off-site improvement areas would total 1.8 acres.

Project Construction

All project improvements, including off-site improvements, are anticipated to be built over three phases. Phase I of the project would commence after resource agency permits are obtained (anticipated in 2022), and Phase III is expected to be completed within four years of Phase I.

All residential lots within the project site would be pad graded. Overall, the site is anticipated to balance; thus, substantial import or export of soil materials would not be required. Accounting for the proposed off-site improvements, as well as minor grading activities within Parcels F and L, the proposed project would include disturbance of approximately 71.7 acres.

Table 2 below provides a summary of the proposed disturbance area associated with the proposed project.

Table 2 Proposed Disturbance Area	
Proposed Use	Acreage
On-Site Development Area (Permanent Disturbance)	58.9
Off-Site Improvement Area (Permanent Disturbance)	1.8
Graded Open Space (Temporary Disturbance)	11.0
Undisturbed	88.3
Total Disturbance	71.7

Project Approvals

The proposed project would require City approval of the following:

- General Plan Amendment. The proposed project would require the approval of a General Plan text and map amendment to the Sand Creek Focus Area of the General Plan to change the land use designations of the site from Open Space/Senior Housing and Hillside, Estate and Executive Residential/Open Space to Medium Low Density Residential/Open Space.
- Master Development Plan/Rezone. The proposed project would require a Rezone from S to PD. The PD would include special development standards for the project.
- Vesting Tentative Subdivision Map. The proposed project would require approval of Small Lot and Large Lot Vesting Tentative Subdivision Maps for the subdivision of the project site into multiple parcels to accommodate a total of 220 single-family residential units, as well as public roadway, parks, and open space parcels;
- Use Permit. A Use Permit is required to further clarify the details of each phase of the proposed project and to ensure that each component complies with established provisions of the proposed PD district.
- Design Review. The proposed project would require Design Review to authorize the proposed building conceptual architecture, landscaping, and site design of the residential community and to ensure consistency with the City of Antioch’s General Plan and Zoning Ordinance design policies and criteria, except where specifically amended by the requested approvals.
- Resource Management Plan. Pursuant to section 4.4.6.7(t) of the City of Antioch General Plan, the applicant will prepare a Resource Management Plan for City approval.
- Development Agreement. The Development Agreement would allow the City and the applicant to enter into an agreement to assure the City that the proposed project would be completed in compliance with the plans submitted by the applicant, and assure the applicant of vested rights to develop the project.

In addition to approvals from the City of Antioch, the proposed project would require the following approvals/permits from other responsible and trustee agencies:

- Section 404 Nationwide Permit (or Letter of Permission) (U.S. Army Corps of Engineers);
- Section 401 Water Quality Certification (Central Valley Regional Water Quality Control Board); and
- Potential Section 1600 Lake or Streambed Alteration Agreement (California Department of Fish and Wildlife).

G. ENVIRONMENTAL CHECKLIST

The following Checklist contains the environmental checklist form presented in Appendix G of the CEQA Guidelines. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist. Included in each discussion are project-specific mitigation measures recommended, as appropriate, as part of the proposed project.

For this checklist, the following designations are used:

Potentially Significant Impact: An impact that could be significant, and for which no mitigation has been identified. If any potentially significant impacts are identified, an EIR must be prepared.

Less Than Significant with Mitigation Incorporated: An impact that requires mitigation to reduce the impact to a less-than-significant level.

Less-Than-Significant Impact: Any impact that would not be considered significant under CEQA relative to existing standards.

No Impact: The project would not have any impact.

I. AESTHETICS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. Examples of typical scenic vistas would include mountain ranges, ridgelines, or bodies of water as viewed from a highway, public space, or other area designated for the express purpose of viewing and sightseeing. In general, a project’s impact to a scenic vista would occur if development of the project would substantially change or remove a scenic vista. The City’s General Plan does not specifically identify any scenic vistas.

According to the California Scenic Highway Mapping System, the proposed project site is located approximately 14 miles northeast of the nearest State Scenic Highway, Interstate 680 (I-680). It should be noted that while not officially designated, SR 4, located approximately 0.38-mile east of the site, is an Eligible State Scenic Highway.¹ However, the project site is not visible from SR 4 and does not contain any scenic resources such as trees, rocks, or historic buildings.

The proposed project site is not located within the vicinity of a designated scenic vista. In addition, SR 160 in the project region has not been designated as an official State Scenic Highway. Therefore, the proposed project would not have a substantial adverse effect on a scenic vista and would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Thus, a **less-than-significant** impact would occur.

c. General Plan Policy 5.4.2.c states that view corridors from public spaces to natural ridgelines and landmarks, such as Mt. Diablo and distant hills, local ridgelines, the San Joaquin River, and other water bodies (such as Sand Creek), should be preserved. Specific view corridors identified in Policy 5.4.2.c include Somersville Road, Lone Tree Way, Hillcrest Avenue, SR 4, SR 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road. However, Policy 5.4.2.c also recognizes that new development will inevitably result in some loss of existing views.

Distinguishing between public and private views is important when evaluating changes to visual character or quality, because private views are views seen from privately-owned land and are typically associated with individual viewers, including views from private

¹ California Department of Transportation. *Scenic Highways*. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed January 2020.

residences. Public views are experienced by the collective public, and include views of significant landscape features and along scenic roads. According to CEQA (Pub. Resources Code, § 21000 et seq.) case law, only public views, not private views, are protected under CEQA. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720 [3 Cal. Rptr.2d 488], the court determined that “we must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in *Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: “[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.” Therefore, the focus in this section is on potential impacts to public views.

Existing sensitive public viewers in the surrounding area primarily consist of motorists travelling on Old Sand Creek Road and Heidorn Ranch Road to the northeast of the site. Given that neither roadway includes sidewalks or paved shoulders within the vicinity of the project site, pedestrian and bicycle traffic on the roadways is limited. Figure 8 provides an example of a typical view of the project site from the intersection of Old Sand Creek Road and Heidorn Ranch Road. It should be noted that the area to the north of the project site, directly west of Heidorn Ranch Road, is currently undergoing development with residential uses as part of the Promenade/Vineyards at Sand Creek Project. In addition, the area to the northwest of the site is approved for development with the Aviano residential project. Both projects, along with development anticipated within the City of Brentwood to the east of the project site, will eliminate Old Sand Creek Road, provide a westward extension of Sand Creek Road from its existing terminus at SR 4, and provide a new southward extension of Heidorn Ranch Road. Such improvements are anticipated to be complete prior to construction of the proposed project. Thus, the visual character of the surrounding area will change substantially prior to construction of the proposed project. Nonetheless, consistent with CEQA Guidelines, the conditions at the time of the release of the Notice of Preparation have been used as the baseline conditions for analysis within this Initial Study.

Due to the hilly topography of the project area, the proposed development would not be visible from the public roadways within the existing residential subdivision to the southeast of the site (Copperfield Court, St. Regis Avenue, and Astor Court). In addition, views of the proposed development area from SR 4, located approximately 0.38-mile east of the site, are currently obscured by intervening vegetation.

The proposed project would change the visual character and quality of the site from a vacant, undeveloped lot to a single-family residential subdivision. However, approximately 88.3 acres of the project site, including Sand Creek, a 200-foot-wide buffer to the south of the creek, and the upper portions of the hill forms within the southeastern and western portions of the project site, would be preserved as open space as part of the project. The existing vegetation along Sand Creek would help to screen views of the proposed residences from Old Sand Creek Road and Heidorn Ranch Road, while the hill form within the southeastern portion of the site would continue to obscure views of the site interior from the existing residential subdivision to the southeast of the site. Improvements within the northeastern portion of the site, closest to Old Sand Creek Road, would be limited to trail and park improvements within Parcel C and a new detention and bio-retention basins located within Parcel D. As part of the proposed project, new landscaping features would be provided within both parcels, further blocking views of the proposed residences. Due to the topography of the project site, the proposed development would not substantially affect views of Mount Diablo and the surrounding ridgelines as seen from SR 4 or other existing public roadways.

Figure 8
Existing View of Site from Old Sand Creek Road looking Southwest



Based on the above, the City has already anticipated changes to the visual character of the project area as viewed from the public roadways in the site vicinity.

While the proposed project would require approval of a rezone to change the zoning designation of the project site from S to PD, the site has been previously anticipated for development with residential uses by the City and associated impacts to aesthetic resources have been evaluated in the General Plan EIR; the proposed project would not conflict with applicable zoning standards and other regulations governing scenic quality. The proposed PD zoning designation would be subject to a Master Development Plan, which would list the development standards applicable to the project site, including setbacks, lot sizes and building heights. Such details are included in the Creekside/Vineyards at Sand Creek Project Design Guidelines that have been prepared for the proposed project. A Use Permit is required to further clarify the details of each phase of the proposed project and to ensure that each phase complies with established provisions of the proposed PD district. In addition, the project would be subject to Design Review by the City of Antioch per Section 9-5.2607 of the Municipal Code. The purpose of the Design Review process is to promote the orderly development of the City, encourage high quality site design and planning, protect the stability of land values and investments, and ensure consistency with the Citywide Design Guidelines Manual and the proposed Creekside/Vineyards at Sand Creek Project Design Guidelines. The Design Review process would help to ensure that the proposed project would be visually compatible with Promenade/Vineyards at Sand Creek Project currently under construction to the north of the site.

The City's General Plan includes specific policies related to preservation of visual quality within hillside areas, including Policies 5.4.14a, 5.4.14b, 5.4.14c, 5.4.14d, 5.4.14e, and 5.4.14f. Per Policy 5.14b, projects within hillside areas must be designed to protect important natural features and to minimize the amount of grading. The following grading guidelines are provided:

- Slopes less than 25%: Redistribution of earth over large areas may be permitted.
- Slopes between 25% and 35%: Some grading may occur, but landforms need to retain their natural character. Split-level designs and clustering are encouraged as a means of avoiding the need for large padded building areas.
- Slopes between 35% and 50%: Development and limited grading can occur only if it can be clearly demonstrated that safety hazards, environmental degradation, and aesthetic impacts will be avoided. Structures shall blend with the natural environment through their shape, materials and colors. Impact of traffic and roadways is to be minimized by following natural contours or using grade separations. Encouraged is the use of larger lots, variable setbacks and variable building structural techniques such as stepped or post and beam foundations are required.
- Slopes greater than 50%: Except in small, isolated locations, development in areas with slopes greater than 50% should be avoided.

Approximately 89.2 percent of the proposed grading area would occur on slopes of 25 percent or less, and approximately 7.4 percent of the grading area would occur on slopes between 25 and 35 percent. Areas in which grading would occur on slopes between 30 and 50 percent would be limited to approximately 2.2 acres, while grading on slopes greater than 50 percent would be limited to 0.1-acre. The steepest areas of grading activity would generally be located in the vicinity of the proposed detention and bio-retention

basins and within the southwestern portion of the site along Hillcrest Avenue. Such grading activity would be necessary to ensure the stability of the existing hill forms, and would not adversely affect the visual character or quality of the project site. Thus, the proposed project would be generally consistent with applicable General Plan policies related to hillside grading.

Based on the above, impacts related to degrading the existing visual character of the site and its surroundings or a conflict with applicable zoning and other regulations governing scenic quality would be ***less-than-significant***.

- d. The project site is currently undeveloped, and, thus, does not contain any existing sources of light or glare. Implementation of the proposed project would develop the site with residential buildings, and, thus, would introduce new sources of light and glare where none currently exists. Potential sources of light and glare associated with the proposed project would include interior light spilling through windows, exterior lighting on homes, street lighting on the internal street system, and light reflected off windows. However, all components of the proposed project would be subject to Design Review by the City of Antioch to ensure that the project is consistent with Chapter 6.0, Residential Design Guidelines, of the Citywide Design Guidelines Manual, as well as the proposed Creekside/Vineyards at Sand Creek Project Design Guidelines. The Citywide Design Guidelines Manual prohibits the use of flood lights to light entire structures or yards and states that any exterior night lighting installed shall be of a low intensity, low-glare design, and shall be hooded to direct light downward onto the subject parcel and prevent spillover onto adjacent parcels.² Compliance with such standards would ensure that on-site lighting would be directed within the project site and would not substantially illuminate adjacent properties. In addition, the proposed site layout would cluster the proposed residences near the center of the site, retaining open space areas within the northern, eastern, and western portions of the project site. Given the clustering of the proposed residential development, and the added assurance of the Design Review process, implementation of the project would result in a ***less-than-significant*** impact with respect to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

² City of Antioch. *Citywide Design Guidelines Manual* [pg 6-43]. October 2009.

II. AGRICULTURE AND FOREST RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a,e. The project site is currently undeveloped. Per the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP), the site is currently designated as “Farmland of Local Importance” and “Grazing Land”.³ The site does not contain Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Furthermore, the site is not zoned or designated in the General Plan for agriculture uses. Given the FMMP designations of the site, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a non-agricultural use, or otherwise result in the loss of Farmland to non-agricultural use. Therefore, the proposed project would have a **less-than-significant** impact.

- b. The proposed project site is not under a Williamson Act contract and is not designated or zoned for agricultural uses.⁴ Therefore, buildout of the proposed project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and **no impact** would occur.

- c,d. The project area is not considered forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), and is not zoned Timberland Production (as defined by Government Code section 51104[g]). Therefore, the proposed project would have **no impact** with regard to conversion of forest land or any potential conflict with forest land, timberland, or Timberland Production zoning.

³ California Department of Conservation. *California Important Farmland Finder*. Available at: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed January 2020.

⁴ Contra Costa County Department of Conservation and Development. *2016 Agricultural Preserves Map*. February 1, 2017.

III. AIR QUALITY.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

a-d. The City of Antioch is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The SFBAAB area is currently designated as a nonattainment area for State and federal ozone, State and federal fine particulate matter 2.5 microns in diameter (PM_{2.5}), and State respirable particulate matter 10 microns in diameter (PM₁₀) ambient air quality standards (AAQS). The SFBAAB is designated attainment or unclassified for all other AAQS. It should be noted that on January 9, 2013, the U.S. Environmental Protection Agency (USEPA) issued a final rule to determine that the Bay Area has attained the 24-hour PM_{2.5} federal AAQS. Nonetheless, the Bay Area must continue to be designated as nonattainment for the federal PM_{2.5} AAQS until such time as the BAAQMD submits a redesignation request and a maintenance plan to the USEPA, and the USEPA approves the proposed redesignation.

In compliance with regulations, due to the nonattainment designations of the area, the BAAQMD periodically prepares and updates air quality plans that provide emission reduction strategies to achieve attainment of the AAQS, including control strategies to reduce air pollutant emissions through regulations, incentive programs, public education, and partnerships with other agencies. The current air quality plans are prepared in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG).

During construction of the project, various types of equipment and vehicles would temporarily operate on the project site. Construction exhaust emissions would be generated from construction equipment, demolition, grading, construction worker commutes, and construction material hauling for the entire construction period. The aforementioned activities would involve the use of diesel and gasoline powered equipment that would generate emissions of criteria pollutants. Project construction activities also represent sources of fugitive dust, which includes PM emissions. As construction of the proposed project would generate air pollutant emissions intermittently within the site, and the vicinity of the site, until all construction has been completed, construction is a potential concern because the proposed project is in a non-attainment zone for ozone and PM.

Furthermore, development of the proposed project would result in an increased number of vehicle trips associated with traffic to and from the project site. Operation of the proposed project would result in emissions associated with area sources such as gas combustion from heating mechanisms and landscape maintenance equipment. The additional traffic and operations associated with the proposed project could result in

increases in criteria pollutant emissions above thresholds established by the BAAQMD. Therefore, the proposed project could violate an air quality standard or result in a cumulatively considerable net increase of any criteria pollutant, and thus, may conflict with or obstruct implementation of the applicable air quality plan.

The major pollutants of concern are localized carbon monoxide (CO) emissions and toxic air contaminant (TAC) emissions. Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. Implementation of the proposed project could increase traffic volumes on streets near the project site. Because the proposed project could cause an increase in the localized CO concentrations in the project vicinity, and would involve temporary TAC emissions associated with construction, the proposed project could expose sensitive receptors to substantial pollutant concentrations.

Accordingly, the proposed project could result in a ***potentially significant*** impact related to air quality.

Further analysis of this impact will be discussed in the Air Quality and Greenhouse Gas Emissions chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

IV. BIOLOGICAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. The following discussion is based primarily on a Biological Resource Analysis prepared for the proposed project by Monk & Associates, Inc. (M&A) (see Appendix A),⁵ which has been peer-reviewed by Madrone Ecological Consulting.⁶

Currently, the site consists primarily of ruderal grasses and is absent of structures or other indications of prior development. The site’s terrain is characterized by a flat valley bordered by hill forms on the west and east side. Elevations on-site range from 150 to 325 feet msl. A shallow area exists at the base of the eastern hillslope and appears to collect local natural drainage during rainfall events, draining into Sand Creek. Sand Creek, a tributary of Marsh Creek, flows intermittently through the northern portion of the project site in an easterly direction. The project site has been subject to prior disturbance associated with dry-land farming activities, and ongoing use of existing PG&E access easements. In addition, the site contains existing pipelines.

As noted in the Biological Resource Analysis, special-status species are defined to include the following:

⁵ Monk & Associates, Inc. *Administrative Draft Biological Resource Analysis, Creekside Development Project, Antioch, Contra Costa County, California*. February 13, 2020.

⁶ Madrone Ecological Consulting. *Peer review for the proposed Vineyards at Sand Creek project, City of Antioch, Contra Costa County, California*. February 4, 2020.

- Plants and animals that are listed or proposed for listing as threatened or endangered under State or Federal Endangered Species lists;
- Plants and animals that are candidates for possible future listing as threatened or endangered under the State or Federal Endangered Species lists;
- Plants and animals that meet the definition of endangered, rare, or threatened under CEQA, which may include species not found on either State or Federal Endangered Species lists;
- Plants occurring on the California Native Plant Society (CNPS) Lists 1A, 1B, 2A, 2B, 3, and 4. Additional plants may be included as special-status species on a case by case basis due to local significance or recent biological information;
- Migratory nongame birds of management concern listed by USFWS;
- Animals that are designated as “species of special concern” by the CDFW; and
- Animal species that are “fully protected” per the CDFW.

In addition to regulations for special-status species, most birds in the U.S., including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under the MBTA, destroying active nests, eggs, and young is illegal.

As part of the Biological Resource Analysis prepared for the proposed project, M&A conducted a search of published records of special-status plant and wildlife species known to occur within three miles of the project site using the California Natural Diversity Data Base (CNDDDB) Rarefind 5 application. The intent of the database review was to identify documented occurrences of special-status species in the vicinity of the project area, to determine their locations relative to the project site and off-site improvement areas, and for use in the field assessment of habitats suitable for special-status species within the site. In addition, M&A conducted a nine-quadrangle search of the 2020 electronic version of the CNPS' *Inventory of Rare and Endangered Plants of California* for records of special-status plants known in the region of the project site. M&A also reviewed plant species that are considered locally rare as listed in the East Bay Chapter of the CNPS *Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* for the Marsh Creek/Lone Tree Valley area.

On January 18, 2019, M&A conducted a survey of the project site and off-site improvement areas to record biological resources and to assess the likelihood of agency-regulated areas. The survey involved searching all habitats on the site and recording all plant and wildlife species observed. M&A's site evaluation included a thorough examination of the site to document potential habitats on or adjacent to the project site that could support special-status species and/or waters of the U.S. and State. The habitats found on the project site were cross-referenced against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species.

In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status plants on the project site and off-site improvement areas. Consistent with CDFG (2000) and CNPS (2001) published survey guidelines, the surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering. The surveys were conducted by walking systematic transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status plants.

The results of the CNDDDB search, the site survey, the focused plant surveys, and other queries conducted as part of the Biological Resource Analysis are discussed below.

Special-Status Plants

Based on the results of the CNDDDB search and the CNPS nine-quadrangle search, a total of 56 special-status plant species have been recorded within the project region. However, owing to the farmed conditions of the project site, which has been ongoing since the mid-1930s, special-status plants are unlikely to occur within the proposed development area. Of the 56 species, 39 are considered absent from or unlikely to occur on the site due to a lack of suitable habitat, such as chaparral, coastal scrub, chenopod scrub, and/or inland dunes. Accordingly, plant species occurring in such specialized habitats were summarily dismissed from further consideration. However, San Joaquin spearscale was identified adjacent to the project site in 2006 (CNDDDB Occurrence No. 104). In addition, several rare plant species that thrive in disturbed areas have a low potential to occur on the project site and off-site improvement areas. Such species include big tarplant, Congdon's tarplant, Carquinez goldenbush, showy golden madia, large-flowered fiddleneck, Hoover's cryptantha, caper-fruited tropidocarpum, heartscale, brittlescale, lesser saltbush, alkali milkvetch, Mt. Diablo fairy lantern, diamond-petaled California poppy, California alkali grass, shining navarretia, Mount Diablo buckwheat, and recurved larkspur. None of the aforementioned species were detected on the project site during the focused plant surveys conducted in 2005 and 2006 or during the reconnaissance survey conducted in January 2019. However, per CDFW, USFWS, and CNPS published survey guidelines, new focused special-status plant surveys must be conducted the year prior to disturbance of the project site to ensure that the species are not present. Given that considerable time has elapsed since the 2005 and 2006 focused plant surveys were conducted, and construction of the proposed project could occur a year or more after the 2019 reconnaissance survey conducted by M&A, a potentially significant impact could occur.

Special-Status Wildlife

Based on the results of the CNDDDB search, a total of 12 special-status wildlife species have been recorded within the project region. Of the 12 species, one species, Northern California legless lizard, would be absent from or unlikely to occur on the site due to a lack of suitable habitat (i.e., sandy soils). The remaining 11 species for which the project site and off-site improvement areas provide suitable habitat include the following: vernal pool fairy shrimp, California red-legged frog, California tiger salamander, western pond turtle, golden eagle, white-tailed kite, Swainson's hawk, western burrowing owl, tricolored blackbird, San Joaquin kit fox, and American badger. In addition, the project site contains suitable habitat for other migratory birds and raptors protected under the MBTA.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp was designated as threatened in the species' entire range on September 19, 1994. Critical habitat for the species was designated on August 6, 2003. The project site is not located within this species' designated critical habitat. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. The species tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g., 25 acres). Vernal pool fairy shrimp have been collected from early December to early May.

The CNDDDB includes a documented occurrence of vernal pool fairy shrimp 1.6 miles west of the project site, in 2003. In addition, in 2002 vernal pool fairy shrimp were found within the project site in pools near the top-of-bank of the ephemeral drainage channel, located within the eastern portion of the site. As described in further detail under questions 'b,c' below, such pools would be avoided as part of the project. Given that the pools are located outside of the proposed development footprint, impacts to vernal pool fairy shrimp would be less than significant.

California Red-Legged Frog

The California red-legged frog was federally-listed as threatened on May 23, 1996 and is protected pursuant to the Federal Endangered Species Act. On March 16, 2010, the USFWS issued the final designation for California red-legged frog Critical Habitat. The project site is not within mapped critical habitat for the species.

The California red-legged frog is typically found in ponds and slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. The species is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months. Populations likely cannot be maintained if all surface water disappears (i.e., surface water is not available for egg laying and larval development habitat). Larval California red-legged frogs require 11 to 20 weeks of deep water to reach metamorphosis, in water depths of 10 to 20 inches. Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for the species to be present. California red-legged frogs also use upland habitats for migration and dispersal. The USFWS' Recovery Plan for the California Red-Legged Frog states that frog's overland excursions through uplands can vary between 0.25-mile up to 3 miles during the course of a wet season, and that frogs "have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats". M&A's direct observation are that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to aquatic environments or will not migrate. Thus, long forays across the landscape found in coastal populations are less likely in dry inland locations.

The closest known CNDDDB record of California red-legged frog is a 2005 record located 0.70-mile west of the project site within Sand Creek. In 2013, numerous California red-legged frogs and tadpoles were found within a section of Sand Creek located approximately 0.25-mile to the west of the project site during work associated with the construction of the Upper Sand Creek Detention Basin. Consequently, the USFWS regards Sand Creek as occupied habitat of the California red-legged frog. Because Sand Creek is regarded as occupied habitat, lands located adjacent to the creek, including the project site, constitute potential upland dispersal habitat for the species.

Therefore, the proposed project would impact potential California red-legged frog dispersal habitat; 60.7 acres within the project site would cease to be available as potential dispersal habitat and 11 acres would be temporarily disturbed by grading. In addition, installation of the outfall structures on the banks of Sand Creek may result in impacts to breeding habitat for the species. Therefore, a potentially significant impact to California red-legged frog could occur.

California Tiger Salamander

The California tiger salamander is a federally-listed threatened species. The project site falls into the range of the Central California Distinct Population Segment (DPS) of the California tiger salamander. The DPS of the California tiger salamander was federally-listed as threatened on August 4, 2004, and the USFWS designated critical habitat for the California tiger salamander Central California DPS in 2005. The project site is located outside of the closest mapped critical habitat for the Central California DPS, which is Critical Habitat Unit 18 within Alameda County.

California tiger salamanders occur in grasslands and open oak woodlands that provide suitable over-summering and/or breeding habitats. California tiger salamanders spend the majority of their lives underground. The species typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult California tiger salamanders have been observed up to 1.3 miles from breeding ponds. As such, unobstructed migration corridors are an important component of California tiger salamander habitat.

California tiger salamanders emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of California tiger salamander do not occur without several hours of hard and continuous rain. Typically, for larger movements of California tiger salamander to occur, nighttime temperatures also must be above 48 degrees Fahrenheit. Significant obstructions that block California tiger salamander movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical, or near vertical-sided concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of the California tiger salamander predominately use California ground squirrel burrows as over-summering habitat. Other secondary subterranean refugia, or primary refugia where California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g., downed wood and rock piles). Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by California tiger salamander. In such locations, California tiger salamander attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Occasionally California tiger salamanders are found breeding in slow-moving, streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain California tiger salamander egg attachment through hatching, and thus, are not usually used successfully by California tiger salamander for breeding. Similarly, streams and/or ditches that support predators of California tiger salamander or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

Per the CNDDDB, California tiger salamander is known to occur 0.25-mile south of the project site. The species was also found during work being conducted in the Upper Sand Creek Detention Basin, located approximately 0.25-mile west of the project site. While California tiger salamander could conceivably disperse or migrate to the project site from such known record locations, the farmed condition of the project site presumably would reduce over-summering opportunities.

Nonetheless, given that the species has a known dispersal distances of up to 1.3 miles, CDFW and USFWS may consider the project site as migration/over-summering habitat

for California tiger salamander. While the project site and off-site improvement areas do not contain California tiger salamander breeding habitat, the proposed project would impact 60.7 acres of potential California tiger salamander migration/over-summering habitat, and project grading would result in temporary impacts to an additional 11 acres of potential California tiger salamander migration/over-summering habitat. Therefore, a potentially significant impact to the species could occur.

Western Pond Turtle

The western pond turtle is a California “species of special concern.” In April of 2015, the USFWS issued a 90-day finding on a petition to list the species under the Federal Endangered Species Act. In September 2016, M&A spoke with USFWS’ Sacramento Field Office and was told that the USFWS “hope to finish a 12-month finding in the fiscal year of 2021”. Until the western pond turtle is formally listed, the species is not afforded the protections of the Federal Endangered Species Act.

The western pond turtle is a habitat generalist, inhabiting a wide range of fresh and brackish, permanent and intermittent water bodies from sea level to approximately 4,500 feet msl. Typically, the species is found in ponds, marshes, ditches, streams, and rivers with rocky or muddy bottoms. The species is most often found in aquatic environments with plant communities dominated by watercress, cattail, and other aquatic vegetation. The species usually only leaves the aquatic site to reproduce and to overwinter. Western pond turtles may overwinter on land or in water or may remain active in water during the winter season, depending on latitude, water temperature, and habitat type. The Western pond turtle also requires upland areas for burrowing habitat, where the species digs nests and buries its eggs. Such nests can extend from 52 feet to 1,219 feet from watercourses; however, most Western pond turtles nest in uplands within 250 meters (820 feet) of water. Upland nest sites are usually found in areas with sparse vegetation. Sunny, barren, and undisturbed (not disked) land provides optimal habitat, while shady riparian habitat and planted agricultural fields do not provide suitable habitat.

The closest CNDDDB record for western pond turtle is located 3.5 miles south of the project site in the Marsh Creek Reservoir. As Sand Creek is an intermittent creek without large permanent pools, the waterway is not optimal habitat for the species; however, Sand Creek may provide migration habitat for the species. Installation of the proposed stormwater outfall structures on the banks of Sand Creek may result in impacts to suitable western pond turtle dispersal habitat. Therefore, a potentially significant impact to the species could occur.

Golden Eagle

The golden eagle is designated as a California species of special concern and is fully protected under the Bald and Golden Eagle Protection Act. Golden eagles are found breeding throughout western North America in remote open habitats. Typical habitats in North America include savannah woodland habitats, grasslands, aspen parkland, high and low deserts, and in taiga and zone habitats. Golden eagles nest from January until September, with peak nesting occurring in March through July. Golden eagles are very sensitive to disturbance near the nest site, particularly in remote regions where human activities are minimal.

In 2018 and 2019, golden eagles were identified nesting in a bluegum eucalyptus growing along the bank of Sand Creek, immediately to the north of the project site. Because

farming activities, including the use of heavy equipment for disking, planting, and harvesting crops often twice per year, has been ongoing for decades within the immediate vicinity of the bluegum eucalyptus grove where the identified individuals nest, the individuals are acclimated to such recurring activities. In addition, a residential subdivision has been under construction approximately 1,000 feet north of the eagles' nests throughout 2018 and 2019, and yet the eagles fledged one young in 2018, and two young in 2019.⁷ Also, residential development activities have been ongoing within a one-mile radius around the nesting tree for over 20 years, apparently without substantial deleterious effects on the nesting eagles.

Nesting surveys would be required to confirm or negate the species' presence as an active nesting bird on or adjacent to the project site prior to construction. While the pair of golden eagles appears to be well-acclimated to mechanized disturbance, if an active nest is identified within the zone of project influence the year that construction commences, project construction could result in impacts or deleterious disturbance to the nesting golden eagles. Specifically, disturbance could result in nest abandonment, loss of young, or reduced health and vigor of eggs and/or nestlings and could ultimately result in the take of nestling or fledgling golden eagles. Accordingly, a potentially significant impact to the species could occur.

White-Tailed Kite

The white-tailed kite is a "Fully Protected" species under the California Fish and Game Code and is protected under the federal MBTA. The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields with dense-topped trees or shrubs for nesting and perching. The species nests in a wide variety of trees of moderate height and occasionally in tall bushes, such as coyote bush. Although the surrounding terrain may be semi-arid, the species often resides near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source.

The nearest CNDDDB record for the species is located 2.1 miles north of the project site. The on-site trees along Sand Creek provide potentially suitable nesting habitat for the species. While Sand Creek would be left mostly undisturbed during construction of the proposed project, the project would include installation of two new crossings at the creek, as well as minor trail improvements within the northeastern portion of the site adjacent to the creek. Therefore, a potentially significant impact to the species could occur.

Swainson's Hawk

Swainson's hawk is a State-listed threatened species afforded protection pursuant to the California Endangered Species Act. The species is protected from direct take under the federal MBTA.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands. The species nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall. Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads. Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. Foraging habitats include alfalfa fields,

⁷ Monk & Associates, Inc. *Administrative Draft Biological Resource Analysis, Creekside Development Project, Antioch, Contra Costa County, California* [pg. 28]. February 13, 2020.

fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded. During the nesting season, Swainson's hawks usually forage within two miles of their nests.

The closest CNDDDB nesting record for the species is 0.10-mile east of the project site in a large valley oak tree along Sand Creek. Swainson's hawks have not been detected nesting on or adjacent to the project site during multiple surveys in the vicinity of the project site over the last four years by M&A biologists. However, trees growing along Sand Creek provide suitable nesting trees for the species. In addition, the project site constitutes foraging habitat that could be used by the species. As such, the potential exists for the species to occupy the project site prior to initiation of project construction. A potentially significant impact to the species could occur.

Western Burrowing Owl

The western burrowing owl is a California "species of special concern." Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel burrows, for nesting and cover. The species may also on occasion dig their own burrows or use man-made objects such as concrete culverts or rip-rap piles for cover.

Per the CNDDDB, western burrowing owls were identified adjacent to the project site in 2007, and a presumed wintering western burrowing owl was observed on-site during the January 2019 survey conducted by M&A. The majority of the project site consists of disked farmed fields; however, the site contains a limited number of burrows that provide potentially suitable habitat for western burrowing owl. As such, the potential exists for the species to occupy the project site prior to initiation of project construction. A potentially significant impact to the species could occur.

Tricolored Blackbird

The tricolored blackbird is a State listed threatened species pursuant to the California Endangered Species Act. The tricolored blackbird is typically found near freshwater, particularly near marsh habitat. Flooded lands, margins of ponds, and grassy fields in summer and winter provide typical foraging habitat for the species.

The closest known CNDDDB record for the species is located two miles southwest of the project site, in ponds on the Roddy Ranch golf course. Sand Creek provides limited nesting habitat for the species within the creek corridor. Although tricolored blackbirds have not been detected on the project site during multiple site surveys in the project vicinity, installation of the proposed outfall structures in Sand Creek could disturb nesting tricolored blackbird individuals, if present. Therefore, a potentially significant impact to the species could occur.

Nesting and Migratory Birds

As noted previously, the existing trees within the project site may support nesting birds and ground-nesting raptors, including golden eagle, white-tailed kite, Swainson's hawk, western burrowing owl, and tricolored blackbird, as well as loggerhead shrike, northern harrier, and grasshopper sparrow. Buildout of the project during the nesting period for migratory birds (i.e., typically between February 1 to August 31), including initial site grading, could pose a risk of nest abandonment and death of any live eggs or young that

may be present within the nest within or near the site. Thus, a potentially significant impact could occur.

San Joaquin Kit Fox

The San Joaquin kit fox is a federally- and State-listed endangered species. The San Joaquin kit fox live primarily in the lowlands of the San Joaquin Valley of California, but are also known to occur in several counties in the coast mountain ranges, including Santa Barbara, San Luis Obispo, Monterey, San Benito, Santa Clara, Contra Costa, and Alameda counties. The species is usually found in open grassland and shrub land communities, but has also been observed in ruderal plant communities.

The closest CNDDDB record for the species was recorded in the 1970s and is located 2.75 miles south of the project site. More recently, independently conducted surveys cited in the 2006 report, Relative Abundance of Endangered San Joaquin Kit Fox (*Vulpes macrotis mutica*) Based on Scat-Detection Dog Surveys, were unable to document presence of San Joaquin kit fox in Contra Costa County. Although the report suggests that San Joaquin kit fox is likely extirpated from Contra Costa County, Figure 5-5 in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCC HCP) indicates that the project site is within the “Suitable Core Habitat” of the San Joaquin kit fox. Suitability does not infer the presence of the species, only that the model used indicates the presence of suitable habitat in which the species could occur.

Ongoing site disturbance associated with farming activities at the project site would likely preclude the presence of an occupied den. As such, the federally-listed San Joaquin kit fox is not expected to occur on the project site. Nonetheless, further measures are required to ensure that the species does not occupy the project site prior to the initiation of project construction activities. In the absence of such measures, a potentially significant impact could occur.

American Badger

American badger is a California “species of special concern.” The species is found in a variety of habitats, especially in open habitats such as oak-savannah and grasslands where the species’ presence is typically identified by distinctive, large underground dens (burrows) excavated in friable (loose) soils. The nocturnal mammal is rarely observed. In the project region, the species is uncommon.

American badger was identified adjacent to the project site in 2007. Due to ongoing farming practices, the project site provides marginal habitat for the species. However, the unfarmed portions of the site provide unlikely but suitable foraging habitat for the species. As such, the potential exists for American badger to occupy the project site prior to initiation of project construction. A potentially significant impact to the species could occur.

Conclusion

Based on the above, the project would not result in adverse effects to vernal pool fairy shrimp. However, implementation of the proposed project could potentially affect special-status plant species, California red-legged frog, California tiger salamander, western pond turtle, golden eagle, white-tailed kite, Swainson’s hawk, western burrowing owl, tricolored blackbird, other migratory birds and raptors protected by the MBTA, San Joaquin kit fox, and American badger. Thus, the proposed project could have an adverse effect, either directly or through habitat modifications, on species identified as special-status species in

local or regional plans, policies, or regulations, or by the CDFW or the USFWS. A **potentially significant** impact could result.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level. It should be noted that in July 2007, the East Contra Costa County (ECCC) Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP) was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. Nonetheless, the mitigation measures include language to reflect the possibility that the City may, in the future, enter into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP covered species or otherwise adopt a different HCP/NCCP.

Special-Status Plants

IV-1 *Prior to initiation of ground-disturbing activities on the project site and off-site improvement areas, the project proponent shall retain a qualified biologist to conduct rare plant surveys within one year of the anticipated groundbreaking for the proposed project. The surveys shall be conducted following the CDFW (2018), USFWS (2000), and CNPS (2001), or the most current published survey guidelines. During the surveys, qualified botanists shall search for all the plants identified in the Biological Resources Analysis (Monk & Associates, 2020) as having the potential to occur on the project site and off-site improvement areas, and all plants that are considered locally rare as listed in the East Bay Chapter of the CNPS Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties for the Marsh Creek/Lone Tree Valley area. Project construction shall not be initiated until all special-status plant surveys are completed and the mitigation is implemented, if necessary and required prior to starting construction.*

A special-status plant survey report that includes the methods used, survey participants, and associated findings shall be prepared and submitted to the City no more than 30 days following the completion of the final site visit. A record of any special-status plant species identified within the project site during the preconstruction surveys shall be submitted to the CNDDDB. If new special-status plant populations are not found on the site during the appropriately timed surveys, additional mitigation is not required. If construction is not started within two years after the rare plant surveys are completed, the City may require additional rare plant surveys.

If special-status plants are observed on the site during the survey, the populations shall be avoided to the maximum degree possible during project development, and a Mitigation and Monitoring Plan shall be prepared detailing the measures to be implemented to avoid the plant population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the preserved population by a biologist during and after construction activities. The Mitigation and Monitoring Plan shall be implemented prior to the initiation of project grading. If the plant populations cannot be avoided, the applicant shall hire

a qualified biologist to prepare a seed collection and replanting plan in coordination with the City of Antioch to reduce impacts to the identified special-status plant populations, subject to review and approval by the City of Antioch Community Development Department.

California Red-Legged Frog

IV-2

Prior to initiation of ground-disturbing activities on the project site and off-site improvement areas, the project applicant shall implement the following measures:

- An education program shall be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the project site. The education/training program shall include a description of California red-legged frog and its habitat, a review of the Endangered Species Act and the federal listing of the species, the general protection measures to be implemented to protect the frog and minimize take, and a delineation of the limits of the work area. A sign-in sheet shall be distributed to all participants of the education/training program and submitted to the City of Antioch within two weeks of program completion.
- The work areas adjacent to Sand Creek shall be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from entering the work areas. The wildlife exclusion fence shall also prevent mammals migrating along Sand Creek from entering the project site. The fence shall be installed along the northern border of the project site, adjacent to the Sand Creek Buffer Area, prior to the time any site grading or vegetation removal activities are implemented. The exact location of the fencing shall be determined by a qualified biologist. The fence shall remain in place during site grading or other construction-related activities and shall prevent frogs and wildlife from entering the project site work areas. While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of project construction, the project proponent may install a more weather resilient fence that is durable enough to remain in place for the duration of construction, such as a commercially available exclusion fencing (e.g., ERTEC Fence). Fencing shall be installed by staking the route of the wildlife exclusion fencing in a 4- inch-deep trench. Then, the bottom of the fence shall be firmly seated in the trench. The project proponent may replace the wildlife exclusion fencing during construction with permanent fencing, approved by the City.
- A qualified biologist shall be onsite when grading activities occur within 300 feet of Sand Creek to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel. The biological monitor shall be responsible for ensuring that the wildlife exclusion fencing is not compromised and shall notify the onsite contractor representative when fencing needs to be repaired.

- *All construction work in Sand Creek associated with the outfall structures shall be scheduled for the dry season (May 15 through October 15) and when Sand Creek is dry or there is reduced flow in this creek. See also the permitting requirements specified in Mitigation Measure IV-14. Any necessary in-drainage work when there are flows shall be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes ensuring that flows pass by the stormwater outfall work areas. Flows shall be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water shall be allowed to reenter the tributary below any in-drainage work area. Methods and materials shall be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and shall be pre-approved by the biological monitor. All diversions shall conform to the following provisions:*
 - *A qualified 10(a)(1)(A) biologist shall conduct preconstruction surveys for California red-legged frog prior to isolating any work area within Sand Creek. If any frogs are found in the work area, the USFWS shall be notified, and if the USFWS authorizes relocation, the frogs shall be moved from the two stormwater outfall work areas, up or downstream in Sand Creek to appropriate aquatic habitats. Upon completion of the survey, if the outfall construction areas must be dewatered, coffer dams may be installed. Any isolated water shall be dip-netted or as appropriate, seined by the biologist to search for frogs prior to pumping water out of the isolated work areas. The project biological monitor shall be present during all in-drainage work. Dewatered work areas shall not result in stranded aquatic wildlife.*
 - *Drainage diversion shall be practiced only where deemed unavoidable by the proposed project engineer and biological monitor.*
 - *Diversion shall be limited to the minimum time period necessary to complete the work and restore the channel.*
 - *Construction equipment shall work from above the top-of-bank. There shall be no vehicle passage, vehicle parking, or materials storage below the top-of-bank.*
 - *All in-drainage and diversion work plans shall reflect and incorporate standard erosion control measures and Best Management Practices (BMPs) as prescribed in the project's Stormwater Pollution and Prevention Plan (SWPPP).*
 - *In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water shall be silt free. If silt is a problem, water shall be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.*
 - *All downstream flows shall be maintained throughout the period that coffer dams are installed.*

- *The entire work area below the top-of-bank, including the coffer dam location, shall be restored to the approximate pre-construction contours and shall be stabilized as necessary to withstand the expected high-water flows. All dam materials shall be completely removed from the channel when work is complete and shall not be disposed of in or near the channel.*
- *All trash that might attract predators to the project site shall be properly contained and removed from the site and disposed of regularly. All construction debris and trash shall be removed from the site when construction activities are complete.*
- *All fueling and maintenance of equipment and vehicles, and staging areas shall be at least 60 feet from Sand Creek. The construction personnel shall ensure that contamination of California red-legged frog habitat does not occur and shall have a plan to promptly address any accidental spills.*
- *To mitigate for permanent impacts to 60.7 acres of California red-legged frog dispersal habitat, the project proponent shall preserve dispersal habitat adjacent to occupied California red-legged frog habitat, or as otherwise approved by USFWS, at a minimum of a 1:1 impacts to replacement.⁸ Protection shall be via the purchase of the mitigation land in fee title or via recordation of a conservation easement over the mitigation land. Alternatively, the project proponent may purchase California red-legged frog credits at a 1:1 ratio from a USFWS-approved mitigation bank.*
- *If mitigation credits are not used, prior to the start of construction, the project proponent shall record a conservation easement over the mitigation property preserving it in perpetuity as wildlife habitat. The easement shall be granted to a qualified conservation organization as defined by Section 815.3 of the California Civil Code. Prior to the start of construction, the project proponent shall prepare a habitat management plan that addresses management of the mitigation land that inures to the benefit of the California red-legged frog and shall submit the plan to the City of Antioch prior to the start of construction. The project proponent shall also establish an endowment fund, or other funding mechanism to provide for the long-term management, maintenance, and monitoring of the mitigation site.*

The project proponent may satisfy the requirements of this mitigation measure by providing the City of Antioch with a copy of a biological opinion issued by the USFWS that includes these, or other functionally equivalent, habitat preservation measures prior to the start of construction.

⁸ The 60.7 acres of permanently impacted habitat includes off-site improvement areas that overlap with the Promenade/Vineyards at Sand Creek Project. For any off-site impacted habitat for which replacement habitat has already been provided as part of the Promenade/Vineyards at Sand Creek Project, further mitigation is not required.

As an alternative to completion of MM IV-2, the project applicant could comply with one of the following conditions:

1. Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or
2. Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.

California Tiger Salamander

IV-3

Prior to initiation of construction activities, to mitigate for the permanent impacts to 60.7 acres of potential California tiger salamander migration/over-summering habitat, the project applicant shall compensate for impacted California tiger salamander migration/over-summering habitat at a minimum of a 1:1 impacts to replacement ratio.⁹ Mitigation land shall be permanently protected land within the Central California DPS range of the California tiger salamander within 1.3 miles of a known breeding site, or as otherwise approved by CDFW and USFWS. Protection shall be accomplished through the purchase of the mitigation land in fee title or via recordation of a conservation easement over the mitigation land. In lieu of this mitigation prior to construction, the project proponent may purchase California tiger salamander credits at a 1:1 ratio from a approved mitigation bank.

If mitigation credits are not used, prior to the start of construction, the project proponent shall record a conservation easement over the mitigation property preserving it in perpetuity as wildlife habitat. The easement shall be granted to a qualified conservation organization as defined by Section 815.3 of the California Civil Code. The project proponent shall prepare a habitat management plan that addresses management of the mitigation land that inures to the benefit of the California tiger salamander and shall submit the plan to the City of Antioch prior to the start of construction. The project proponent shall also establish an endowment fund, or other funding mechanism to provide for the long-term management, maintenance, and monitoring of the mitigation site.

The project proponent may satisfy the requirements of this mitigation measure by providing the City of Antioch with a copy of a biological opinion issued by the USFWS that includes these, or other functionally equivalent, habitat preservation measures, to be implemented prior to initiation of construction activities.

⁹ The 60.7 acres of permanently impacted habitat includes off-site improvement areas that overlap with the Promenade/Vineyards at Sand Creek Project. For any off-site impacted habitat for which replacement habitat has already been provided as part of the Promenade/Vineyards at Sand Creek Project, further mitigation is not required.

As an alternative to completion of MM IV-3, the project applicant could comply with one of the following conditions:

1. Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or
2. Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.

Western Pond Turtle

IV-4

Prior to initiation of construction activities, a qualified biologist shall conduct a preconstruction survey of the two stormwater outfall work areas in Sand Creek, and if a western pond turtle is identified in the work area, the turtle shall be relocated to suitable habitat downstream. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department. The work areas adjacent to Sand Creek shall be isolated with exclusion fencing in accordance with Mitigation Measure IV-2 that shall prevent western pond turtle from entering the work site and accidentally being harmed by construction activities.

Preconstruction surveys for turtle nest sites in uplands adjacent to suitable aquatic habitat during spring and summer months shall be conducted within 30 days prior to beginning any ground-disturbing activities. If nests are not found, further consideration for western pond turtle nests is not warranted. If nest sites are located during preconstruction surveys adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced where the buffer intersects a project work area to avoid impacts to the eggs or hatchlings which over-winter at the nest site. In addition, if nest(s) are located during surveys, moth balls (naphthalene) should be sprinkled around the vicinity of the nest (no closer than 10 feet) to mask human scent and discourage predators.

Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by a qualified biologist. A qualified CDFW approved biologist, with the concurrence of CDFW, may also relocate young pond turtles.

As an alternative to completion of MM IV-4, the project applicant could comply with one of the following conditions:

1. Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or

2. *Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.*

Golden Eagle

IV-5

Prior to initiation of ground-disturbing activities or tree removal, preconstruction surveys shall be conducted by a qualified raptor biologist on the project site and within a zone of influence (determined by a qualified biologist) of all project-related activities during the golden eagle breeding season (January through August). The zone of influence is affected by geographic barriers that affect direct line of sight from disturbance to the nest site, and/or distances that proposed activities could influence nesting behavior. The zone of influence shall be determined by a qualified raptor biologist. If nesting golden eagles are found nesting within the zone of influence, a qualified raptor biologist shall determine an appropriate buffer consistent with the USFWS' 2017 Recommended Buffer Zones for Ground-Based Human Activities Around Nesting Sites of Golden Eagles in California and Nevada. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department.

The USFWS' 2017 Recommended Buffer Zones for Ground-Based Human Activities Around Nesting Sites of Golden Eagles in California and Nevada, recommends buffer zones for active nests. Such recommended buffer zones may increase or decrease in size depending on specific site or activity circumstances and local jurisdiction recommendations. For any active nest found within a zone of influence of the project site, the qualified raptor biologist shall determine the appropriate buffer size(s) to ensure that project activities do not impact the active nest site. Buffer sizes are likely to be reduced in size when a qualified raptor biologist makes a determination that the nesting golden eagles are acclimated to mechanized activities and disturbances of the like, or the nest is shielded from disturbance by geographic barriers.

If no active nesting golden eagles are identified during survey(s), project construction may commence without further regard for protection of nesting eagles. If golden eagles are found nesting in the project vicinity after project construction has commenced, it should be assumed that the golden eagles began nesting while the project site was under construction and thus, that the eagles are habituated to the ambient level of noise and disturbance emanating from the project site.

If active nesting golden eagles are identified during the preconstruction surveys, the qualified biologist shall establish a nest protection buffer and no project-related disturbance shall be allowed within any established nesting buffer until the young fledge the nest or the nesting attempt is otherwise complete for the year. The buffer shall remain in place until the fledglings become independent of the nesting tree. The young can be considered successfully fledged when the eaglets no longer return to the nesting tree for several consecutive nights. A qualified raptor biologist shall monitor the nesting eagles initially for a period long enough to understand

the nesting eagles' response to disturbance, and thereafter on a routine basis (at least once per week) until the nestlings successfully fledge and become independent of the nesting tree.

It should be noted that if the developer initiates grading of the project site in the non-nesting season (September to December) and development disturbance remains continuous through the nesting season, and the golden eagles return and nest, it can be assumed that the golden eagles are sufficiently acclimated to the project disturbance. A qualified raptor biologist would be required to confirm the level of acclimation and would have to monitor the nesting attempt continuously through the nesting season to ensure that the project disturbance is not affecting the golden eagles nesting efforts and behaviors. After commencement of nesting, if the golden eagles respond negatively to the ongoing disturbance, a 600-foot buffer shall be immediately established and maintained under the supervision of the raptor biologist until the nesting cycle is completed, as determined by a qualified raptor biologist.

As an alternative to completion of MM IV-5, the project applicant could comply with one of the following conditions:

- 1. Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or*
- 2. Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.*

Swainson's Hawk

IV-6

Prior to any project-related ground disturbance that occurs during the nesting season (March 15th to September 15th), a qualified biologist shall conduct a preconstruction survey at least two survey periods prior to the start of construction. Surveys shall follow the protocol in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000), including the survey period lengths identified therein. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department.

If the proposed project could result in take of the Swainson's hawk, its nest, or eggs, typically assumed to be the case if a nest is detected within a 0.25-mile of the project site, the project proponent shall prepare a Swainson's Hawk Monitoring and Habitat Management Plan. If take of Swainson's hawk eggs, nestlings, fledglings could occur from the proposed activities, as determined by a qualified raptor biologist, protective buffers shall be established on the project site that shall prevent such take from occurring. The protective buffer around the active nest site shall be maintained until such time that the Swainson's hawks have completed their nesting cycle

as determined by a qualified raptor biologist. The nest protection buffer shall be coordinated with the CDFW.

If the preconstruction surveys find Swainson's hawk nests within 0.25 mile of the project site, impacts to its foraging habitat shall be mitigated by preserving 60.7 acres of suitable Swainson's hawk foraging habitat (1:1 mitigation for permanent impacts to foraging habitat).¹⁰ The mitigation land used to mitigate impacts to the California tiger salamander (see Mitigation Measure IV-3) shall also constitute suitable Swainson's hawk foraging habitat.

As an alternative to completion of Mitigation Measure IV-6, the project applicant could comply with one of the following conditions:

- 1) Comply with the applicable terms and conditions of the ECCCHCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.

Western Burrowing Owl

IV-7

Prior to initiation of ground-disturbing activities, a preconstruction survey for burrowing owls shall be conducted. The CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 2012) states that take avoidance (preconstruction) surveys shall be conducted 14 days prior to ground disturbance. As burrowing owls may recolonize a site after only a few days, time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species. The results of the survey shall be submitted to the City of Antioch Community Development Department.

Burrowing owl surveys shall be conducted by walking the entire project site and (where possible) in areas within 150 meters (approximately 500 feet) of the proposed project impact zone. The 150-meter buffer zone shall be surveyed to identify burrows and owls outside of the proposed disturbance area which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects shall be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines

¹⁰ The 60.7 acres of permanently impacted habitat includes off-site improvement areas that overlap with the Promenade/Vineyards at Sand Creek Project. For any off-site impacted habitat for which replacement habitat has already been provided as part of the Promenade/Vineyards at Sand Creek Project, further mitigation is not required.

shall be 7 meters to 20 meters and shall be reduced to account for differences in terrain, vegetation density, and ground surface visibility. Poor weather may affect the surveyor's ability to detect burrowing owls thus, the biologist shall avoid conducting surveys when wind speed is greater than 20 kilometers per hour and the site is affected by precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows shall be avoided by a minimum of 50 meters (approximately 160 feet) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows shall be avoided during all seasons.

If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 2012).

- From April 1 through October 15, low disturbance and medium disturbance activities shall have a 200-meter buffer while high disturbance activities shall have a 500-meter buffer from occupied nests.*
- From October 16 through March 31, low disturbance activities shall have a 50- meter buffer, medium disturbance activities shall have a 100-meter buffer, and high disturbance activities shall have a 500-meter buffer from occupied nests.*
- No earth-moving activities or other disturbance shall occur within the afore- mentioned buffer zones of occupied burrows. The buffer zones shall be fenced as well. If burrowing owls are found in the proposed project area, a qualified biologist shall delineate the extent of western burrowing owl habitat on the site.*

The mitigation land used to mitigate impacts to the California tiger salamander (see Mitigation Measure IV-3) shall also constitute suitable western burrowing owl mitigation land.

As an alternative to completion of MM IV-6, the project applicant could comply with one of the following conditions:

- 1. Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the Conservancy, provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCC HCP/NCCP Covered Species; or*
- 2. Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and USFWS have approved the conservation plan.*

Tricolored Blackbird

IV-8

Prior to any ground-disturbing activities commencing between February 1 and August 31, the project applicant shall retain a qualified biologist to conduct a nesting survey for tricolored blackbird. A written summary of the survey results shall be submitted to the City of Antioch Community

Development Department. If tricolored blackbirds are not identified during the surveys, further mitigation is not required.

If nesting tricolored blackbirds are identified during the surveys, a 300-foot radius around the nesting colony shall be staked with bright orange lath or other suitable staking. The size of the buffer may be altered if a qualified biologist conducts behavioral observations and determines the nesting tricolored blackbirds are well acclimated to disturbance. In such a case, the biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance or harassment to the nesting tricolored blackbirds. Construction or earth-moving activity shall not occur within the established buffer until it is determined by a qualified biologist that the young have fledged (i.e., left the nest) and have attained sufficient flight skills to avoid project construction zones, as typically occurs by August 1. Construction or earth-moving activity may occur earlier or later, subject to the discretion of a qualified biologist. If a qualified biologist is not hired to watch the nesting tricolored blackbirds, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1. If buffers are removed prior to September 1, the qualified biologist monitoring the nesting buffer(s) shall prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. The report shall be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

As an alternative to completion of Mitigation Measure IV-7, the project applicant could comply with one of the following conditions:

- 1) Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.

Nesting Migratory Birds

IV-9

If project site disturbance associated with the proposed project would commence between March 1 and September 1, a preconstruction nesting survey shall be completed in the 15-day period prior to commencing with any proposed project related disturbance on the project site or off-site improvement areas. The nesting survey shall be conducted on the project site and within a zone of influence around the project site. The zone of influence includes those areas off the project site where birds could be disturbed by earth-moving vibrations or noise as determined by a qualified ornithologist. Accordingly, the nesting survey(s) must cover the project site and an area around the project site boundary. A written summary of the survey results shall be submitted to the City of Antioch Community

Development Department. If special-status birds are not identified during the surveys, further mitigation is not required.

If special-status birds are identified nesting on or adjacent to the project site, a non-disturbance buffer of 100 feet shall be established or as otherwise prescribed by a qualified ornithologist. If common (that is, not special-status) birds, for example, California towhee, California scrub jay, or acorn woodpeckers (*Melanerpes formicivorus*), are identified nesting on or adjacent to the project site, a non-disturbance buffer of 75 feet shall be established or as otherwise prescribed by a qualified ornithologist. The buffer shall be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer shall be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.

Nesting buffers shall be maintained until September 1 unless a qualified ornithologist determines that young have fledged and are independent of their nests at an earlier date. If nest projection buffers are removed prior to September 1, the qualified biologist conducting the nesting surveys shall prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. The report shall be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

As an alternative to completion of Mitigation Measure IV-8, the project applicant could comply with one of the following conditions:

- 1) Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.

Raptors (Including White-Tailed Kite)

IV-10

Prior to commencement of ground-disturbing activities or tree removal between February 1 and August 31, the project applicant shall retain a qualified biologist to conduct raptor nesting surveys. The raptor nesting surveys shall include examination of all trees within 300 feet of the entire project site, including trees that are not planned for removal. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department. If nesting raptors are not identified during the surveys, further mitigation is not required.

If nesting raptors, including white-tailed kite, are identified during the surveys, the dripline of the nest tree shall be fenced with orange

construction fencing (provided the tree is on the project site), and a 300-foot radius around the nest tree shall be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer intersects the project site. The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance. In such case, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. Construction or earth-moving activity shall not occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (i.e., left the nest) and have attained sufficient flight skills to avoid project construction zones, which typically occurs by August 1. Initiation of construction or earth-moving activity may be earlier or later, as determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors, then the buffers shall be maintained in place through the month of August and work within the buffer may commence September 1. If buffers are removed prior to September 1, the qualified raptor biologist monitoring the nesting buffer shall prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. The report shall be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

As an alternative to completion of Mitigation Measure IV-9, the project applicant could comply with one of the following conditions:

- 1) Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.

San Joaquin Kit Fox

IV-11 The project proponent shall implement the following standard avoidance measures for San Joaquin kit fox:

- An education program shall be conducted by a qualified biologist prior to the start of construction to explain the endangered species concerns to contractors working at the project site. The program shall include an explanation of the FESA and CESA and any endangered species concerns in the area. A sign-in sheet shall be distributed to all participants of the education program and submitted to the City of Antioch within two weeks of program completion.

- *Qualified biologists shall conduct preconstruction den surveys no more than 14 days prior to site grading to ensure that potential kit fox dens are not disrupted. If “potential dens” are not identified during the surveys (potential dens are defined as burrows at least four inches in diameter which open up within two feet), further mitigation is not required. If potential dens are identified, infrared camera stations shall be set up and maintained for three consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If kit fox is not found to be using the den, site grading may proceed unhindered. However, if a kit fox is found using a den site within the project site, the USFWS and the CDFW shall be notified and consulted before work activities resume. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department.*
- *To prevent harm to San Joaquin kit fox, any steep-walled holes and/or trenches excavated on the project site shall be completely covered at the end of each workday or escape ramps shall be provided to allow any entrapped animals to escape unharmed. All pipe sections stored at the project site overnight that are four inches in diameter or greater shall be inspected for San Joaquin kit fox before the pipes are moved or buried. If San Joaquin kit fox are identified in the work area at any time, the USFWS and/or the CDFW, as well as the City, shall be notified and consulted before work activities resume. All trash items shall be removed from the site to reduce the potential for attracting predators of San Joaquin kit fox. Contractors shall be prohibited from bringing firearms and pets to the job site.*

As an alternative to completion of Mitigation Measure IV-10, the project applicant could comply with one of the following conditions:

- 1) Comply with the applicable terms and conditions of the ECCC HCP/NCCP, as determined in written “Conditions of Coverage” by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.*

American Badger

IV-12

The project applicant shall retain a qualified biologist to conduct a preconstruction den survey within 21 days prior to site grading. If potential dens are not identified, further mitigation is not required. If a potential den is located, infrared camera stations shall be set up and maintained for three consecutive nights at the potential den openings prior to initiation of grading/work activities to determine the status of the potential dens. If

American badger is not found to be using the den, the burrow shall be filled, and site grading may proceed in the vicinity of the burrow(s) unhindered. However, if American badger is found to be using a den site within the area of proposed grading, provided it is not a natal den, the badger shall be passively and humanely evicted from its den if the individual could be impacted by grading or other activities. If a natal den is found, the project proponent shall consult with CDFW to prepare an eviction plan and shall submit the eviction plan to the City prior to implementation. A written summary of the survey results shall be submitted to the City of Antioch Community Development Department.

As an alternative to completion of Mitigation Measure IV-11, the project applicant could comply with one of the following conditions:

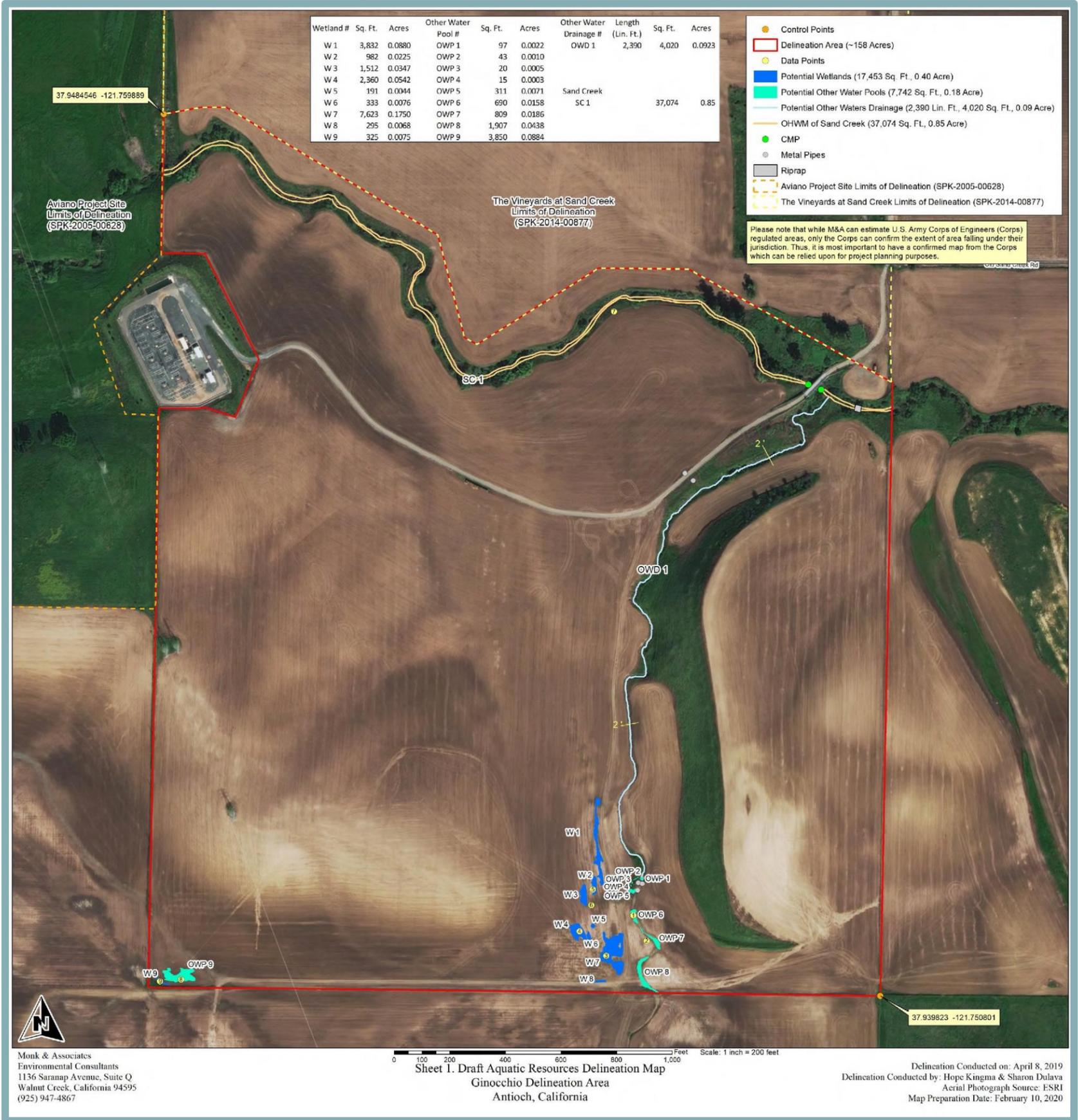
- 1) Comply with the applicable terms and conditions of the ECCCHCP/NCCP, as determined in written "Conditions of Coverage" by the East Contra Costa County Habitat Conservancy (Conservancy), provided that the City has first entered into an agreement with the Conservancy for coverage of impacts to ECCCHCP/NCCP Covered Species; or*
- 2) Comply with a habitat conservation plan and/or natural community conservation plan developed and adopted by the City, including payment of applicable fees, provided that CDFW and FWS have approved the conservation plan.*

b,c. Sand Creek, an intermittent creek, flows west to east near the northern project site boundary. The creek receives urban runoff from developments to the northwest, and from a flood control basin that was constructed upstream of the project site in Sand Creek circa 2013-2014. The average distance between ordinary high-water marks (OHWM) in Sand Creek is five to 15 feet, and the waterway is approximately 50 to 125 feet wide between the top-of-banks. Sand Creek is incised approximately 20 feet down below the existing grade of the project site, with steeply sloped banks.

The project site primarily drains to a shallow ephemeral drainage channel adjacent to the eastern edge of the project site. After large storm events, the ephemeral drainage channel flows northward to Sand Creek along the base of the eastern hillside within the site. The ephemeral drainage channel averages two to three feet between ordinary high-water marks (OHWM) and is steeply sloped in most sections. The drainage is incised three to six feet below the surrounding grade. During M&A's surveys in 2019, several pools of standing water of up to 10 inches deep were observed in the drainage thalweg.

On April 8, 2019, M&A biologists conducted a wetland delineation of the project site (see Figure 9), using criteria prescribed in the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual and the USACE 2008 Regional Supplement for the Arid West Region. The results of the wetland delineation are currently pending verification by the USACE. As noted in the Biological Resources Analysis, both Sand Creek and the ephemeral drainage are regulated as a "water of the U.S." pursuant to Section 404 of the Clean Water Act (CWA). Within the project site, the OHWM of Sand Creek covers a total of 0.85-acre and the ephemeral drainage covers a total of 0.09 acres, or 2,408 linear feet.

Figure 9
Aquatic Resources Delineation Map



Source: Monk & Associates, Inc., 2020.

Approximately 0.004-acre of disconnected water pools are located at the southern end of the ephemeral drainage. Sand Creek and the ephemeral drainage channel on the project site are channels with a bed and bank and, as such, are within the CDFW's jurisdiction pursuant to Section 1602 of the California Fish and Game Code. In addition, the southern portion of the site contains a total of 0.58-acre of seasonal wetlands and other water pools. Aquatic features were not identified within the proposed off-site improvement areas.

The proposed project would include construction of two stormwater outfalls on the banks of Sand Creek, resulting in permanent impacts to 0.0137-acre (600 sf) of waters of the U.S. that are potentially under the jurisdiction of the USACE. The remainder of Sand Creek, as well as a 200-foot buffer to the south of the creek, would be permanently conserved as open space as part of the proposed project. In addition, the project would include construction of a culverted road crossing over the existing ephemeral drainage channel within the eastern portion of the site.

The culverted road crossing would result in permanent impacts to 0.0316-acre (1,380 sf) of waters of the U.S. potentially under the jurisdiction of USACE and CDFW. Table 3 below provides a summary of the anticipated impacts to aquatic features within the project site.

Table 3 On-Site Aquatic Features		
Feature	Total Acreage	Impacted by Project
OHWM of Sand Creek	0.85	0.0137
Ephemeral Drainage	0.09	0.0316
Seasonal Wetlands	0.40	0
Other Water Pools	0.18	0
Total	1.52	0.0453
Source: Monk & Associates, Inc., 2019.		

The proposed Hillcrest Avenue crossing at Sand Creek has been previously anticipated per the City's General Plan and would be a clear span design, and would not require any substantial disturbance within the banks of Sand Creek. In addition, the existing seasonal wetlands would not be disturbed as part of the proposed project.

Because the proposed project would fill less than 0.5-acre of waters of the U.S., the proposed project likely meets conditions to use NWPs, as administered by the USACE pursuant to Section 404 of the CWA. The USACE would likely authorize use of NWP 7 (outfalls), NWP 33 (access and dewatering), NWP 14 (Linear transportation projects), and NWP 29 (Residential Development). A notification (i.e., Preconstruction Notice) must be filed with the USACE's District Engineer to obtain authorization to use such NWPs. Any Section 404 permit authorized by the USACE for the project would be subject to Section 401 water quality certification by the RWQCB, and also may be subject to the State's Porter-Cologne Water Quality Control Act.

Considering the above, the proposed project may result in fill or other disturbance of waters of the U.S. and/or the State. Therefore, the proposed project could have a substantial adverse effect on riparian habitat, sensitive natural communities, or State or federally protected wetlands, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

IV-13

Prior to discharging any dredged or fill materials into any waters of the U.S. within the project site and/or the off-site improvement areas, the applicant shall obtain permit authorization to fill wetlands under Section 404 of the federal CWA (Section 404 Permit) from USACE. The Section 404 Permit application shall include an assessment of directly impacted, avoided, and preserved acreages to waters of the U.S. Mitigation measures shall be developed as part of the Section 404 Permit to ensure no net loss of wetland function and values. Mitigation for direct impacts to waters of the U.S. within the project site and/or the off-site improvement areas would occur at a minimum of 1:1 ratio for direct impacts by purchasing seasonal wetland credits from the Cosumnes Mitigation Bank or other wetland mitigation bank that services the project site, as approved by the USACE and the RWQCB.

Alternatively, the project proponent may create, preserve, and manage new seasonal wetlands on or off of the project site at a 2:1 mitigation ratio. A project-specific Wetland Mitigation and Monitoring Plan prepared by a qualified wetland restoration ecologist that includes the following information shall be provided to the City prior to conducting any activity that would result in the placement of any fill material into a water of the U.S. or water of the State:

- *A description of the impacted water;*
- *A map depicting the location of the mitigation site(s) and a description of existing site conditions;*
- *A detailed description of the mitigation design that includes: (i) the location of the new seasonal wetlands; (ii) proposed construction schedule; (iii) a planting/vegetation plan; (iv) specific monitoring metrics, and objective performance and success criteria, such as delineation of created area as jurisdictional waters using USACE published methods; and (v) contingency measures if the created wetlands do not achieve the specified success criteria; and*
- *Short-term and long-term management and monitoring methods.*

If the wetland mitigation site is a separate mitigation property, the project proponent will grant a conservation easement to a qualified entity, as defined by Section 81.5.3 of the California Civil Code, preserving the created seasonal wetland(s) in perpetuity, and establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the created seasonal wetland(s). If the proposed project includes placing fill material into jurisdictional waters of the U.S. or waters of the State, the project proponent shall provide the City with a copy of permits issued by the USACE and RWQCB authorizing the fill.

In addition, a Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained for Section 404 permit actions. Proof of

compliance with the mitigation measure shall be submitted to the City of Antioch Community Development Department prior to the issuance of grading permits.

IV-14 Impacts to riparian habitat within CDFW's Section 1602 jurisdictional areas that would occur during the installation of two stormwater outfalls in Sand Creek, construction of the Hillcrest Avenue bridge over Sand Creek, and the installation of the potential EVA/Pedestrian Bridge over Sand Creek, shall be mitigated through planting California native trees and/or shrubs within the Sand Creek buffer area. Impacted trees and shrubs shall be mitigated with a 3:1 (replacement to impacts) ratio. Replacement trees and shrubs shall be a minimum of one gallon size trees/shrub replacements.

In addition, the project proponent will implement appropriate BMPs to prevent construction related impacts that could introduce de minimus fill or other pollutants into Sand Creek and the eastern ephemeral channel on the project site. The measures shall include the installation of wildlife-friendly hay wattles and/or silt fence that will prevent unintended de minimus fill impacts to Sand Creek while the stormwater outfalls are constructed. In addition, orange silt fencing shall be installed at the top-of-bank of Sand Creek to prevent unintended human and equipment traffic adjacent to Sand Creek. Finally, the dripline of all protected trees within the drainages on the project site, if near work areas, shall be protected through the installation of orange construction fencing.

The project proponent shall satisfy this mitigation by providing the City of Antioch with a fully executed copy of a Streambed Alteration Agreement (SBAA) with the CDFW that includes these, or other functionally equivalent, BMPs, prior to installation of the two stormwater outfalls in Sand Creek, construction of the Hillcrest Avenue bridge over Sand Creek, and/or installation of the potential EVA/Pedestrian Bridge over Sand Creek. The project proponent shall implement the conditions of the executed SBAA.

- d. Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project would not substantially interfere with the movement of native wildlife, as the majority of the project site is a disked agricultural field that has been subject to regular disturbance. Sand Creek, near the northern boundary of the project site, provides a valuable east/west wildlife corridor with suitable cover, foraging and water resources, and migration pathways that lead to other natural habitats. However, the proposed project would retain Sand Creek and a 200-foot-wide buffer to the south of the creek as open space. The two proposed outfall structures and the two proposed clear span bridges over Sand Creek would not adversely affect the existing use of the creek as a wildlife corridor. Medium and large mammal movements along the creek would remain unaffected by the proposed project.

As such, the project would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites. Thus, a **less-than-significant** impact would occur.

- e. In 2019, a tree survey was conducted on the project site by Stewart's Tree Service, Inc.¹¹ The tree survey identified a total of 14 existing trees within the project site, all of which are located along Sand Creek within the northern portion of the site. Each tree was evaluated to determine the species, trunk diameter at breast height (DBH), and health (i.e., good, fair, or poor). Installation of the two outfall structures on the banks of Sand Creek and installation of the two clear span bridges across Sand Creek may require removal of up to 12 existing trees along the banks of the waterway.

According to the City of Antioch's Zoning Ordinance, Article 12: Tree Preservation and Regulation (Section 9-5.1205), tree removal for the proposed project is evaluated as part of the "regular development application process." In deciding whether to approve the removal of a tree, or require its preservation, the City considers whether the tree being evaluated is considered a landmark, indigenous, mature, or established tree. In addition, the City would also evaluate the tree's appearance, species type, and aesthetic compatibility with the proposed project.

The City's Design Requirements under the Subdivision Ordinance (Section 9-4.617), requires the removal of all trees that conflict with grading, utilities, or improvements in the public right-of-way. Therefore, trees within any right-of-way that would conflict with roadway improvements proposed as part of the project must be removed. The trees for which the City authorizes removal must be replaced. The City's Tree Preservation and Regulation Ordinance (Section 9-5.1205) requires two 24-inch box trees for each established tree, two 48-inch box trees for each mature tree, and the City Council has discretion in determining the appropriate ratio of box tree replacement for any landmark or indigenous trees. The City of Antioch's Tree Ordinance defines six categories of trees:

- An established tree is any tree that is at least ten inches in diameter, at diameter at breast height (DBH). DBH is measured 4.5 feet above natural or finished grade.
- An indigenous tree is a naturally growing tree of the following species: Blue Oak (*Quercus douglasii*), Valley Oak (*Quercus lobata*), Coast Live Oak (*Quercus agrifolia*), Canyon Live Oak (*Quercus chrysolepis*), Interior Live Oak (*Quercus wislizenii*), California Buckeye (*Aesculus californica*), and California Bay (*Umbellularia californica*)
- A landmark tree is any tree that is at least 48 inches in DBH and/or is over 40 feet in height.
- A mature tree is any tree which is at least 26 inches in DBH.
- A street tree is any tree planted within a public right-of-way and/or a tree planting easement.
- A protected tree is any tree required to be preserved as a condition of an approval from a regular development application.

Per Title 9, Chapter 5, Article 1205 of the City's Municipal Code, a request for tree removal would be included in the final development application submitted by the project applicant.

¹¹ Stewarts Tree Service, Inc. *Tree Survey, Creekside, Antioch*. July 30, 2019.

The development application would include a site plan showing the existing topography, a description of the established trees, and a written statement requesting permission to remove the trees. Approval or denial of the tree removal request would be made as part of the development application and discretionary project review process. Adherence to the requirements set forth in the Municipal Code would ensure that the proposed project would be in compliance with the City's Tree Preservation and Regulation Ordinance. In accordance with Section 9-5.1205, the project must include replacement of trees that have been removed as part of the proposed project.

Should the project applicant fail to comply with the requirements noted above, the proposed project could conflict with local policies or ordinances protecting biological resources, including Section 9-5.1205 of the City's Municipal Code, and a **potentially significant** impact could occur.

Mitigation Measure(s):

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

IV-15 Prior to issuance of certificates of occupancy, all trees that are legally removed as part of the proposed project shall be replaced according to the following schedule, to the satisfaction of the City of Antioch Community Development Department:

- 1. Each established tree: two 24-inch box trees.*
- 2. Each mature tree: two 48-inch box trees.*

The locations and sizes of the replacement trees shall be clearly shown on the final landscape plans, subject to review and approval by the City.

- f. As noted previously, in July 2007, the ECCC HCP/NCCP was adopted by Contra Costa County, other member cities, the USFWS, and the CDFW. The City of Antioch, however, declined to participate in the HCP/NCCP. While the City is currently considering drafting a new HCP/NCCP, the document has not yet been finalized or adopted. Therefore, the project site is not located in an area with an approved HCP/NCCP, or local, regional, or State habitat conservation plan. As a result, **no impact** would occur regarding a conflict with the provisions of such a plan.

V. CULTURAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The following discussion is based on a Cultural Resources Assessment prepared for the proposed project by Natural Investigations Company.¹²

- a. Historical resources are features that are associated with the lives of historically important persons and/or historically significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. As noted in the Cultural Resources Assessment, a historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] Section 21084.1), a resource included in a local register of historical resources (PRC Section 15064.5[a][2]), or any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (PRC Section 15064.5[a][3]).

As part of the Cultural Resources Assessment, a California Historical Resources Information System (CHRIS) records search was conducted by the Northwest California Information Center (NWIC) to determine whether prehistoric or historic cultural resources have been previously recorded within the project area, the extent to which the project area has been previously surveyed, and the number and type of cultural resources within a 0.25-mile radius of the project site limits. In addition, an intensive pedestrian survey of the entire project site was conducted by Natural Investigations between January 27 and 29, 2020. During the pedestrian survey, all visible ground surfaces within the project area were examined for cultural materials; soil discoloration that might indicate the presence of cultural midden; soil depressions and features indicative of the former presence of structures or buildings (e.g., postholes, foundations); and historic period debris (e.g., metal, glass, ceramic). Ground disturbances (e.g., animal burrows, dirt roads, etc.) were also visually inspected for cultural remains.

The CHRIS records search indicates that two cultural resources (P-07-000005 and-07-002951) have been previously recorded within the project site, and one additional resource has been previously recorded outside the project site and off-site improvement areas, but within the 0.25-mile search radius. In addition, one previously unrecorded cultural resource (NI751-S-001) was identified during the field survey. It should be noted that while the off-site improvement areas were not included in the field survey, such areas do not include any existing structures or notable features that could be considered historic.

¹² Natural Investigations Company. *Cultural Resources Assessment for the Creekside Vineyards at Sand Creek Subdivision Project, Antioch, Contra Costa County, California*. February 2020.

The first of the two sites within the project site (P-07-000005) is an outpost of the historical Heidorn Ranch, made up of numerous archaeological features including an earthen ramp, metal water tank, cistern, fencing, and other debris. As noted in the Cultural Resources Assessment, archaeological testing, agricultural disking, and construction related to PG&E substation improvements have disturbed the site since its original recording. The resource was recommended ineligible for listing on the NRHP/CRHR during a previous evaluation. The second resource within the project site (P-07-002951) is the Contra Costa Las Positas Transmission Line, which extends for 24 miles through portions of Contra Costa and Alameda Counties. An evaluation of the resource completed in 2008 concluded that the resource is not eligible for listing on either the NRHP or the CRHR under any criteria.

In addition to the resources noted above, the Caltrans Statewide Historic Bridge Inventory identifies the existing PG&E bridge located within the northeastern portion of the project site, along the access road to the PG&E distribution substation, south from Heidorn Ranch Road. The PG&E bridge was built in 2007 when the Antioch substation was established and is not eligible for listing on either the NRHP or the CRHR, according to the Cultural Resources Assessment.

The previously unrecorded cultural resource (NI751-S-001) identified during the field survey is a remnant timber post and barbed-wire fence on the hill lining the eastern border of the project site. Based on the findings of the Cultural Resources Assessment, NI751-S-001 does not appear to have the data potential or integrity needed to comprise a NRHP/CRHR-eligible resource, and further consideration is not required.

Based on the above, the project site and off-site improvement areas do not contain any existing historic resources. Therefore, the project would not cause a substantial adverse change in the significance of a historical resource, and a **less-than-significant** impact would occur.

- b,c. Based on the results of the CHRIS records search conducted as part of the Cultural Resources Assessment, the project site and off-site improvement areas do not include any known archaeological resources. In addition, a search of the Native American Heritage Commission (NAHC) Sacred Lands File search did not yield any information regarding the presence of Tribal Cultural Resources within the project site or off-site improvement areas. Archaeological site indicators or soils were not observed during the survey of the project site.

However, unknown archaeological resources, including human remains, have the potential to be uncovered during ground-disturbing construction and excavation activities associated with the proposed project. Therefore, if previously unknown resources are encountered during construction activities, the proposed project could cause a substantial adverse change in the significance of a unique archaeological resource pursuant to CEQA Guidelines Section 15064.5 and/or disturb human remains, including those interred outside of dedicated cemeteries, during construction. Therefore, impacts could be considered **potentially significant**.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a **less-than-significant** level.

- V-1 *Prior to initiation of ground-disturbing activities, a consultant and construction worker tribal cultural resources training program shall be provided for all personnel involved in project implementation, to be administered by a qualified cultural resources specialist. The training program shall include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations. The worker cultural resources awareness program shall also describe appropriate avoidance and minimization measures for resources that have the potential to be located on the project site, and shall outline what to do and whom to contact if any potential archaeological resources or artifacts are encountered. The program shall also underscore the requirement for confidentiality and culturally-appropriate treatment for any find of significance to Native Americans and behaviors, consistent with Native American tribal values. A sign-in sheet shall be distributed to all participants of the training program and submitted to the City of Antioch within two weeks of program completion.*
- V-2 *In the event of the accidental discovery or recognition of any or human remains, further excavation or disturbance of the find or any nearby area reasonably suspected to overlie adjacent human remains shall not occur until compliance with the provisions of CEQA Guidelines Section 15064.5(e)(1) and (2) has occurred. The Guidelines specify that in the event of the discovery of human remains other than in a dedicated cemetery, no further excavation at the site or any nearby area suspected to contain human remains shall occur until the County Coroner has been notified to determine if an investigation into the cause of death is required. If the coroner determines that the remains are Native American, then, within 24 hours, the Coroner must notify the Native American Heritage Commission, which in turn will notify the most likely descendants who may recommend treatment of the remains and any grave goods. If the Native American Heritage Commission is unable to identify a most likely descendant or most likely descendant fails to make a recommendation within 48 hours after notification by the Native American Heritage Commission, or the landowner or his authorized agent rejects the recommendation by the most likely descendant and mediation by the Native American Heritage Commission fails to provide a measure acceptable to the landowner, then the landowner or his authorized representative shall rebury the human remains and grave goods with appropriate dignity at a location on the property not subject to further disturbances. Should human remains be encountered, a copy of the resulting County Coroner report noting any written consultation with the Native American Heritage Commission shall be submitted as proof of compliance to the City's Community Development Department.*
- V-3 *If any prehistoric or historic artifacts, or other indications of cultural deposits, such as historic privy pits or trash deposits, are found once ground disturbing activities are underway, all work within the vicinity of the find(s) shall cease, the City of Antioch shall be notified, and the find(s) shall be immediately evaluated by a qualified archaeologist and Native American representatives from culturally affiliated Native American tribes to assess*

the significance of the find and make recommendations for further evaluation and treatment, as necessary. Such recommendations shall be documented in the project record. For any recommendations made by interested Native American tribes which are not implemented, a justification for why the recommendation was not followed will be provided in the project record. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment to allow for implementation of avoidance measures or appropriate mitigation shall be made available (CEQA Guidelines Section 15064.5). Work may continue on other parts of the project site while historical or unique archaeological resource mitigation takes place (Public Resources Code Sections 21083 and 21087).

If inadvertent adverse impacts to tribal cultural resources, unique archeology, or other cultural resources occurs, consultation with the culturally affiliated Native American tribes regarding the standards contained in Public Resources Code sections 21084.3(a) and (b) and CEQA Guidelines section 15370 should occur, in order to coordinate for compensation for the adverse impacts by replacing or providing substitute resources or environments.

VI. Energy.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. The main forms of available energy supply are electricity, natural gas, and oil. A description of the 2019 California Green Building Standards Code and the Building Energy Efficiency Standards, with which the proposed project would be required to comply, as well as discussions regarding the proposed project’s potential effects related to energy demand during construction and operations are provided below.

California Green Building Standards Code

The 2019 California Green Building Standards Code, otherwise known as the CALGreen Code (CCR Title 24, Part 11), is a portion of the California Building Standards Code (CBSC), which became effective with the rest of the CBSC on January 1, 2020. The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices. The provisions of the code apply to the planning, design, operation, construction, use, and occupancy of every newly constructed building or structure throughout California. Requirements of the CALGreen Code include, but are not limited to, the following measures:

- Compliance with relevant regulations related to future installation of Electric Vehicle charging infrastructure in residential and non-residential structures;
- Indoor water use consumption is reduced through the establishment of maximum fixture water use rates;
- Outdoor landscaping must comply with the California Department of Water Resources’ Model Water Efficient Landscape Ordinance (MWELO), or a local ordinance, whichever is more stringent, to reduce outdoor water use;
- Diversion of 65 percent of construction and demolition waste from landfills;
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board; and
- For some single-family and low-rise residential development developed after January 1, 2020, mandatory on-site solar energy systems capable of producing 100 percent of the electricity demand created by the residence(s). Certain residential developments, including those developments that are subject to substantial shading, rendering the use of on-site solar photovoltaic systems infeasible, are exempted from the foregoing requirement.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC, which expands upon energy efficiency measures from the 2016 Building Energy Efficiency Standards. Per the California Energy Commission, single-family homes built with the 2019 standards use

approximately seven percent less energy due to energy efficiency measures versus those built under the 2016 standards.¹³ Once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use approximately 53 percent less energy than those under the 2016 standards.

Construction Energy Use

Construction of the proposed project would involve on-site energy demand and consumption related to use of oil in the form of gasoline and diesel fuel for construction worker vehicle trips, hauling and materials delivery truck trips, and operation of off-road construction equipment. In addition, diesel-fueled portable generators may be necessary to provide additional electricity demands for temporary on-site lighting, welding, and for supplying energy to areas of the sites where energy supply cannot be met via a hookup to the existing electricity grid. Project construction would not involve the use of natural gas appliances or equipment.

Even during the most intense period of construction, due to the different types of construction activities (e.g., site preparation, grading, building construction), only portions of the project site would be disturbed at a time, with operation of construction equipment occurring at different locations on the project site, rather than a single location. In addition, all construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation. The In-Use Off-Road Diesel Vehicle Regulation is intended to reduce emissions from in-use, off-road, heavy-duty diesel vehicles in California by imposing limits on idling, requiring all vehicles to be reported to CARB, restricting the addition of older vehicles into fleets, and requiring fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. The In-Use Off-Road Diesel Vehicle Regulation would subsequently help to improve fuel efficiency and reduce GHG emissions. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to reduce demand on oil and emissions associated with construction.

The CARB has prepared the *2017 Climate Change Scoping Plan Update* (2017 Scoping Plan),¹⁴ which builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions (municipal code changes, zoning changes, policy directions, and mitigation measures) that would support the State's climate goals. The examples provided include, but are not limited to, enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment. The In-Use Off-Road Diesel Vehicle Regulation described above, with which the proposed project must comply, would be consistent with the intention of the 2017 Scoping Plan and the recommended actions included in Appendix B of the 2017 Scoping Plan.

Based on the above, the temporary increase in energy use occurring during construction of the proposed project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. In addition, the proposed project would be required to comply with all applicable regulations related to

¹³ California Energy Commission. *2019 Building Energy Efficiency Standards*. March 2018.

¹⁴ California Air Resources Board. *The 2017 Climate Change Scoping Plan Update*. January 20, 2017.

energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand.

Operational Energy Use

Following implementation of the proposed project, PG&E would provide electricity and natural gas to the project site. Energy use associated with operation of the proposed project would be typical of residential uses, requiring electricity and natural gas for interior and exterior building lighting, heating, ventilation, and air conditioning (HVAC), electronic equipment, machinery, refrigeration, appliances, security systems, and more. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with vehicle trips generated by the proposed residential development.

The proposed residential project would be subject to all relevant provisions of the most recent update of the CBSC, including the Building Energy Efficiency Standards. Adherence to the most recent CALGreen Code and the Building Energy Efficiency Standards would ensure that the proposed structures would consume energy efficiently through the incorporation of such features as efficient water heating systems, high performance attics and walls, and high efficacy lighting. Required compliance with the CBSC would ensure that the building energy use associated with the proposed project would not be wasteful, inefficient, or unnecessary. In addition, electricity supplied to the project by PG&E would comply with the State's Renewables Portfolio Standard, which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020 and to 60 percent by 2030. Thus, a portion of the energy consumed during project operations would originate from renewable sources.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. Issues related to vehicle miles travelled (VMT) and access to public transit, bicycle, and pedestrian facilities will be addressed in the Transportation chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

Conclusion

Based on the above, construction and operation of the proposed project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Thus, a ***less-than-significant*** impact would occur.

VII. GEOLOGY AND SOILS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The following discussion is based on a Geotechnical Summary Report prepared for the proposed project by ENGEO Inc. (see Appendix B).¹⁵

ai-ii. According to the Geotechnical Summary Report, the project site is not located within an Alquist-Priolo Earthquake Fault Zone. The two nearest earthquake faults zoned as active by the California Geological Survey are the Greenville Connected fault, located approximately 6.0 miles to the southwest of the project site, and the Great Valley fault, located approximately 7.0 miles northwest of the site. An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (within the last 11,000 years). Thus, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development would be low.

Due to the site’s proximity to nearby active faults, the potential exists for the proposed residential buildings to be subject to seismic ground shaking. In particular, per the Geotechnical Summary Report, the Great Valley fault is capable of causing substantial ground shaking at the project site. In addition, the project site could be exposed to ground lurching during earthquake events. Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling

¹⁵ ENGEO Inc. *Creekside, Antioch, California, Preliminary Geotechnical Summary Report*. February 27, 2019.

motion can cause ground cracks to form in weaker soils. The potential for the formation of such cracks is considered greater at contacts between deep alluvium and bedrock.

However, per the Geotechnical Summary Report, potential ground surface offset from ground lurching at the project site is expected to be very minor. In addition, the proposed buildings would be properly engineered in accordance with the latest version of the CBSC, which includes engineering standards appropriate for the seismic area in which the project site is located. Structures built consistent with the CBSC 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 with the design standards is enforced through building plan review and approval by the City of Antioch Building Division prior to the issuance of building permits. Proper engineering of the proposed project would ensure that seismic-related effects would not cause adverse impacts. Therefore, a **less-than-significant** impact would occur related to seismic surface rupture and strong seismic ground shaking.

aiii,aiv,

c,d. The proposed project's potential effects related to liquefaction, landslides, lateral spreading, settlement, and expansive soils are discussed in detail below.

Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded fine sands below the groundwater table. Empirical evidence indicates that loose silty sands are also potentially liquefiable. When seismic ground shaking occurs, the soil is subjected to cyclic shear stresses that can cause excess hydrostatic pressures to develop. If excess hydrostatic pressures exceed the effective confining stress from the overlying soil, the sand may undergo deformation. If the sand undergoes virtually unlimited deformation without developing significant resistance, the sand is said to have liquefied, and if the sand consolidates or vents to the surface during and following liquefaction, ground settlement and surface deformation may occur. Borings conducted as part of the Geotechnical Summary Report on the northern edge of the project site encountered medium-dense to dense sands below the groundwater table, beginning as shallow as 25 feet below ground surface. Based on the previous liquefaction analysis by ENGeo, Inc., the subsurface sands within the project site may have the potential to liquefy during a design-level seismic event. In addition, per the California Geological Survey, portions of the project site are included within a designated Liquefaction Zone.¹⁶

Deformation of the ground surface is a common result of liquefaction. Vertical settlement may result from densification of the deposit or volume loss from venting to the ground surface. Densification occurs as excess pore pressures dissipate, resulting as vertical settlement at the ground surface. Based on the previous liquefaction analysis performed by ENGeo, Inc., the total liquefaction-based settlement at the project site would likely vary over the entirety of the site. Per the Geotechnical Summary Report, total liquefaction-induced settlements would be up to approximately two inches in areas where the sand thickness is approximately 10 feet. Implementation of the grading and structural design

¹⁶ California Geological Survey. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed March 2020.

recommendations contained within the Geotechnical Summary Report would be necessary to alleviate liquefaction and liquefaction-induced settlement risks.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslides is greatest in the late winter when groundwater levels are highest and hillside colluvium is saturated. As with all slopes in the region, landslide risks are present at the site to varying degrees, depending on the slope conditions and time of year. Areas of potential landslide deposits “Qls” were mapped by Nilsen (1975) and identified by ENGEO, Inc. on the west-facing slope located in the southeastern portion of the site. In addition, per the California Geological Survey, portions of the project site are included within a designated Landslide Zone.¹⁷ The landslide deposit identified by ENGEO consists of multiple shallow earthflows and slumpflow-type failures likely caused by erosion at the toe of the slope. The identified landslide area has a relatively high likelihood of experiencing future instability.

The currently mapped landslide area is located outside the proposed development area. Nonetheless, site-specific design considerations would be required in order to ensure that the proposed project would not result in substantial risks related to landslides.

Lateral Spreading

Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) which causes the overlying soil mass to move toward a free face or down a gentle slope. Sand Creek within the northern portion of the site is situated within a deeply incised channel with steeply-sloped sides. Thus, construction of the proposed clear span bridges at Sand Creek, as well as the proposed detention and bio-retention basins within the northeastern portion of the site, would be required to incorporate specific design considerations to avoid potential risks related to lateral spreading and slope stability.

Settlement

The structures proposed within the southwestern portion of the project site may be located in colluvial deposits. Excessive total and differential settlement at the site may result from settlement of foundation elements supported directly over such compressible colluvial deposits. To reduce settlement resulting from the deposits, the Geotechnical Summary Report includes recommendations to overexcavate the deposits to expose stiff in-place materials, and to restore the deposit locations with properly compacted engineered fill material. Soil from the deposits may be reused as fill material.

Expansive Soils

Expansive soils shrink and swell as a result of moisture changes, which can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by appropriate grading practices and using post-tensioned slab foundations or similarly stiffened foundation systems, which are designed to resist the deflections associated with soil expansion.

¹⁷ California Geological Survey. *Earthquake Zones of Required Investigation*. Available at: <https://maps.conservation.ca.gov/cgs/EQZApp/app/>. Accessed March 2020.

Based on the results of on-site soil boring investigations conducted as part of the Geotechnical Summary Report, the near-surface soils within the project site exhibit low to moderate shrink/swell potential with variations in moisture content. Compliance with the design recommendations included in the Geotechnical Summary Report would be necessary to ensure that hazards related to expansive soils do not occur.

Conclusion

Based on the above discussion, without incorporation of site-specific design considerations, the proposed project could be subject to risks related to liquefaction and landslides, as well as risks related to being located on potentially unstable soils, thereby resulting in lateral spreading and/or settlement. In addition, the project site is located on low- to moderately expansive soil. Thus, a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

VII-1 *Prior to issuance of any grading permits, all recommendations set forth in Sections 5.0, 6.0, and 7.0 of the Geotechnical Summary Report prepared for the proposed project shall be reflected on the project grading and foundation plans, subject to review and approval by the City Engineer.*

VII-2 *Prior to issuance of any grading permits, the project applicant shall submit to the City of Antioch Engineering Department, for review and approval, a design-level geotechnical exploration study produced by a California Registered Civil Engineer or Geotechnical Engineer and identify grading and building practices necessary to achieve compliance with the latest adopted edition of the California Building Standards Code's geologic, soils, and seismic requirements. Consistent with Section 8.0 of the Geotechnical Summary Report prepared for the proposed project, the design-level geotechnical exploration study shall include supplemental borings, surface samples, Cone Penetration Tests (CPTs) and laboratory soil testing to address the following geotechnical concerns:*

- *Liquefaction-induced settlement risks, lateral spreading risks, and design considerations.*
- *Detailed foundation design criteria based on building types and surficial soil material properties.*
- *Identification of any undocumented fill located on the property.*

The design-level geotechnical exploration study shall identify measures to address construction requirements to mitigate any potential geotechnical hazards.

- b. During grading activities associated with development of the proposed project, and prior to overlaying of the ground with impervious surfaces and landscaping elements, topsoil would temporarily be exposed. Thus, the potential exists for wind and water to erode portions of the exposed topsoil during construction, which could adversely affect downstream storm drainage facilities. Impacts related to substantial soil erosion or the

loss of topsoil during construction of the proposed project would be **potentially significant**.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-3 *Prior to issuance of grading and building permits, the project applicant shall submit, for the review and approval by the City Engineer, an erosion control plan that utilizes standard construction practices to limit the erosion effects during construction of the proposed project. Measures shall include, but are not limited to, the following:*

- *Hydro-seeding;*
- *Placement of erosion control measures within drainage ways and ahead of drop inlets;*
- *The temporary lining (during construction activities) of drop inlets with “filter fabric” (a specific type of geotextile fabric);*
- *The placement of straw wattles along slope contours;*
- *Directing subcontractors to a single designation “wash-out” location (as opposed to allowing them to wash-out in any location they desire);*
- *The use of siltation fences; and*
- *The use of sediment basins and dust palliatives.*

- e. Sanitary sewer service would be provided to the project site by an extension of the existing 24-inch sanitary sewer pipe from the Promenade/Vineyards at Sand Creek Project through a connection over Sand Creek at the same location as the existing PG&E bridge. The construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the proposed project. Therefore, **no impact** regarding the capability of soil to adequately support the use of septic tanks or alternative wastewater disposal systems would occur.
- f. As noted in the Cultural Resources Assessment prepared for the proposed project by Natural Investigations Company, paleontological resources occur in geologic units (e.g., formations or members). The probability for finding significant fossils at a given location can be estimated based on previous records of fossils recovered from the geologic units present in and/or adjacent to the location. Based on paleontological research conducted as part of the Cultural Resources Assessment, the project area is underlain by Eocene-aged (56 to 33.9 million years ago) Markley Sandstone bedrock (Tkm) of the Kreyenhagen Formation. Quaternary alluvium from Sand Creek (Qa) overlies the Markley Formation at lower elevations at north, south, and center of the project site. Such sediments date from the Latest Pleistocene to historic times (30,000 to 150 years ago). Both the Eocene-aged Markley Formation and Quaternary sediments have yielded vertebrate remains which are considered important paleontological resources for CEQA purposes. Thus, the Cultural Resources Assessment concluded that the project site has variable sensitivity for paleontological resources, ranging from low to high, and increasing with depth, though the precise depth that high sensitivity Pleistocene sediments are reached is unknown.

Project-related ground disturbances, such as grading, trenching or excavating, could have the potential to affect previously undisturbed Quaternary alluvium at, or just below, the depth of past agricultural disturbances such as disking. Such disturbance could impact vertebrate fossils, if present within the proposed disturbance area. Given that the upper portions of the two hill forms within the project site where Markley Sandstone is exposed would not be graded or developed as part of the proposed project, the project disturbances to any previously unknown Eocene-aged fossils is unlikely, though still possible in lower elevation where overlying alluvium and colluvium is most shallow (i.e., furthest from natural drainages and the base of slopes). Therefore, the proposed project could result in the direct or indirect destruction of a unique paleontological resource, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above potential impact to a *less-than-significant* level.

VII-4 *Prior to initiation of ground-disturbing activities, the applicant shall retain the services of a professional paleontologist to conduct a Worker's Environmental Awareness Training for the construction crew that will be conducting earthmoving activities (i.e., grading and excavation) at the project site and off-site improvement areas. The Environmental Awareness Training may be conducted concurrently with the tribal cultural resources training program required per Mitigation Measure V-1 of this Initial Study. Consistent with the recommendations of the 2020 Cultural Resources Assessment prepared for the proposed project by Natural Investigations, training shall include information on the types of fossils that may be encountered during project work, relevant compliance requirements, and the course to action to be taken in the event of an inadvertent fossil discovery.*

Should any vertebrate fossils (e.g., teeth, bones), an unusually large or dense accumulation of intact invertebrates, or well-preserved plant material (e.g., leaves) be unearthed by the construction crew, ground-disturbing activity shall be diverted to another part of the project site and the City and paleontologist shall be called on-site to assess the find and, if significant, recover the find in a timely matter. Finds determined significant by and paleontologist shall then be conserved and deposited with a recognized repository, such as the University of California Museum of Paleontology. The alternative mitigation would be to leave the significant finds in place, determine the extent of significant deposit, and avoid further disturbance of the significant deposit. Within two weeks of training completion, proof of the construction crew awareness training shall be submitted to the City's Community Development Department in the form of a copy of training materials and the completed training attendance roster.

VIII. Greenhouse Gas Emissions.

Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. An individual project's GHG emissions are at a micro-scale level relative to global emissions and effects to global climate change; however, an individual project could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

A number of regulations currently exist related to GHG emissions, predominantly Assembly Bill (AB 32), Executive Order S-3-05, and Senate Bill (32). AB 32 sets forth a statewide GHG emissions reduction target of 1990 levels by 2020. Executive Order S-3-05 sets forth a transitional reduction target of 2000 levels by 2010, the same target as AB 32 of 1990 levels by 2020, and further builds upon the AB 32 target by requiring a reduction to 80 percent below 1990 levels by 2050. SB 32 also builds upon AB 32 and sets forth a transitional reduction target of 40 percent below 1990 levels by 2030. In order to implement the statewide GHG emissions reduction targets, local jurisdictions are encouraged to prepare and adopt area-specific GHG reduction plans and/or thresholds of significance for GHG emissions.

Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO₂) and, to a lesser extent, other GHG pollutants, such as methane (CH₄) and nitrous oxide (N₂O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. Buildout of the proposed project would contribute to increases of GHG emissions that are associated with global climate change during construction and operations. As such, the proposed project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Therefore, impacts related to GHG emissions and global climate change could be considered **potentially significant**.

Further analysis of this impact will be discussed in the Air Quality and Greenhouse Gas Emissions chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

IX. HAZARDS AND HAZARDOUS MATERIALS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. Residential land uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Future residents may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the amount utilized on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and a **less-than-significant** impact would occur.
- b. The following discussion provides an analysis of potential hazards and hazardous materials associated with upset or accident conditions related to the proposed construction activities and existing on-site conditions.

Construction Activities

Construction activities associated with the proposed project would involve the use various products such as concrete, paints, and adhesives, as well as the use of heavy equipment, which would contain fuels, oils, and hydraulic fluid. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with

all California Health and Safety Codes and local City ordinances regulating the handling, storage, and transportation of hazardous and toxic materials.

Existing On-Site Hazardous Materials

A Phase I Environmental Site Assessment (ESA) was prepared for the proposed project by ENGEО, Inc. for the purpose of identifying potential recognized environmental conditions (RECs) associated with the project site (see Appendix C).¹⁸ The Phase I ESA included a survey of the site and a review of historical documentation, aerial photography, regulatory agency files, and environmental site radius reports. In addition, the Phase I ESA incorporates the findings of a separate Phase I ESA prepared in August 2000 for the project site and the neighboring parcels to the north, south, and west.

Historical sources reviewed as part of the most recent Phase I ESA indicate that the project site has been used for dry land farming, cattle grazing, and oil production. The site has not been developed within any habitable structures. Currently, an electric transmission line extends through the southwestern portion of the project site, trending northwest-to-southeast. A PG&E access road crosses the northern portion of the project site, trending west to east. The access road connects between the PG&E electric substation to the west of the project site and Heidorn Ranch Road to the northeast of the project site.

Per the Phase I ESA, features such as stressed vegetation, septic systems, water wells, above-ground storage tanks (ASTs), and underground storage tanks (USTs) were not identified on the site. In addition, the Vapor Encroachment Screening (VES) conducted as part of the Phase I ESA did not identify any vapor encroachment conditions associated with the project site due to contaminated soils and/or groundwater. Based on a review of environmental record sources regarding the project site and nearby properties, the project site is not located within the vicinity of any preexisting off-site hazards that could pose a risk to the proposed development.

While not considered RECs, the Phase I ESA noted that the site includes a total of four abandoned oil/gas wells within the project site, the locations of which are shown in Figure 10 below. An additional 13 wells are located on adjacent parcels to the north, south, and west of the project site. The wells identified on the project site and adjacent parcels were drilled from 1962 through 1987 and have since been plugged and abandoned. ENGEО, Inc. has indicated the potential for subsurface impacts associated with well improvements from condensate tanks, compressor units, and drilling sumps. In addition, the site previously contained multiple oil/gas pipelines. While the Phase I ESA notes that such pipelines are believed to have been removed from the project site, the potential exists for remnants of the pipelines to be encountered during project construction.

It should be noted that the project applicant has submitted an application for a new oil/gas well on the project site. Installation and operation of the oil/gas well on the project site would be conducted in compliance with all applicable regulations, including California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) guidelines and recommendations for setback, casing height, and measures for venting systems. Compliance with such would ensure that the new oil/gas well would not create a significant hazard to the public or the environment through upset or accident conditions.

¹⁸ ENGEО, Inc. *Creekside, Antioch, California, Phase I Environmental Site Assessment*. March 1, 2019.

Figure 10
Existing Oil and Gas Well Locations



Note: The site plan included in the figure above does not reflect the current development proposal for the project site.

Source: ENGeo, Inc., 2019.

Conclusion

Construction activities would be required to adhere to all relevant guidelines and ordinances regulating the handling, storage, and transportation of hazardous materials. In addition, based on the results of the Phase I ESA, existing RECs have not been identified on the project site. Nonetheless, the project site contains four existing oil/gas wells that could pose a risk to the proposed project if not properly managed.

In addition, the potential exists for ground-disturbing activities associated with the proposed project to encounter oil/gas pipelines associated with former petroleum extraction operations on the project site. Therefore, implementation of the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment, and a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above potential impact to a *less-than-significant* level.

- IX-1 *Prior to final map approval, the project applicant shall submit to the City of Antioch Engineering Department, for review and approval, plans which show that future inhabited structures will not be located over the four on-site abandoned oil/gas wells. The plans shall be completed in compliance with the Division of Oil, Gas, and Geothermal Resources (DOGGR) Construction Site Review Program, which includes guidelines and recommendations for setbacks and mitigation measures for venting systems. If grading is proposed proximate to the four abandoned well locations, DOGGR shall be consulted to determine if the wells will require modification in casing height. In addition, DOGGR shall be consulted to determine if the well abandonment procedures are consistent with current requirements.*
- IX-2 *If remnant oil/gas pipelines are encountered during site development work, the pipelines shall be abandoned and/or removed in accordance with applicable federal, State, and/or local standards to the satisfaction of the Contra Costa Environmental Health Department and the City Engineer. If any indicators of apparent soil contamination (soil staining, odors, debris fill material, etc.) are found at the project site associated with the petroleum pipelines, the impacted area shall be isolated from surrounding, non-impacted areas. The project environmental professional shall obtain samples of the potentially impacted soil for analysis of the contaminants of concern and comparison with applicable regulatory residential screening levels (i.e., Environmental Screening Levels, California Human Health Screening Levels, Regional Screening Levels, etc.). Where the soil contaminant concentrations exceed the applicable regulatory residential screening levels, the impacted soil shall be excavated and disposed of offsite at a licensed landfill facility to the satisfaction of the Contra Costa Environmental Health Department. If soil contaminants do not exceed the applicable regulatory residential screening levels, further action is not required.*

- c. The proposed project site is not located within a quarter mile of any existing or proposed schools. The nearest school is Loma Vista Elementary School, located approximately 0.75-mile east of the site. While the Antioch Unified School District owns a parcel approximately 0.5-mile to the west of the project site (APN #057-042-005), development of the property with a school is not proposed at this time. Furthermore, as discussed above, hazardous materials would not be emitted during construction or operation of the proposed project. Therefore, the proposed project would have **no impact** related to hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- d. Per the Phase I ESA, the proposed project site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.¹⁹ Therefore, the project would not create a significant hazard to the public or the environment associated with such, and **no impact** would occur.
- e. The nearest airport to the site is the Byron Airport, located approximately 10 miles southeast of the site. As such, the project site is not located within two miles of any public airports or private airstrips, and does not fall within an airport land use plan area. Therefore, **no impact** related to a safety hazard for people residing or working in the project area related to such would occur.
- f. In 1996, the City of Antioch approved an Emergency Plan that addresses response to disasters, including, but not limited to, earthquakes, floods, fires, hazardous spills or leaks, major industrial accidents, major transportation accidents, major storms, airplane crashes, environmental response, civil unrest, and national security emergencies. The plan outlines the general authority, organization, and response actions for City of Antioch staff when disasters happen. Implementation of the proposed project would not result in any substantial modifications to the existing roadway system and, thus, would not physically interfere with the Emergency Plan, particularly with identified emergency routes. Furthermore, the proposed project would not include land uses or operations that could impair implementation of the plan. Therefore, the proposed project would not interfere with an emergency evacuation or response plan, and a **less-than-significant** impact would occur.
- g. Issues related to wildfire hazards are discussed in Section XX, Wildfire, of this Initial Study. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is located within a Local Responsibility Area and is included in a “Moderate” Fire Hazard Severity Zone; the site is not located within a Very High Fire Hazard Severity Zone.²⁰ The area to the south of the project site, which is located outside of the city limits within a State Responsibility Area (SRA), is similarly classified as a Moderate Fire Hazard Severity Zone. The open space areas proposed within the eastern and western portions of the project site would continue to be subject to grazing to reduce vegetation growth, thereby minimizing the fuel load within the vicinity of the proposed homes. In addition, upon completion of the Promenade/Vineyards at Sand Creek Project to the north of the project site, directly west of Heidorn Ranch Road, as well as future development of residential uses to the west east of the project site, wildfire risk at the project site would be further reduced. Therefore, the

¹⁹ ENGEO, Inc. *Creekside, Antioch, California, Phase I Environmental Site Assessment*. March 1, 2019.

²⁰ California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

proposed project would not expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

X. HYDROLOGY AND WATER QUALITY.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. The following discussion provides a summary of the proposed project’s potential to violate water quality standards/waste discharge requirements or otherwise degrade water quality within Sand Creek during construction and operation.

Construction

During the early stages of construction activities, topsoil would be exposed due to grading and excavation of the site. After grading and prior to overlaying the ground surface with impervious surfaces and structures, the potential exists for wind and water erosion to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality within Sand Creek and other downstream waterways.

The State Water Resources Control Board (SWRCB) regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in a land disturbance of one or more acres. The City’s National Pollutant Discharge Elimination System (NPDES) permit requires applicants to show proof of coverage under the State’s General Construction Permit prior to receipt of any construction permits. The State’s General Construction Permit requires a Storm Water Pollution Prevention Plan (SWPPP) to be prepared for the site. A SWPPP describes Best Management Practices (BMPs) to control or minimize pollutants from entering stormwater and must address both grading/erosion impacts and non-point source pollution impacts of the development project. Because the proposed project would disturb greater than one acre of land, the

proposed project would be subject to the requirements of the State's General Construction Permit.

Operation

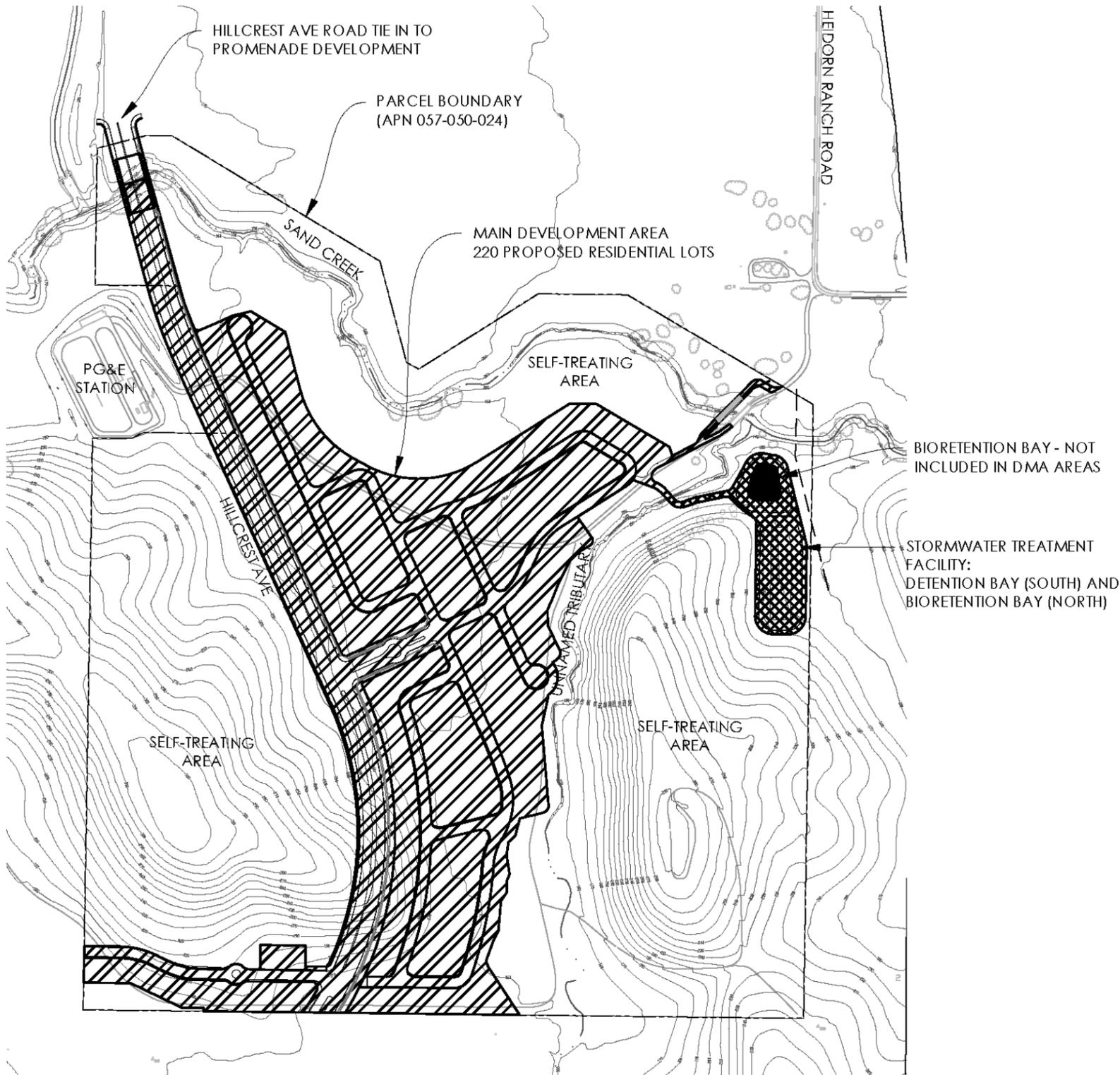
The proposed residential uses would not involve operations typically associated with the generation or discharge of polluted water. Thus, typical operations on the project site would not violate any water quality standards or waste discharge requirements, nor degrade water quality. However, addition of the impervious surfaces on the site would result in the generation of urban runoff, which could contain pollutants if the runoff comes into contact with vehicle fluids on parking surfaces and/or landscape fertilizers and herbicides. All municipalities within Contra Costa County (and the County itself) are required to develop more restrictive surface water control standards for new development projects as part of the renewal of the Countywide NPDES permit.

The City of Antioch has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 or more square feet of impervious area to contain and treat all stormwater runoff from the project site. Thus, the proposed project would be subject to the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), including the C.3 Standards, which are included in the City's NPDES General Permit. Compliance with such requirements would ensure that impacts to water quality standards or waste discharge requirements would not occur during operation of the proposed project.

The Stormwater Control Plan (SWCP) prepared for the proposed project conforms with the most recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements. In compliance with the C.3 Guidebook, the proposed development area would be divided into two distinct drainage management areas (DMAs) (see Figure 11). Stormwater runoff from Hillcrest Avenue and the proposed residential neighborhoods would be directed to new detention and bio-retention basins located within the northeastern portion of the site (Parcel D). The basins would provide for treatment and detention of captured stormwater runoff by filtering runoff slowly through an active layer of soil. Treated stormwater runoff would flow into Sand Creek by way of a new outfall structure to be constructed on the south side of the existing outfall facility that was constructed by the Promenade/Vineyards at Sand Creek Project. The basins would be sized to meet or exceed the minimum volume requirements necessary to adequately handle all runoff from the proposed impervious surfaces and landscaping within the drainage area.

Stormwater runoff from the open space area in the western hillside of the project site (Parcels L and N) would be captured prior to reaching Hillcrest Avenue; half of the captured runoff would be directed north to a new clean water outfall adjacent to the Hillcrest Avenue bridge and the remainder would be directed east to a new clean water outfall releasing towards an existing natural drainage feature within the southern portion of the project site. The eastern hillslope (Parcel F) would continue to drain naturally into the same natural drainage area as occurs under existing conditions.

Figure 11
Preliminary Stormwater Control Plan



-  DMA 1- WEST DEVELOPMENT
-  DMA 2- EAST BASIN
-  OPEN SPACE AREA
-  PARCEL BOUNDARY
-  10 FT CONTOURS
-  CHANNEL FLOW PATH

POST-PROJECT WATER QUALITY AND HYDROMODIFICATION AREAS						
	Total Area		Impervious			Pervious
	(sf)	(acres)	Old (sf)	New	Replaced	
DMA 1: West Development	2,122,710	48.73	34462	1,379,762	34462	742,949
DMA 2: East Basin	115,090	2.64	-	115,090	-	-
SW Bioretention Basin	14,000	0.32	-	-	-	14,000
Total	2,251,800	51.7	34,462	1,494,852	34,462	756,949

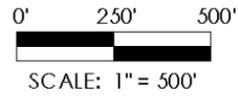
Storage basin treated as impervious surface
Bioretention basin (14,000 sq ft) not included in DMA 2 area for IMP calculator
Site Plan sent by CBG on 03-12-2015



Balance Hydrologics, Inc.

218173-WaterQuality.dwg 7/2/2019 09:16

Water Quality and Hydromodification,
Creekside Vineyards and Sand Creek,
City of Antioch, California.



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Based on the above, the proposed project would comply with the requirements of the SWRCB and the RWQCB, and would meet or exceed C.3 Standards. Therefore, during operation, the project would comply with all relevant water quality standards and waste discharge requirements, and would not degrade water quality.

Conclusion

Based on the SWCP prepared for the proposed project, the project would comply with all applicable regulations during operation, does not involve uses associated with the generation or discharge of polluted water, and would be designed to adequately treat stormwater runoff from the site prior to discharge. However, disturbance of the on-site soils during construction activities could result in a **potentially significant** impact with regard to violation of water quality standards and degradation of water quality should adequate BMPs not be incorporated during construction in accordance with SWRCB regulations.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

X-1 *Prior to issuance of grading permits, the contractor shall prepare a Storm Water Pollution Prevention Plan (SWPPP). The developer shall file the Notice of Intent (NOI) and associated fee to the SWRCB. The SWPPP shall serve as the framework for identification, assignment, and implementation of BMPs. The contractor shall implement BMPs to reduce pollutants in stormwater discharges to the maximum extent practicable. The SWPPP shall be submitted to the Director of Public Works/City Engineer for review and approval and shall remain on the project site during all phases of construction. Following implementation of the SWPPP, the contractor shall subsequently demonstrate the SWPPP's effectiveness and provide for necessary and appropriate revisions, modifications, and improvements to reduce pollutants in stormwater discharges to the maximum extent practicable.*

b,e. The City of Antioch currently does not rely on groundwater for water supplies.²¹ Therefore, any water demand associated with the proposed project would not result in a depletion of groundwater in the project area. It should be noted that the project would develop portions of the site with impervious surfaces, which could impede groundwater recharge. However, 88.3 acres of the 158.2-acre project site would be retained as undisturbed open space, including Sand Creek and the area directly south of the creek. Therefore, the proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin, and would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Thus, a **less-than-significant** impact would occur.

ci-iii. Development of the proposed project would result in an increase in impervious surfaces on the project site, which would alter the existing drainage pattern of the site. However, as discussed above, the project is required to comply with C.3 Standards and is proposed to include appropriate site design measures, source controls, and hydraulically-sized

²¹ City of Antioch. 2015 Urban Water Management Plan [pg. 6-12]. May 2016.

stormwater treatment measures. In addition, projects creating or replacing an acre or more of impervious area—unless exempted—must also provide flow control so post-project runoff does not exceed estimated pre-project rates and durations.²² Per the Contra Costa Clean Water Program, the project site is located within a non-exempt hydromodification management subbasin.²³

As discussed above, runoff from the developed areas of the site would be collected and conveyed to new detention and bio-retention basins. As noted in the SWCP prepared for the proposed project, runoff would be piped first to the detention basin, from which low flows would be metered to the bio-retention basin.²⁴ The proposed configuration would allow for hydromodification management in the detention basin, water-quality treatment in the bio-retention basin, and provide peak flow control during large storm events. The peak-flow attenuation and hydromodification controls located in the detention basin would consist of a lower orifice sized to appropriately meter treatment flows to the bio-retention basin and a riser box structure with overflow that would act as a weir when the active storage volume in the detention basin rises above the required hydromodification storage volume. Per the SWCP, the basins would be designed to exceed the minimum volume needed to treat and control runoff from all proposed impervious surfaces. As demonstrated in Table 4 below, modeled post-project flows from the project site would not exceed pre-project flows.

Table 4				
Pre-Project and Post-Project Runoff Conditions				
Storm Event	Pre-Project		Post-Project	
	Peak Discharge (cfs)	Volume (acre-feet)	Peak Discharge (cfs)	Volume (acre-feet)
10-year, 3-hour	57.7	4.5	33.5	6.2
10-year, 6-hour	45.2	3.6	28.3	6.4
10-year, 12-hour	38.7	3.8	23.8	6.7
10-year, 24-hour	50.3	5.0	31.6	6.8
100-year, 24-hour	115.0	12.4	92.3	16.1

Note: Peak discharge rates presented in cubic feet per second (cfs).

Source: Balance Hydrologics, Inc., 2019.

In order to ensure that the proposed project’s stormwater treatment facilities remain adequate, long-term maintenance would be required. Routine maintenance of the facilities is necessary to ensure that infiltration of water is unobstructed, erosion is prevented, and soils are held together by biologically active plant roots. As noted in the SWCP, proper operation and maintenance of the stormwater management facilities would be the sole responsibility of the property owner, prior to eventual transfer of maintenance responsibilities to the HOA for the proposed development. Maintenance requirements are detailed in Section 7 of the SWCP. With implementation of the required maintenance

²² Contra Costa Clean Water Program. *Stormwater C.3. Guidebook, Stormwater Quality Requirements for Development Applications* [pg. 9]. May 17, 2017.

²³ Contra Costa Clean Water Program. *Applicability of Hydromodification Management (HM) Requirements in Contra Costa*. Available at: <https://www.arcgis.com/apps/webappviewer/index.html?id=d8a16600921140b0ab5363a7d507a5da>. Accessed January 2020.

²⁴ Balance Hydrologics, Inc. *Stormwater Control Plan for Creekside Vineyards at Sand Creek*. July 2019.

activities, the bio-retention facilities would continue to properly manage runoff long after completion of construction activities.

In conclusion, the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in erosion, siltation, or flooding on- or off-site, create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff. Consequently, the proposed project would result in a **less-than-significant** impact.

- civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map number 06013C0335F, the northern portion of the project site along the alignment of Sand Creek is classified as a Special Flood Hazard Area located within the 100-year floodplain. As part of the proposed project, development within the mapped 100-year floodplain would be limited to the proposed clear span bridges over Sand Creek and installation of stormwater outfalls. The remainder of the site, within which the proposed residential buildings would be developed, is classified as Zone X, defined by FEMA as an area not within a 100-year or 500-year floodplain. Construction of the proposed bridges would not require substantial placement or removal of fill within the existing Sand Creek channel, and the proposed stormwater outfalls would require only minor channel disturbance. Thus, the proposed project would not impede or redirect flood flows, and a **less-than-significant** impact would result.
- d. Tsunamis are defined as sea waves created by undersea fault movement, whereas a seiche is a long-wavelength, large-scale wave action set up in a closed body of water such as a lake or reservoir. The project area is located over 50 miles from the Pacific Ocean and tsunamis typically affect coastlines and areas up to one-quarter mile inland. Due to the project's distance from the coast, the project site would not be exposed to flooding risks associated with tsunamis. Seiches do not pose a risk to the proposed project, as the project site is not located adjacent to a large closed body of water. Furthermore, as noted above, the proposed project would not include development of any habitable structures within a Flood Hazard Zone. Based on the above, the proposed project would not pose a risk related to the release of pollutants due to project inundation due to flooding, tsunami, or seiche, and **no impact** would occur.

XI. LAND USE and planning.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. A project risks dividing an established community if the project would introduce infrastructure or alter land use so as to change the land use conditions in the surrounding community, or isolate an existing land use. The proposed project site does not contain existing housing or other development, and the proposed project would be consistent with the Promenade/Vineyards at Sand Creek Project currently under construction to the north of the project site, as well as future residential uses anticipated to the east and west of the project site. The proposed project would not alter the existing general development trends in the area or isolate an existing land use. As such, the proposed project would not physically divide an established community and a **less-than-significant** impact would occur.

- b. Per the City’s General Plan, the eastern portion of the project site is designated Open Space/Senior Housing, while the western portion is designated Hillside, Estate and Executive Residential/Open Space. The site is zoned ‘S’. The proposed project would include a GPA to the Land Use Map for the Sand Creek Focus Area of the General Plan to change the land use designations of the site to Medium Low Density Residential/Open Space, as well as an amendment to the text of the Sand Creek Focus Area of the General Plan in order to add the option of market rate or senior residential on small lots. In addition, the project would require approval of a Rezone to change the zoning designation of the site from S to PD, subject to a Master Development Plan. Furthermore, per Section 9-5.207 of the Municipal Code, all new development within the City is subject to Design Review approval. Approval of the requested GPA and Rezone would be subject to the determination of the Antioch City Council.

As discussed throughout this Initial Study, the proposed project would not conflict with City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect, including, but not limited to, the City’s Tree Preservation and Regulation Ordinance, the City’s noise standards, and applicable SWRCB regulations related to stormwater. For all CEQA issue areas exclusive of air quality, GHG emissions, and transportation, which will be further evaluated in an EIR, this Initial Study includes mitigation to reduce identified environmental impacts to less-than-significant levels. Therefore, the proposed project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental impact. Thus, a **less-than-significant** impact would occur.

XII. MINERAL RESOURCES.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

a,b. According to the City of Antioch’s General Plan EIR, areas identified in the General Plan for new development do not contain known mineral resources that would be of value to the region or residents of the State.²⁵ Therefore, **no impact** to mineral resources would occur as a result of development of the project.

²⁵ City of Antioch. *General Plan Update EIR* [pg. 5-9]. July 2003.

XIII. NOISE.

Would the project result in:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	✘	<input type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

- a. The following discussion is based on an Environmental Noise Assessment prepared for the proposed project by j.c. brennan & associates, Inc. (see Appendix D).²⁶ The report analyzed traffic noise level increases at the project site and at existing sensitive receptors in comparison to the City’s exterior and interior noise level standards. In addition, a discussion of construction noise associated with the proposed project is provided.

Sensitive Noise Receptors

Some land uses are considered more sensitive to noise than others, and, thus, are referred to as sensitive noise receptors. Land uses often associated with sensitive noise receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise. In the vicinity of the project site, the nearest noise sensitive land uses are the single-family residences currently under construction as part of the Promenade/Vineyards at Sand Creek Project to the north of the project site, across Sand Creek.

Thresholds of Significance

Based on the City’s General Plan Noise Element, the proposed project could result in a potentially significant impact if the project would exceed any of the thresholds below:

- An increase in long-term ambient noise by 5 dBA CNEL/L_{dn} or more, where existing noise levels do not exceed the City’s 60 dBA CNEL exterior noise level standard; or
- An increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City’s 60 dBA CNEL exterior noise level.

In addition, Title 24, Part 2, of the California Building Code mandates that interior noise levels attributable to exterior noise sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Accordingly, the proposed project could result in a potentially significant

²⁶ j.c. brennan & associates, Inc. *Creekside Vineyards at Sand Creek, Environmental Noise Assessment*. February 21, 2020.

impact if the interior noise levels at the proposed residences would exceed 45 dB L_{dn} or CNEL.

Existing Noise Environment

The existing ambient noise environment at the project site is primarily defined by construction noise from the Promenade/Vineyards at Sand Creek Project. To quantify the existing ambient noise environment at the project site, j.c. brennan & associates, Inc. conducted a continuous (24-hour) noise level measurement at the northern portion of the project site on January 22 through 23, 2020 (see Figure 12).

The results of the measurements are summarized in Table 5, presented in terms of the community noise equivalent level (CNEL), the average noise level (L_{eq}), the median noise level (L₅₀), and the maximum (L_{max}) noise level. All noise level values are in decibels (dB).

Table 5							
Summary of Long-Term Ambient Noise Monitoring Results							
Site	CNEL	Average Measured Hourly Noise Levels (dB)					
		Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
		L_{eq}	L₅₀	L_{max}	L_{eq}	L₅₀	L_{max}
A	52.7	51.4	40.9	64.0	44.6	40.2	58.9
<i>Source: j.c. brennan & associates, Inc., 2020.</i>							

As shown in Table 5, the existing ambient noise levels at the project site currently comply with the City’s 60 dB L_{dn} exterior traffic noise level standard for residential land uses.

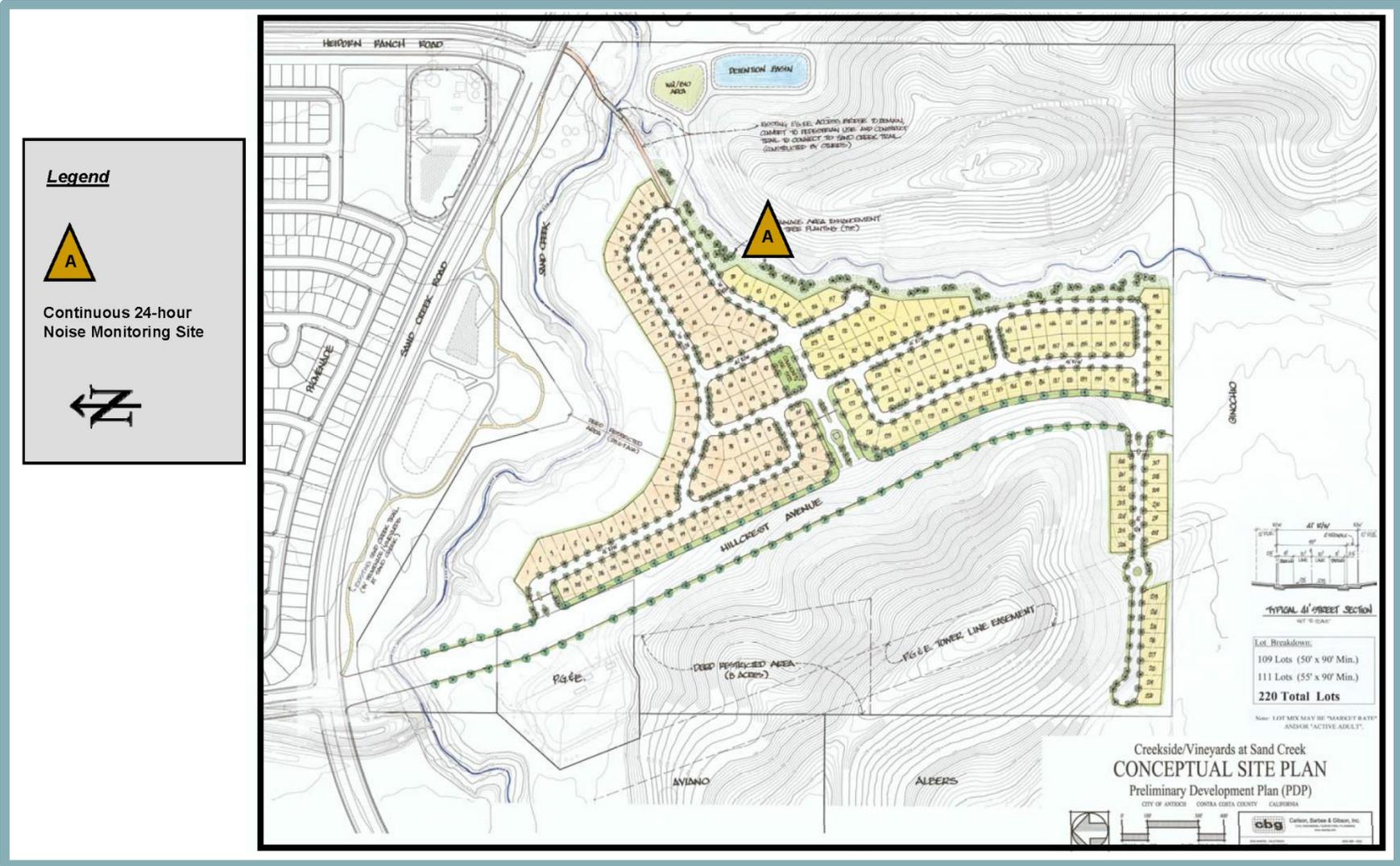
Project Construction Noise

During the construction of the proposed project, heavy equipment would be used for grading, excavation, paving, and building construction, which would increase ambient noise levels when in use. Noise levels would vary depending on the type of equipment used, how the equipment is operated, and how well the equipment is maintained. In addition, noise exposure at any single point outside the project site would vary depending on the proximity of construction activities to that point.

Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 76 to 90 dB at a distance of 50 feet. The noise values represent maximum noise generation, or full- power operation of the equipment. As one increases the distance between equipment, or increases separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of combining separate noise sources.

The single-family residences currently under construction to the north of the site as part of the Promenade/Vineyards at Sand Creek Project are located approximately 150 feet from the nearest proposed construction activity, which would be the off-site improvements to Hillcrest Avenue. Aside from the Hillcrest Avenue improvements, all other proposed construction activities would be located approximately 750 feet or further from the Promenade/Vineyards at Sand Creek Project residences.

**Figure 12
Noise Measurement Sites**



Note: The site plan included in the figure above does not reflect the current development proposal for the project site.

Source: j.c. brennan & associates, Inc., 2020.

Type of Equipment	Maximum Noise Level at 50 feet (dB L _{max})
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85

Source: j.c. brennan & associates, Inc., 2020.

As shown in Table 6, construction activities typically generate noise levels ranging from approximately 76 to 90 dB L_{max} at a reference distance of 50 feet from the construction activities. The noise levels from construction operations decrease at a rate of approximately 6 dB per doubling of distance from the source. Thus, worst-case maximum construction noise levels associated with the proposed off-site roadway improvements would range from approximately 66 to 80 dB L_{max} at the Promenade/Vineyards at Sand Creek Project residences. Accordingly, if the Promenade/Vineyards at Sand Creek Project residences are constructed and occupied prior to initiation of construction activities associated with the proposed project, project construction noise could exceed the City's 60 dB exterior noise level threshold at the residences.

Project Operational Noise

As discussed in Section XVII, Transportation, of this Initial Study, the proposed project would result in increased traffic volumes on existing and planned roadways in the project vicinity. Thus, the proposed project could cause an increase in traffic noise levels in the project area.

Future Traffic Noise Levels at Sensitive Receptors

The Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA Model) was used with traffic data obtained from the project traffic consultant, Fehr & Peers, to predict traffic noise levels on the existing and planned roadway network in the project vicinity. Fehr & Peers has prepared traffic volume and trip distribution estimates for the proposed project, accounting for vehicle trips generated by the project, under Existing Plus Project and Cumulative Plus Project conditions.

Predicted traffic noise levels for the Existing Plus Promenade Plus Project and Cumulative Plus Project conditions are presented in Table 7 and Table 8 below. The actual distances to noise level contours shown in the tables may vary from the distances predicted by the FHWA model due to roadway curvature, roadway grade, shielding from local topography, sound walls or structures. The distances reported are generally considered to be conservative estimates of noise exposure along the project-area roadways.

As shown in the tables, the proposed project would not result in an increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level standard.

Table 7
Traffic Noise Levels: Existing Plus Promenade Plus Project

Roadway	Segment	Traffic Noise Level (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Existing Plus Promenade	Existing Plus Promenade Plus Project	Change	Existing Plus Promenade (CNEL, dB)			Existing Plus Promenade Plus Project (CNEL, dB)		
					70	65	60	70	65	60
Lone Tree Way	West of Hillcrest Avenue	67.6	67.7	0.1	52	112	242	53	113	244
Lone Tree Way	Hillcrest Avenue to Heidorn Road	68.4	68.6	0.2	59	127	274	61	131	282
Lone Tree Way	Heidorn Road to SR 4	63.7	63.9	0.2	29	62	133	29	64	137
Sand Creek Road	West of Deer Valley Road	41.2	41.2	0	1	2	4	1	2	4
Sand Creek Road	Deer Valley Road to Future Hillcrest Avenue	57.0	57.0	0	10	22	47	10	22	47
Sand Creek Road	East of SR 4	68.3	68.4	0.1	58	125	269	58	126	271
Deer Valley Road	South of Sand Creek Road	62.3	62.6	0.3	23	50	107	24	52	111
Deer Valley Road	North of Sand Creek Road	62.2	62.4	0.2	23	49	105	23	50	108
Heidorn Road	Lone Tree Way to Future Sand Creek Road	62.0	62.0	0	22	47	102	22	47	102
Hillcrest Avenue	North of Lone Tree Way	64.8	64.9	0.1	34	73	157	34	73	158
Hillcrest Avenue	Lone Tree Way to Future Sand Creek Road	61.3	62.5	1.2	20	43	92	24	51	111
Hillcrest Avenue	South of Sand Creek Road	---	57.6	NA	---	---	---	11	24	52

Notes:

- Traffic noise levels are modeled at 75-feet from the centerlines of the roadways.
- Distances to traffic noise contours are measured in feet from the centerlines of the roadways.
- Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: j.c. brennan & associates, Inc., 2020.

Table 8
Traffic Noise Levels: Cumulative Plus Project

Roadway	Segment	Traffic Noise Level (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Cumulative No Project	Cumulative Plus Project	Change	Cumulative No Project (CNEL, dB)			Cumulative Plus Project (CNEL, dB)		
					70	65	60	70	65	60
Lone Tree Way	West of Hillcrest Avenue	69.4	69.7	0.3	69	148	319	71	154	332
Lone Tree Way	Hillcrest Avenue to Heidorn Road	70.0	70.1	0.1	75	163	350	76	163	352
Lone Tree Way	Heidorn Road to SR 4	65.8	65.8	0	39	85	183	39	85	183
Sand Creek Road	West of Deer Valley Road	62.7	62.7	0	24	53	114	24	53	114
Sand Creek Road	Deer Valley Road to Future Hillcrest Avenue	65.4	65.8	0.4	37	80	172	39	84	181
Sand Creek Road	East of SR 4	69.9	70.1	0.2	73	158	341	76	165	355
Deer Valley Road	South of Sand Creek Road	65.2	65.3	0.1	36	77	165	36	78	168
Deer Valley Road	North of Sand Creek Road	67.0	67.0	0	47	101	219	47	102	220
Heidorn Road	Lone Tree Way to Future Sand Creek Road	66.7	66.7	0	45	97	208	45	97	208
Hillcrest Avenue	North of Lone Tree Way	66.8	66.8	0	46	99	212	46	99	213
Hillcrest Avenue	Lone Tree Way to Future Sand Creek Road	64.5	64.8	0.3	32	70	151	34	73	157
Hillcrest Avenue	South of Sand Creek Road	60.5	62.3	1.8	17	38	81	23	50	107

Notes:

- Traffic noise levels are modeled at 75-feet from the centerlines of the roadways.
- Distances to traffic noise contours are measured in feet from the centerlines of the roadways.
- Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Source: j.c. brennan & associates, Inc., 2020.

Thus, the proposed project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance.

Future Traffic Noise Levels at New Sensitive Receptors

Impacts of the environment on a project (as opposed to impacts of a project on the environment) are beyond the scope of required CEQA review. “[T]he purpose of an EIR is to identify the significant effects of a project on the environment, not the significant effects of the environment on the project.” (*Ballona Wetlands Land Trust v. City of Los Angeles*, (2011) 201 Cal.App.4th 455, 473 (*Ballona*)). The California Supreme Court recently held that “CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project’s future users or residents. What CEQA does mandate... is an analysis of how a project might exacerbate existing environmental hazards.” (*California Building Industry Assn. v. Bay Area Air Quality Management Dist.* (2015) 62 Cal.4th 369, 392; see also *Mission Bay Alliance v. Office of Community Investment & Infrastructure* (2016) 6 Cal.App.5th 160, 197 [“identifying the effects on the project and its users of locating the project in a particular environmental setting is neither consistent with CEQA’s legislative purpose nor required by the CEQA statutes”], quoting *Ballona, supra*, 201 Cal.App.4th at p. 474.) Therefore, for the purposes of the CEQA analysis, the relevant inquiry is not whether the proposed project’s future residents will be exposed to preexisting environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions. Nonetheless, for informational purposes and General Plan consistency determination, the Environmental Noise Analysis evaluated noise impacts of the surrounding area on the proposed project.

The FHWA traffic noise prediction model was used to predict cumulative traffic noise levels at the location of the first row of residences proposed along Hillcrest Avenue, which would subject to the greatest level of traffic noise. As shown in Table 8, the traffic noise levels at the proposed residences would range between 62.3 dB and 63.2 dB CNEL. Using the FHWA barrier analysis, a six-foot-tall barrier would be required to reduce traffic noise levels to less than 60 dB CNEL. The modeled noise barrier assumes flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

Typical construction results in an exterior to interior noise level reduction of 25 dB, provided that air conditioning is provided to allow residents to close windows and doors for the appropriate acoustical isolation. All residences are assumed to provide air conditioning for occupants. Because the projected Cumulative Plus Project conditions would result in exterior noise levels less than 70 dBA CNEL, the interior noise levels at the project site would be expected to comply with the interior noise level standard of 45 dBA CNEL. However, in order to provide a sufficient margin of safety in meeting the City’s standard, additional noise reduction features would be required for the proposed project. In the absence of such features, a potentially significant impact could occur related to interior noise levels at the proposed residences.

Conclusion

Based on the above, construction noise could exceed the City’s 60 dB exterior noise level threshold at the nearest sensitive receptors. Construction noise is conditionally exempt from 7:00 AM to 6:00 PM, Monday through Friday, and from 9:00 AM to 5:00 PM on weekends and holidays per Section 5-17.04 of the City Zoning Ordinance. In addition,

noise associated with construction activities would be temporary in nature, and would be anticipated to occur during normal daytime working hours. Nonetheless, given the proximity of the Promenade/Vineyards at Sand Creek residences to the proposed construction activities, noise levels at the residences would temporarily or periodically increase above existing levels without the project.

With regard to operations, traffic noise associated with the proposed project would not result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of the standards established in the City's General Plan, or applicable standards of other agencies. However, noise levels at the exteriors of the proposed residences could exceed the City's 60 dB L_{dn} exterior noise level threshold for residential uses. In addition, interior noise levels at the proposed residential units could exceed the City's 45 dB L_{dn} interior noise level standard. Thus, a **potentially significant** impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measures would reduce the above impact to a *less-than-significant* level.

XII-1 *During construction activities, the use of heavy construction equipment shall adhere to Sections 5-17.04 and 5-17.05 of the City's Municipal Code with regard to hours of operation, which state that it is unlawful for any person to operate heavy construction equipment or otherwise be involved in construction activities during the hours specified below:*

- 1) *On weekdays prior to 7:00 AM and after 6:00 PM.*
- 2) *On weekdays within 300 feet of occupied dwelling space, prior to 8:00 AM and after 5:00 PM.*
- 3) *On weekends and holidays, prior to 9:00 AM and after 5:00 PM, irrespective of the distance from the occupied dwelling.*

Such standards shall be included, via written notation, on final improvement plans, to the satisfaction of the City Engineer.

XII-2 *The project applicant shall ensure that all on-site construction activities occur pursuant to the criteria identified in Policy 11.6.2, Temporary Construction, of the City of Antioch General Plan. Such criteria include, but are not limited to, preparation of a construction-related noise mitigation plan. The construction-related noise mitigation plan shall be submitted to the Community Development Department for review and approval prior to issuance of grading permits for the project. Items included in the plan could contain, but would not be limited to, the following:*

- *All equipment driven by internal combustion engines shall be equipped with mufflers which are in good working condition and appropriate for the equipment;*
- *The construction contractor shall utilize "quiet" models of air compressors and other stationary noise sources where the technology exists;*

- *At all times during project grading and construction, stationary noise-generating equipment shall be located as far as practical from noise-sensitive receptors;*
- *Unnecessary idling of internal combustion engines shall be prohibited;*
- *Owners and occupants of residential and non-residential properties located within 300 feet of the construction site shall be notified of the construction schedule in writing; and*
- *The construction contractor shall designate a “noise disturbance coordinator” who shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and institute reasonable measures as warranted to correct the problem. A telephone number for the disturbance coordinator shall be conspicuously posted at the construction site.*

XIII-3 A solid noise barrier measuring a minimum of six feet in height shall be constructed along Hillcrest Avenue where residences are located within 157 feet of the roadway. Suitable materials for the noise barrier include concrete panels, concrete masonry units, earthen berms, or any combination thereof. If roadway elevations and building pad elevations are not equal, the barrier heights and locations shall be reviewed once final grading plans are available. The final design of the noise barrier shall be approved by the Community Development Department prior to building permit issuance.

XIII-4 Prior to building permit issuance, the construction drawings for the project shall include a suitable form of forced-air mechanical ventilation for all proposed residential units, subject to approval by the Community Development Department, such that doors and windows may be kept closed at the occupant’s discretion to control interior noise and achieve the City’s 45 dB L_{dn} interior noise level threshold.

- b. Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (PPV) in inches per second (in/sec). Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of PPV. Per the Environmental Noise Assessment, the threshold for architectural damage to structures is 0.20 in/sec PPV. Continuous vibrations of 0.10 in/sec PPV or greater would likely cause annoyance to sensitive receptors.

During project construction, heavy equipment would be used for grading, excavation, paving, and building construction, which would generate localized vibration in the immediate vicinity of construction. Table 9 shows the typical vibration levels produced by construction equipment. As noted previously, the nearest receptors would be the residences currently under construction within the Promenade/Vineyards at Sand Creek Project, located approximately 150 feet from the proposed the off-site improvements to Hillcrest Avenue. Aside from the Hillcrest Avenue improvements, all other proposed

construction activities would be located approximately 750 feet or further from the Promenade/Vineyards at Sand Creek Project residences.

Type of Equipment	PPV at 25 feet (inches/second)	PPV at 50 feet (inches/second)	PPV at 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Based on the vibration levels presented in the table above, construction-generated vibration levels associated with the proposed project are predicted to be less than the 0.20 in/sec PPV threshold at which vibration levels become distinctly perceptible. Therefore, the project would not result in the exposure of persons to or generation of excessive groundborne vibration levels. Additionally, construction activities would be temporary in nature and would be limited to normal daytime working hours in accordance with Section 5-17.04 of the City Zoning Ordinance. Therefore, a **less-than-significant** impact would occur related to exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

- c. The nearest airport to the site is the Byron Airport, located approximately 10 miles southeast of the site. Given the substantial distance between the airport and the project site, noise levels resulting from aircraft at the nearest airport would be negligible at the proposed project site. Therefore, **no impact** would occur.

XIV. POPULATION AND HOUSING.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✘

Discussion

- a. The proposed project would include the development of 220 single-family residential units. Per the City’s 2015-2023 Housing Element, as of the 2010 census, the City of Antioch had an average household size of 3.15 persons per household. Consequently, the proposed project could provide housing for up to approximately 693 people (220 proposed households X 3.15 persons per household = 693 new residents). It should be noted that if a portion of the proposed residential units may be reserved as active adult units, which would be anticipated to accommodate fewer occupants per unit. However, to provide a conservative analysis, this Initial Study assumes the proposed units would be market rate.

According to the City of Antioch Housing Element, Antioch’s population increased by approximately 4.0 percent between the years 2010 and 2014, from 102,372 residents to 106,455 residents.²⁷ Contra Costa County’s population has increased at a similar pace, growing by approximately 3.6 percent from 2010 to 2014, from 1,049,025 to 1,087,008. Per the City’s Housing Element, the Association of Bay Area Governments (ABAG) estimates that the City’s population would be 116,200 in 2030, increasing by 9,745 persons. Assuming that the proposed project would be fully built out and operating at full capacity by 2030, the project’s contribution to the overall population increase by 2030 would not contribute to an increase above the anticipated population levels. It should be noted that the City of Antioch has previously considered buildout of the proposed project site (as well as the Sand Creek Focus Area) as part of the General Plan.

Therefore, the proposed project would not result in substantially more intensive population growth beyond what has been previously analyzed for the site, and a **less-than-significant** impact would occur.

- b. The proposed project site is currently vacant, and does not include existing housing or other habitable structures. As such, the proposed project would not displace a substantial number of existing housing or people and would not necessitate the construction of replacement housing elsewhere. Therefore, **no impact** would occur.

²⁷ City of Antioch. *City of Antioch Housing Element 2015-2023* [pg. 2-2]. Adopted April 14, 2015.

XV. PUBLIC SERVICES.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
e. Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

- a. Fire protection services for the project area are provided by the Contra Costa County Fire Protection District (CCCFPD). The CCCFPD is an “all-hazards” organization providing fire suppression, paramedic emergency medical services (EMS), technical rescue, water rescue, and fire prevention/investigation services to more than 600,000 residents across a 304 square mile coverage area. The CCCFPD operates 25 fire stations and responds to approximately 45,000 incidents annually. Four of the fire stations are located within the City of Antioch. Station 88 is located approximately 2.5 miles north of the project site. Upon completion of the proposed residential development, the CCCFPD would provide fire protection services to the project site.

It should be noted a future CCCFPD fire station is planned for development on a two-acre property as part of the The Ranch Residential Project. The future fire station would house up to four firefighting equipment vehicles. Physical environmental effects associated with development of the fire station will be analyzed in The Ranch Residential Project EIR currently being prepared.

In *Goleta Union School District v. Regents of University of California* (1995) 37 Cal.App.4th 1025, the court held that the need for additional fire protection service is not an environmental impact that CEQA requires a project to mitigate. The decision was reaffirmed in *City of Hayward v. Board of Trustees of the California State University* (2012) Cal.App.4th, 2012 WL 2832858 (cert. for pub. 6/28/12) when the court also found that mitigation was not necessary to address the need for additional fire protection services due to the potential increase in response time caused by the increase in population under the project. The court noted that, under the California Constitution, the obligation to provide adequate fire and emergency medical services fell to the city. Furthermore, in *City of Hayward v. Board of Trustees of the California State University*, the court cited CEQA Guidelines § 15382 and *Goleta Union School District v. Regents of University of California*, in holding that the need for additional fire protection service is not an environmental impact that CEQA requires a project to mitigate. Furthermore, the court found that the potential dangers associated with delayed response times do not mandate a finding of significance under CEQA Guidelines § 15065(a)(4). It should be noted that a discussion of emergency access to the project site, as well as potential vehicle delay increases at nearby intersections, will be provided in the Transportation chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

The proposed project would be required to pay applicable fire protection fees per the City's Master Fee Schedule. In addition, the proposed residential buildings would be constructed in accordance with the fire protection requirements of the most recent California Fire Code. The CCCFPD and the City's Building Inspection Services Division would review the project building plans to ensure compliance with all code requirements. Therefore, the proposed project would have a **less-than-significant** impact related to the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts.

- b. The Antioch Police Department (APD) currently provides police protection services to the project area. The Antioch PD operates out of the police headquarters at 300 L Street, and is currently staffed with 104 sworn and 33 non-sworn employees.²⁸ According to the Antioch General Plan EIR, population growth has created an increased demand for police-related services, and consequently a need for additional Antioch PD staff. The City of Antioch General Plan establishes a goal for the Antioch PD staffing ratio to be between 1.20 to 1.50 officers per 1,000 residents.²⁹ Per the City's Housing Element, the City of Antioch had a population of 106,455 in 2014. Thus, the current Antioch PD staffing ratio is approximately 1.0 per 1,000 residents.

The proposed project would increase the demand for police protection services at the site. However, construction of a new police station or other APD facilities would not be necessary in order to adequately serve the proposed project. In addition, the project applicant would be required to pay Development Impact Fees for police facilities per Section 9-3.50 of the City Municipal Code, and the project site would be required to annex into a community facilities district (CFD) for financing police services. Therefore, the project would have a **less-than-significant** impact related to the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts.

- c. School services in the City are provided by the Antioch Unified School District (AUSD). The proposed project would include the development of the project site with a total of 220 single-family residences and, thus, would increase demand for school facilities and services. It should be noted that the proposed residential units may consist of either market-rate units, senior/active adult units, or a combination of both. Any senior/active adult units would not house school-age residents and would not increase the demand for school facility and services. However, to provide a conservative analysis, this Initial Study assumes all of the proposed units would be market rate.

The AUSD collects development fees for new residential projects on a per square foot basis. The development fees serve to offset school facility costs associated with serving new students. Proposition 1A/SB 50 prohibits local agencies from using the inadequacy of school facilities as a basis for denying or conditioning approvals of any "[...] legislative or adjudicative act...involving ...the planning, use, or development of real property" (Government Code 65996(b)). Satisfaction of the Proposition 1A/SB 50 statutory requirements by a developer is deemed to be "full and complete mitigation." Because the project applicant would be required to pay development fees to the AUSD, the proposed project would result in a **less-than-significant** impact regarding an increase in demand for schools.

²⁸ City of Antioch. *About APD*. Available at: <http://www.antiochca.gov/police/about-apd/>. Accessed January 2020.

²⁹ City of Antioch. *Antioch General Plan Update EIR* [pg. 4.11-1]. July 2003.

- d,e. Consistent with the requirements of the Quimby Act, Standard 3.5.7.2 in the City of Antioch General Plan and Section 9-4.1004 of the Antioch Municipal Code set a standard of five acres of parks and open space per 1,000 residents.³⁰ The City of Antioch receives land for parks through land dedications or purchases funded through fee collection. The Antioch Municipal Code requires a dedication of parkland at the rate of 0.015 acres per single-family unit. Given that the project would include a total of 220 units, the project would be required to include a minimum of 3.3 acres of dedicated public parkland. Alternatively, fees may be paid in lieu of parkland dedication at a rate of \$1,500 for single-family detached units and \$1,100 for single-family attached units.

The proposed project would include a total of 3.9 acres of parks. Of the 3.9 acres of park area, 0.49-acre would be publicly accessible, while the remainder would be private, to be reserved for future residents of the project. The parks included in the project would be dedicated to the City; however, pursuant to Section 9-4.1010 of the City's Municipal Code, the 3.9 acres of park areas may count for park credits against the amount of land required to be dedicated, subject to final determination by the City Parks and Recreation Commission. If the City determines that the minimum parkland dedication requirements are not met for the project, the project applicant would be subject to payment of in-lieu park fees pursuant to Sections 9-4.1005 through 9-4.1007 of the Municipal Code. In addition, the project would be required to pay Development Impact Fees, which include a component for parks. Therefore, the proposed project would have a ***less-than-significant*** impact related to the need for new or physically altered parks or other public facilities, the construction of which could cause significant environmental impacts.

³⁰ City of Antioch. *General Plan* [pg. 3-12]. Updated November 24, 2003.

XVI. RECREATION.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a,b. The proposed project would include the development of 220 residential units, and thus, would likely result in an increase in the use of existing neighborhood, regional, parks and/or other recreational facilities. While the project site is located approximately four miles southeast of Contra Loma Regional Park, project residents would be more likely to use park facilities included in the proposed project.

The proposed project would include a total of 3.9 acres of on-site parks. Parcels B and C, located in the northeastern portion of the site, are anticipated to include a children’s play area, picnic areas, a community pool, and a passive play area; however, the ultimate programming of the parks would be determined by the City of Antioch Parks and Recreation Commission. As noted previously, the proposed project may include construction of a new EVA/pedestrian bridge within Parcel C in the northeastern portion of the site. The project would include a new private pedestrian trail connection extending from the proposed residential neighborhood across either the new bridge or the existing PG&E bridge to connect to the Sand Creek Trail currently under construction as part of the Promenade/Vineyards at Sand Creek development to the north of the site. Parcel G, located at the northern edge of the proposed residential neighborhood, would consist of an open meadow with non-irrigated grasses and oak trees. Parcel J, located in the southwestern portion of the site, would include an open meadow area with a concrete pedestrian path, benches, and various other landscaping features.

As noted in Section XIII, Public Services, the proposed project would meet the park dedication requirements established by Section 9-4.1004 of the Antioch Municipal Code, through dedication of parkland, payment of in-lieu park fees, or a combination of both. Therefore, the increase in population associated with the proposed project would not be expected to result in substantial physical deterioration of any existing neighborhood or regional parks or other recreational facilities, and would not result in adverse physical effects related to the construction or expansion of new facilities. Thus, a ***less-than-significant*** impact would occur.

XVII. TRANSPORTATION.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	✘	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. The proposed project would include construction of 220 single-family residential units, resulting in new vehicle trips along existing and planned roadway facilities in the project area. The estimated vehicle trip generation associated with the proposed project, as provided by Fehr & Peers, is summarized in Table 10 below. The vehicle trip generation estimates have been reviewed and approved by the City. As shown in the table, inclusion of age-restricted active adult units for all or a portion of the 220 proposed units would result in reduced vehicle trip generation compared to inclusion of market-rate units only. However, to provide a conservative analysis, this Initial Study assumes the proposed units would be market rate.

Use	Size	Daily	Weekday					
			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Project – Market Rate								
Unrestricted Detached Homes ¹	220 Units	2,080	41	122	163	137	81	218
Proposed Project – Active Adult								
Age-Restricted Detached ²	220 Units	940	17	35	53	40	26	66
Proposed Project – Blended								
Unrestricted Detached Homes ¹	110 Units	1,040	20	61	81	69	40	169
Age-Restricted Detached ²	110 Units	470	9	18	26	20	13	33
<i>Total</i>	<i>220 Units</i>	<i>1,510</i>	<i>29</i>	<i>79</i>	<i>108</i>	<i>89</i>	<i>53</i>	<i>142</i>
¹ ITE land use category 210 – Single-Family Homes (Adj Streets, 7-9A, 4-6P): Daily: (T) = 9.44 (X) AM Peak Hour: T = 0.74 (X); Enter = 25%; Exit = 75% PM Peak Hour: T = 0.99 (X); Enter = 63%; Exit = 37%								
² Based on trip generation study, provided as Appendix D, where: Daily: (T) = 4.27 (X) AM Peak Hour: T = 0.24 (X); Enter = 33%; Exit = 67% PM Peak Hour: T = 0.30 (X); Enter = 60%; Exit = 40%								
Source: Fehr & Peers, 2020.								

The increase in traffic volume on the surrounding roadway system could exceed, either individually or cumulatively, a level of service standard established by the City's General Plan for roads affected by project traffic, or result in conflicts with other applicable planning

documents related to regional transportation systems, including standards related to VMT. Therefore, a **potentially significant** impact could occur.

Further analysis of this impact will be discussed in the Transportation chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

- c,d. As part of the project, Hillcrest Avenue would be extended through the project site within an existing roadway easement. Hillcrest Avenue at the proposed location is identified in the City General Plan. Vehicular ingress and egress to the proposed project would be provided from Hillcrest Avenue by way of a centrally located main entry, and an EVA/secondary entry intersection to the south. A new traffic signal would be installed at the main entry. In addition, an EVA/pedestrian bridge may be constructed adjacent to the existing PG&E bridge spanning Sand Creek in the northeastern portion of the project site. The Hillcrest Avenue bridge over Sand Creek would be constructed in the ultimate width to facilitate two southbound and two northbound lanes. In addition, Phase III of the proposed project would include construction of a southern secondary entry on the west side of Hillcrest Avenue, extending to the western site boundary.

Further analysis is required to ensure that the proposed access improvements would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), as well as to evaluate emergency access to the project site. In the absence of such additional analysis, a **potentially significant** impact could occur.

Further analysis of this impact will be discussed in the Transportation chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

XVIII. TRIBAL CULTURAL RESOURCES.

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

a,b. As discussed in Section V, Cultural Resources, of this Initial Study, the project site does not contain any resources listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), and does not contain known resources that could be considered historic pursuant to the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. A search of the NAHC Sacred Lands File did not yield any information regarding the presence of Tribal Cultural Resources within the project site or the immediate area.³¹

In compliance with Assembly Bill (AB) 52 (Public Resources Code Section 21080.3.1), a project notification letter was distributed to the Amah Mutsun Tribal Band of Mission San Juan Bautista, the Indian Canyon Mutsun Band of Costanoan, the Ohlone Indian Tribe, the Wilton Rancheria, and the Lone Band of Miwok Indians. In addition, because the proposed project includes a request for a GPA, in compliance with Senate Bill (SB) 18, the City of Antioch also sent SB 18 notification letters to all the tribes included on the NAHC’s tribal consultation list for Contra Costa County. The letters were distributed on January 31, 2020. Wilton Rancheria and the Northern Valley Yokuts Tribe and Nototomne Cultural Preservation provided responses, requesting copies of relevant cultural information and other project information; however, requests to initiate formal consultation were not received from Wilton Rancheria, the Northern Valley Yokuts Tribe and Nototomne Cultural Preservation, or any other of the contacted tribes. The City will continue to engage in discussions with local tribes as necessary throughout the CEQA process.

Based on the above, known Tribal Cultural Resources do not exist within the project site. Nevertheless, the possibility exists that construction of the proposed project could result

³¹ Native American Heritage Commission. *Re: Native American Consultation, Pursuant to Senate Bill 18 (SB18), Government Codes §65352.3 and §65352.4, as well as Assembly Bill 52 (AB52), Public Resources Codes §21080.1, §21080.3.1 and §21080.3.2, Creekside/Vineyards at Sand Creek Project, Contra Costa County.* January 22, 2020.

in a substantial adverse change in the significance of a Tribal Cultural Resource if previously unknown cultural resources are uncovered during grading or other ground-disturbing activities. Thus, a ***potentially significant*** impact to tribal cultural resources could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure would reduce the above impact to a *less-than-significant* level.

XVIII-1 *Implement Mitigation Measures V-1, V-2, and V-3.*

XIX. UTILITIES AND SERVICE SYSTEMS.

Would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a-c. Water supply, wastewater treatment, stormwater drainage, electric power, natural gas, and telecommunications facilities necessary to serve the proposed project are described in the following sections.

Water Supply

Principal sources of raw water supply to the City of Antioch are the Sacramento/San Joaquin Rivers Delta and the Contra Costa Canal, which are stored in the Antioch Municipal Reservoir. Buildout of the Sand Creek Focus Area, including the project site, is accounted for in the City's Water System Master Plan Update, which provides a detailed analysis of the City's water distribution system. The Water System Master Plan Update included the preparation of a Capital Improvement Program (CIP) that includes improvements necessary to provide safe and reliable water delivery throughout the City based on projected growth and associated increases in demand on the City's distribution system.

Potable water would be distributed to the project site by an extension of the existing 16-inch Zone III trunk line in Hillcrest Avenue. The waterline would be looped back to a Heidorn Ranch Road line by way of a connection over Sand Creek, at the same location as the existing PG&E bridge. The City has also indicated an interest in reserving space in Phase III of the project to facilitate looping of the waterline within Hillcrest Avenue for future residential development to the west of the project site. The water distribution system improvements planned for in the Water System Master Plan Update and associated CIP, as well as the infrastructure improvements included in the proposed project, would be capable of accommodating the increased demand for water supplies associated with buildout of the proposed project.

Per the City's 2015 Urban Water Management Plan (UWMP), adequate water supplies will be available to accommodate buildout of the City under normal year, single year, and multiple-dry year demand scenarios, accounting for mandatory measures included in the City's Water Shortage Contingency Plan. Based on the water demand factors used in the 2015 UWMP for single-family residences the proposed project would result in an overall demand of approximately 77,000 gallons per day (gpd) (220 proposed units X 350 gpd/unit), or approximately 28 million gallons per year (mgy). Although the proposed project is not specifically identified in the City's 2015 UWMP, the Sand Creek Focus Area is included, and the City's growth projections (an additional 16,302 people from 2015 to 2040) and water demand projections (an additional 3,393 MGY from 2015 to 2040) accommodate the proposed project's estimated population of approximately 693 residents and projected water demand of 28 mgy.

Therefore, the proposed project would not require or result in the relocation or construction of new or expanded off-site water facilities, the construction or relocation of which could cause significant environmental effects, and sufficient water supplies would be available to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years.

Wastewater Conveyance and Treatment

The City maintains and owns the local sewage collection system and is responsible for the collection and conveyance of wastewater to the Delta Diablo Wastewater Treatment Plant (WWTP). Delta Diablo owns and operates the regional interceptors and WWTP. The project site is located within the Delta Diablo service area. The City of Antioch is responsible for the wastewater collection system from the project site to the designated Delta Diablo regional wastewater conveyance facility. An EIR for the expansion of the wastewater treatment plant capacity to an average dry weather flow of 22.7 million gallons per day (mgd) was completed in April 1988. However, the current WWTP NPDES Permit limits average dry weather flow to 19.5 mgd. From October 2014 through May 2019, the plant treated a daily average of approximately 13 mgd; the highest reported average daily flow was 22.1 mgd.³² Sewage flow to the plant does not fluctuate seasonally, as sewer and storm water systems are separate.³³ Funds for future plant expansion are collected by the City on behalf of Delta Diablo from sewer connection fees.

The General Plan EIR bases anticipated wastewater demand on a generation rate of 220 gallons per day per residence. The proposed project would include the construction of 220 units, and, thus, would be anticipated to generate approximately 48,400 gallons per day of wastewater. Sanitary sewer service would be provided to the project site by an extension of the existing 24-inch sanitary sewer pipe from the Promenade/Vineyards at Sand Creek Project.

An increase of 48,400 gallons per day is relatively minor compared to the 13 mgd of average dry weather flow currently treated by the WWTP, and would not have a substantial impact on the available capacity of the WWTP. The project applicant would be required to pay sewer connection fees, which work to fund needed sewer system improvements. Because the project applicant would pay sewer connection fees, and adequate long-term wastewater treatment capacity is available to serve full build-out of the project, the project

³² San Francisco Bay Regional Water Quality Control Board. *Order No. R2-2019-0035, NPDES No. CA0038547*. Adopted December 11, 2019.

³³ City of Antioch. *Antioch General Plan Update EIR* [pg. 4.12-2]. July 2003.

would not require or result in the relocation or construction of new or expanded off-site wastewater facilities, the construction or relocation of which could cause significant environmental effects. In addition, adequate wastewater treatment capacity is available to serve the project's projected demand in addition to the provider's existing commitments

Stormwater Drainage

The project site is currently undeveloped vacant land with ruderal vegetation. Completion of the proposed project would increase site runoff due to the introduction of impervious surfaces to the site. As discussed in further detail in Section IX, Hydrology and Water Quality, of this Initial Study, the SWCP for the proposed project conforms with the most recent Contra Costa Clean Water Program Stormwater C.3 Guidebook and verifies that the proposed project would comply with all City stormwater requirements. In compliance with the C.3 Guidebook, the proposed project would include on-site detention and bio-retention facilities sized to exceed the minimum volume requirement necessary to adequately manage all runoff from the proposed impervious surfaces. Treated runoff would be discharged directly to Sand Creek. Thus, the project would not require new or expanded off-site stormwater infrastructure.

Electric Power, Natural Gas, and Telecommunications

The proposed project would include new connections to existing electric power, natural gas, and telecommunications facilities located in the project vicinity. Thus, substantial expansion of off-site utilities would not be required to serve the proposed residential development, and associated environmental effects would not occur.

Conclusion

Based on the above, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. In addition, sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years, and adequate wastewater treatment capacity is available to serve the project's projected demand in addition to the provider's existing commitments. Thus, a **less-than-significant** impact would occur.

- d,e. Republic Services provides solid waste collection, disposal, recycling, and yard waste services to the City, including the project site. Solid waste and recyclables from the City are taken to the Contra Costa Transfer and Recovery Station in Martinez. Solid waste is transferred from the Transfer and Recovery Station to the Keller Canyon Landfill in Pittsburg. The Keller Canyon Landfill site is 1,399 acres, 244 of which comprise the actual current disposal acreage. The landfill is permitted to accept 3,500 tons of waste per day and has a total estimated permitted capacity of approximately 75 million cubic yards. As of March 31, 2016, the most recent date for which capacity information is available, the total remaining capacity of the landfill was 52.93 million cubic yards (approximately 71 percent of total capacity).³⁴ Due to the substantial amount of available capacity remaining at Keller Canyon Landfill, sufficient capacity would be available to accommodate the project's solid waste disposal needs. Therefore, a **less-than-significant** impact related to solid waste would occur as a result of the proposed project.

³⁴ SWT Engineering. *Joint Technical Document, Keller Canyon Landfill (SWIS NO. 07-AA-0032)* [pg. B.3-1]. May 2016.

XX. Wildfire.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	✘	<input type="checkbox"/>

Discussion

a-d. According to the CAL FIRE Fire and Resource Assessment Program, the proposed project site is not located within a Very High Fire Hazard Severity Zone.³⁵ In addition, the site is not located in or near a State Responsibility Area. Thus, the proposed project would not be expected to be subject to or result in substantial adverse effects related to wildfires, and a ***less-than-significant*** impact would occur.

³⁵ California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. January 7, 2009.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE.

	Potentially Significant Impact	Less-Than-Significant with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. As discussed in Section IV, Biological Resources, of this Initial Study, implementation of the proposed project would have the potential to result in adverse effects to special-status plant and wildlife species. In addition, while unlikely, the project could result in impacts related to eliminating important examples of major periods of California history or prehistory associated with undiscovered archeological and/or paleontological resources during project construction. However, the proposed project would be required to comply with applicable City of Antioch General Plan and Municipal Code policies related to biological and cultural resources. In addition, this Initial Study includes mitigation measures that would reduce any potential impacts to less-than-significant levels. With implementation of the mitigation measures required by this Initial Study, as well as compliance with General Plan policies and all applicable sections of the Municipal Code, development of the proposed project would reduce any potential impacts associated with the following: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; or 6) eliminate important examples of the major periods of California history or prehistory. Therefore, a **less-than-significant** impact would occur.
- b. The proposed project in conjunction with other development within the City of Antioch could incrementally contribute to cumulative impacts in the area. As discussed in Section III, Air Quality, and Section VIII, Greenhouse Gas Emissions, of this Initial Study, construction activities and increased vehicle trips generated by operation of the proposed project could result in conflicts with applicable standards related to air quality and GHG emissions. In addition, as discussed in Section XVII, Transportation, such vehicle trips could result in conflicts with established operations standards for local roadway facilities contribute to regional VMT. Thus, the proposed project could have impacts that are individually limited, but cumulatively considerable, and a **potentially significant** impact could occur.

Further analysis of this impact will be discussed in the Air Quality and Greenhouse Gas Emissions chapter and Transportation chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

- c. As described in this Initial Study, implementation of the proposed project could result in temporary impacts related to excess noise levels. In addition, the project could expose humans to hazards relating to seismic ground shaking and unstable geologic units. However, the proposed project would be required to implement the project-specific mitigation measures within this Initial Study, as well as applicable policies of the City of Antioch General Plan, to reduce associated direct or indirect impacts to human beings. With implementation of the identified mitigation measures, identified project-specific impacts related to such issues would be reduced to less-than-significant levels. However, further analysis is required to ensure that TAC emissions associated with project construction do not result in adverse health effects at nearby sensitive receptors. Thus, a **potentially significant** impact could occur.

Further analysis of this impact will be discussed in the Air Quality and Greenhouse Gas Emissions chapter of the Creekside/Vineyards at Sand Creek EIR being prepared for the project.

APPENDIX A

BIOLOGICAL RESOURCE ANALYSIS

**REVISED
ADMINISTRATIVE DRAFT
BIOLOGICAL RESOURCE ANALYSIS
CREEKSIDE DEVELOPMENT PROJECT
ANTIOCH, CONTRA COSTA COUNTY, CALIFORNIA**

February 13, 2020

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Table 4. Known Special-Status Wildlife Species in the Vicinity of the Creekside Project Site.

SHEETS

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Sheet A. Plant Communities and Impacts: Creekside Project Site.

ATTACHMENTS

(Behind Tab at Back of Report)

Attachment A. Biological Resources Analysis: Project Description Areas for Creekside, CBG November 7, 2019.

Attachment B. Creekside Impacts Exhibits, CBG July 9, 2019.

1. INTRODUCTION

Monk & Associates, Inc. (M&A) prepared this biological resource analysis for the proposed Creekside Project (herein also referred to as the proposed project) located in Antioch, Contra Costa County, California (Figures 1 and 2). The purpose of our analysis is to provide a description of existing biological resources on the project site and to identify potentially significant impacts that could occur to sensitive biological resources from the construction of a proposed residential development.

Biological resources include common plant and animal species, and special-status plants and animals as designated by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and other resource organizations including the California Native Plant Society (CNPS). Biological resources also include waters of the United States and State, as regulated by the U.S. Army Corps of Engineers (Corps), California Regional Water Quality Control Board (RWQCB), and the CDFW.

This biological resource analysis includes identification of “potentially significant” and “significant impacts” as defined by the California Environmental Quality Act (CEQA) that could occur to sensitive biological resources. Mitigation measures have been developed for all identified “potentially significant” and “significant” impacts, and upon implementation would reduce the effects of such impacts to levels regarded as less than significant pursuant to the CEQA.

2. PROPERTY LOCATION AND SETTING

The approximate 58.6-acre proposed project site, which is a portion of Assessor’s Parcel Number (APN) 057-050-024, is located west of Highway 4 and south of Lone Tree Way in the City of Antioch, Contra Costa County, California (Figures 1 and 2). The site is generally rectangular; however, the northern boundary is an irregular shape, following the alignment of Sand Creek. Sand Creek flows west to east adjacent to the northern boundary of the project site and eventually flows into Marsh Creek in the City of Brentwood. The project site has been dry-land farmed since the 1930s and consists primarily of non-native vegetation, although it is also subject to a number of energy and communication easements and is within the historical boundaries of the Brentwood Oil & Gas Field.

The project site is surrounded by undeveloped land to the east, south, and west. The northern boundary of the project site is located adjacent to a 400-foot wide, 23.7 acre, “Sand Creek Buffer Area” that includes a portion of Sand Creek and approximately 200 feet on either side of the creek’s centerline. The area immediately west of the project site is undeveloped and includes approximately 8 acres that are subject to a deed restriction that generally prevents any future disturbance of the 8-acres. The east side of the project site is also generally bordered by undeveloped land. Like the project site, the adjacent undeveloped areas are subject to numerous energy and communication easements and are within the historical boundaries of the Brentwood Oil & Gas Field. Currently, there is one active oil and gas lease area (the “Shellenberger Lease”), which is located near the project site’s southeastern border. Old utility access roads and existing pipelines run below ground and cross Sand Creek.

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The project site is located in an area of Antioch that is rapidly transitioning from agricultural uses to residential and commercial development. The parcel directly north of the project site is the Vineyards at Sand Creek/Promenade Project Site (“Promenade Project”), a 650-unit residential development that is currently under construction. The “Aviano Development Project,” which is also currently under construction is located to the northwest of the project site. To the west is a PG&E facility and privately-owned land planned for future residential development in the City of Antioch’s General Plan. Figures 2 and 3 provides an aerial photograph that shows the project site features and the surrounding land uses.

3. PROPOSED PROJECT

The Creekside Project is the second phase of the Vineyards at Sand Creek Residential Community (the first phase being the Promenade Project) and includes the development of approximately 220 single-family units on the approximately 58.6-acre project site. The project will include housing, landscaped areas, roadways, and utility improvements, as illustrated on the attached exhibit entitled: *Biological Resources Analysis: Project Description Areas for Creekside*, prepared by CBG, dated November 7, 2019 (Attachment A).

The main water quality detention basin area is proposed east of the residential area, adjacent to Sand Creek. Two detention basins will collect and treat stormwater for the majority of the residential development. Treated stormwater from these two basins will flow north into Sand Creek via an outfall structure constructed on the south side of the existing outfall facility previously constructed by the Promenade Project.

A second “clean water” outfall into Sand Creek is proposed adjacent to a southern extension of Hillcrest Avenue (bridge, roadway and utilities), north of the residential area. Natural drainage from the northern portion of the adjacent western hillslope will be collected and discharged via this outfall structure. A third “clean water” stormwater outfall (dispersal point) is proposed east of the residential area, at the far southern end of the project site. Natural drainage from the southern portion of the western hillslope will be collected, treated and dispersed.

Dry utilities and water lines will be installed within the proposed Hillcrest Avenue bridge to connect to utilities in Hillcrest Avenue. A second EVA/pedestrian bridge will be constructed adjacent to and 25-feet west of the existing PG&E bridge in the northeastern corner of the site; water, sewer, and dry utilities will be attached to that EVA/pedestrian bridge to connect with existing utilities in Heidorn Ranch Road.

This development also will require offsite grading on approximately 11 acres located adjacent to project site (“Offsite Grading Areas”). The Offsite Grading Areas, shown on Attachment A, will be contoured and hydroseeded.

4. ANALYSIS METHODS

Prior to preparing this biological resource analysis report, M&A researched the most recent version of the CDFW Natural Diversity Database, RareFind 5 application (CNDDDB 2019) for historical and recent records of special-status plant and animal species (that is, threatened,

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endangered, rare) known to occur within 5 miles of the project site. In addition, M&A conducted a 9 Quadrangle search of the 2020 electronic version of the *CNPS' Inventory of Rare and Endangered Plants of California* (CNPS 2001) for records of special-status plants known in the region of the project site. Finally, M&A reviewed plant species that are considered locally rare as listed in the East Bay Chapter of the *CNPS Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* for the Marsh Creek/Lone Tree Valley area. All special-status species records were compiled in tables. M&A reviewed all known records and any available biological survey reports to determine if special-status species could occur on the project site or within an area of effect of the development project.

4.1 General Site Surveys

M&A biologists, Ms. Hope Kingma and Ms. Sharon Dulava, conducted a survey of the project site, Offsite Grading Areas, and other adjacent undeveloped areas on January 18, 2019 to record biological resources and to assess the likelihood of agency regulated areas on the project site. The survey involved searching all habitats on the site and recording all plant and wildlife species observed. M&A's site evaluation included a thorough examination of the site to document potential habitats on or adjacent to the project site that could support special-status species and/or waters of the U.S. and state. M&A cross-referenced the habitats found on the project site against the habitat requirements of local or regionally known special-status species to determine if the proposed project could directly or indirectly impact such species.

4.2 Focused Special-Status Plant Surveys

In the spring and summer of 2005 and 2006, M&A completed focused surveys for special-status (that is, rare, threatened, or endangered) plants on the project site. The results of these surveys provide a basis in knowledge about the plant species known from the project site that is far more detailed than any other source of information for the project site, and as discussed in Section 6.2, additional preconstruction surveys for potential special status plants are recommended. The survey findings are also a useful mechanism to alert M&A to the presence of rare plants on the project site in 2005 and 2006 that may not have been previously recorded in the area and they provide a field check of plants previously recorded in the area. As detailed herein, these surveys will be repeated the year prior to development.

M&A's 2005 and 2006 rare plant surveys followed CDFG (2000) and CNPS (2001) published survey guidelines. These guidelines state that special-status surveys should be conducted at the proper time of year when special-status and locally significant plants are both evident and identifiable. These guidelines also state that the surveys be floristic in nature with every plant observed identified to species, subspecies, or variety as necessary to determine their rarity status. Finally, these surveys must be conducted in a manner that is consistent with conservation ethics and accepted plant collection and documentation techniques. Following these guidelines, surveys were conducted during the months when special-status plant species from the region are known to be evident and flowering.

During surveys, all areas of the project site, the Offsite Grading Areas and areas south and east of the project site were examined by walking systematic transects through potential habitat, and by closely examining any existing microhabitats that could potentially support special-status

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plants. Nearly all plant species found during the surveys were identified to species. All plants were identified to the level needed to determine their rarity status. A list of all vascular plant taxa encountered during the surveys, including within the project site, was recorded in the field. Plants that needed further evaluation were collected and keyed in the lab. Final determinations for collected plants were made by keying specimens using standard references such as The Jepson Manual, 2nd edition (Baldwin 2012). Updated special-status plant surveys will be conducted the year prior to disturbance of the site, following the current CDFG (2018), USFWS (2000), and CNPS (2001) published survey guidelines. During the surveys, qualified botanists will search for all the plants listed in Table 3 that have potential to occur on the project site, and all plants that are considered locally rare as listed in the East Bay Chapter of the CNPS *Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* for the Marsh Creek/Lone Tree Valley area.

4.3 Wetland Delineation

On April 8, 2019, M&A biologists, Ms. Kingma and Ms. Dulava, conducted a wetland delineation of the project site, using criteria prescribed in the Corps' 1987 Wetland Delineation Manual (Corps 1987) and the Corps' Regional Supplement for the Arid West Region (Corps 2008). The draft wetland delineation map is provided as Sheet 1 (attached). Sand Creek, an ephemeral drainage channel, and several seasonal wetlands were identified on the project site. Submittal to the Corps for confirmation remains pending.

5. RESULTS OF RESEARCH AND PROJECT SITE ANALYSES

5.1 Topography and Hydrology

The project site is confined to a broad, almost level valley between two hills on the western and eastern sides of the project site (Figure 2). The project site has been disked and planted to wheat or safflower every year dating back to the 1930s. On-going dry-land farming practices have gradually leveled the site over the many decades of agricultural production.

The project site primarily drains to a shallow ephemeral drainage channel adjacent to the eastern edge of the project site. After large storm events the ephemeral drainage channel flows northward to Sand Creek along the base of the eastern hillside (Sheet 1). The ephemeral drainage channel averages 2 to 3 feet between ordinary high-water marks (OHWM) and steeply sloped in most sections. The drainage is incised 3 to 6 feet below the surrounding grade. During M&A's surveys in 2019 several pools of standing water of up to 10 inches deep were observed in the drainage thalweg.

Sand Creek, an intermittent creek, flows west to east near the northern project site boundary (Figure 3). This creek receives urban runoff from developments to the northwest, and from a flood control basin that was constructed upstream of the project site in Sand Creek in 2013-2014. The average distance between OHWMs in Sand Creek is 5 to 15 feet and it is approximately 50 to 125 feet wide between the top-of-banks. Sand Creek is incised approximately 20 feet down below the existing grade of the project site with steeply-sloped banks.

5.2 Plant Communities and Associated Wildlife Habitats

M&A biologists examined the habitats and characterized the vegetation present on the project site and the adjacent currently undeveloped areas. A complete list of plant species observed is presented in Table 1. Most of the project site has been dry-land farmed annually for many decades (dating back to the 1930s) resulting in limited vegetation diversity and an agrestal plant community. Farming practices include disking and planting primarily wheat or safflower typically for two crops per year. There is a remnant area of non-native annual grassland east of the project site, on the western-facing slope of the eastern hillside that is too steep to farm (Figure 3). The ephemeral drainage channel that flows along the base of the eastern hillside to the east of the project site supports scattered upland and wetland (hydrophytic) vegetation. Sand Creek, an intermittent creek, supports sporadically occurring riparian canopy vegetation. Therefore, four plant communities occur on or adjacent to the project site: “agrestal” (farmed), non-native annual grassland, drainage channel, and riparian woodland, as illustrated on Sheet A. Nomenclature used for plant names follows The Jepson Manual, 2nd edition (Baldwin 2012) and changes made to this manual as published on the Jepson Interchange Project website.

5.2.1 “AGRESTAL” PLANT COMMUNITY

An “agrestal” community is a weed dominated community of rural, agricultural areas (Holland & Keil 1995). Agrestal communities form in areas that have been disturbed by cultivation. As the project site has been farmed annually since the 1930s, most of the project site is an agrestal community. Many species of weeds thrive in the same environments as crop plants.

The existing vegetation over most of the proposed project area is classified as agrestal and is the result of long-term ground manipulation and cultivation. Plants introduced by man, generally for agricultural commodity crops, dominate these communities. The cultivation of agricultural fields continually disturbs the soil. As a result, these areas typically do not support native plant species or communities. The dominant plants on the project site are wheat or grain crops. Weeds that grow within the planted wheat fields include non-native grasses such as ripgut grass (*Bromus diandrus*), wall barley (*Hordeum murinum*), and slender wild oat (*Avena barbata*), and other ruderal species such as yellow starthistle (*Centaurea solstitialis*), Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), black mustard (*Brassica nigra*), and short-podded mustard (*Hirschfeldia incana*). A complete plant list of observed species is provided as Table 1.

In general, agrestal areas do not provide suitable habitat for many wildlife species. The intense disking and manipulation of the soil tend to limit the number of species that occupy or use cropland habitats. Nevertheless, the disked field on the project site provides habitat for species such as California ground squirrel (*Otospermophilus beecheyi*), wintering western burrowing owl (*Athene cunicularia hypugaea*), red-winged blackbird (*Agelaius phoeniceus*), and foraging habitat for species such as coyote (*Canis latrans*), golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), and American pipit (*Anthus rubescens*). A complete list of observed wildlife species is included in Table 2.

5.2.2 NON-NATIVE GRASSLAND

Remnant non-native annual grassland is present on a steep slope adjacent to the eastern portion of the project site. The plant community in this area is dominated by non-native grasses such as

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ripgut brome and slender wild oat. Several decadent almond trees (*Prunus dulcis*) from a remnant orchard, as well as forbs such as lupine (*Lupinus* sp.) and common vetch (*Vicia sativa*), are also growing on this slope.

Non-native annual grassland provides wildlife with burrowing, denning, and foraging opportunities. Wildlife species observed utilizing this area include California ground squirrel, California meadow vole (*Microtus californicus*), Botta's pocket gopher (*Thomomys bottae*), golden eagle, red-tailed hawk, and western fence lizard (*Sceloporus occidentalis*).

5.2.3 DRAINAGE CHANNEL

The plant community within the ephemeral drainage channel located east of the project site is largely dominated by upland vegetation similar to the adjacent agrestal areas. Several hydrophytic plant species were present within the channel or on the banks, including curly dock (*Rumex crispus*), cocklebur (*Xanthium strumarium*), alkali heath (*Frankenia salina*), Great Valley gumplant (*Grindelia camporum*), and creeping wildrye (*Elymus triticoides*). Two species of tree, blue elderberry (*Sambucus nigra* subsp. *caerulea*) and almond (*Prunus* sp.), were observed growing along a section of the drainage close to Sand Creek.

Ephemeral drainages provide a water source and migration corridors for wildlife species. When drainages have pools that remain inundated for several weeks to two months or longer, they can also provide breeding habitat for amphibians such as Sierran treefrog (*Pseudacris sierra*) and California toad (*Anaxyrus boreas halophilus*), as well as many common invertebrates. No amphibians were observed during M&A's 2019 surveys, but western fence lizard, California meadow vole, California ground squirrel, and raccoon (*Procyon lotor*) (prints) were observed within this ephemeral drainage.

5.2.4 RIPARIAN WOODLAND

Scattered riparian woodland is associated with Sand Creek, an intermittent creek that runs west to east near the northern border of the project site. Tree species found in the riparian woodland along Sand Creek include valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), bluegum eucalyptus (*Eucalyptus globulus*), arroyo willow (*Salix lasiolepis*), and big-leaf maple (*Acer macrophyllum*). The open non-canopied habitats within Sand Creek allow for localized occurrences of herbaceous and shrubby understories. California rose (*Rosa californica*) grows in dense thickets along portions of the creek, while sneezeweed (*Helenium puberulum*), California sagebrush (*Artemisia californica*), and California mugwort (*Artemisia douglasiana*) are scattered along the creek banks and at the water line. Annual beardgrass (*Polypogon monspeliensis*), narrow-leaved cattail (*Typha angustifolia*), brown-headed rush (*Juncus phaeocephalus* subsp. *paniculatus*), Baltic rush (*Juncus balticus* subsp. *ater*) and water cress (*Nasturtium officinale*) grow in scattered locations in the creek channel as well.

Wildlife associated with the riparian woodland onsite includes amphibians such as California slender salamander (*Batrachoseps attenuatus*) and Sierran treefrog. Reptiles expected within the riparian community include western terrestrial garter snake (*Thamnophis elegans*), western fence lizard, and northern alligator lizard (*Elgaria coerulea*).

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Birds that have been observed in the riparian woodland adjacent to the project site include red-tailed hawk, golden eagle, great horned owl (*Bubo virginianus*), northern flicker (*Colaptes auratus*), Nuttall's woodpecker (*Picoides nuttallii*), California scrub jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltriparus minimus*), Anna's hummingbird (*Calypte anna*), yellow-rumped warbler (*Setophaga coronata*), ruby-crowned kinglet (*Regulus calendula*), marsh wren (*Cistothorus palustris*), and California towhee (*Pipilo crissalis*). Some common mammals that occur in the riparian woodland include bobcat (*Lynx rufus*), raccoon, and gray fox (*Urocyon cinereoargenteus*).

Table 2 provides a complete list of wildlife observed and/or heard during the site surveys. It is expected that at different times of the year different animals would be found in the riparian woodland adjacent to the project site, especially during the spring and fall migration months when Neotropical migrants typically use riparian habitats.

5.3 Wildlife Corridors

Wildlife corridors are linear and/or regional habitats that provide connectivity to other natural vegetation communities within a landscape fractured by urbanization and other development. Wildlife corridors have several functions: 1) they provide avenues along which wide-ranging animals can travel, migrate, and breed, allowing genetic interchange to occur; 2) populations can move in response to environmental changes and natural disasters; and 3) individuals can recolonize habitats from which populations have been locally extirpated (Beier and Loe 1992). All three of these functions can be met if both regional and local wildlife corridors are accessible to wildlife. Regional wildlife corridors provide foraging, breeding, and retreat areas for migrating, dispersing, immigrating, and emigrating wildlife populations. Local wildlife corridors also provide access routes to food, cover, and water resources within restricted habitats.

The proposed project will not interfere with the movement of native wildlife as the majority of the project site is a disked agricultural field that has been consistently disturbed for years. Sand Creek near the northern boundary of the project site provides a valuable east/west wildlife corridor with suitable cover, foraging and water resources, and migration pathways that lead to other natural habitats. The project as currently proposed would not adversely impact wildlife movement corridors since the Creekside Project will remain outside of a 400-ft wide (23.7-acre) Sand Creek Buffer Area that is subject to an existing deed restriction that will preserve the Buffer Area in its existing undeveloped condition. The two outfall structures and the two clear span bridges over Sand Creek will not impact the value of this wildlife corridor.

Sand Creek provides a local wildlife corridor for common mammals and birds such as raccoon, bobcat, gray fox, and coyote, to name a few. However, mammals that use the riparian woodland as a wildlife corridor have been discouraged from using the project site for many years since it is routinely disked and planted. As such, medium and large mammal movements along this creek will remain unaffected by the proposed project. Finally, this riparian corridor provides important avian habitat that is used seasonally by migrants and year-round by resident birds; this function will also remain unaffected as nesting bird surveys will be conducted prior to commencement of construction.

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While a small portion of the Sand Creek corridor will be impacted during the construction of the Hillcrest Avenue extension along the western side of the project site, the proposed EVA/pedestrian bridge, and the two stormwater outfall structures on the creek banks, the value of this wildlife corridor will be unaffected. In addition, prior to the commencement of construction, a wildlife exclusion fence will be installed along the norther perimeter of the project site to prevent mammals migrating along Sand Creek from entering the project site. Sand Creek is the only wildlife corridor in proximity to the project site and this function will be unaffected by the proposed development project and will continue to serve its function as a wildlife corridor.

An ephemeral drainage channel that flows from south to north along the toe of the hillside just east of the project site also forms a local wildlife corridor. Common mammals use this drainage now to avoid detection in the open farmed fields next to this drainage. This drainage channel is located adjacent to the detention basin area and will remain largely unaffected by the project. As such, the ephemeral drainage channel will continue to be used by common wildlife species even after the project site is developed.

6. SPECIAL-STATUS SPECIES DEFINITION

6.1 Definitions

For purposes of this analysis, special-status species are plants and animals that are subject to the California and federal Endangered Species Acts (CESA and FESA, respectively) and species that are considered rare by the scientific community (for example, the CNPS). Special-status species are defined as:

- plants and animals that are listed or proposed for listing as threatened or endangered under the CESA (Fish and Game Code §2050 *et seq.*; 14 CCR §670.1 *et seq.*) or the FESA (50 CFR 17.12 for plants; 50 CFR 17.11 for animals; various notices in the Federal Register [FR] for proposed species);
- plants and animals that are candidates for possible future listing as threatened or endangered under the FESA (50 CFR 17; FR Vol. 64, No. 205, pages 57533-57547, October 25, 1999); and under the CESA (California Fish and Game Code §2068);
- plants and animals that meet the definition of endangered, rare, or threatened under the California Environmental Quality Act (CEQA) (14 CCR §15380) that may include species not found on either State or Federal Endangered Species lists;
- plants occurring on Ranks 1A, 1B, 2A, 2B, 3, and 4 of CNPS' electronic *Inventory* (CNPS 2001). The CDFW recognizes that Ranks 1A, 1B, 2A and 2B of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and the CDFW requests their inclusion in EIRs. Plants occurring on CNPS Ranks 3 and 4 are "plants about which more information is necessary," and "plants of limited distribution," respectively (CNPS 2001) (more on CNPS Rank species below);

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- many of the plants constituting California Rare Plant Rank 3 may meet the definitions of threatened or endangered per the California Endangered Species Act and could be eligible for state listing. Impacts to Rank 3 plant species or their habitats should be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they may meet the definition of Rare or Endangered under CEQA Guidelines §15125(c) and/or §15380. Additional plants may be included as special-status species on a case by case basis due to local significance or recent biological information;
- migratory nongame birds of management concern listed by USFWS (Migratory Nongame Birds of Management Concern in the United States: The list 1995; Office of Migratory Bird Management; Washington D.C.; Sept. 1995);
- animals that are designated as “species of special concern” by the CDFW (2016);
- Animal species that are “fully protected” in California (Fish and Game Codes 3511, 4700, 5050, and 5515).

In the paragraphs below, we provide further definitions as they pertain to the special-status species discussed in this report or in the attached tables.

Federal Endangered or Threatened Species. An endangered species under the FESA is any species which is in danger of extinction throughout all or a significant portion of its range. A Threatened species means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. “Take” of an endangered or threatened species, as defined by federal law, is generally prohibited unless authorized by the USFWS.

State Endangered or Threatened Species. “Take” of a species listed as threatened or endangered under the CESA (§2050 of California Fish and Game Code) as defined by state law is to harass, pursue, hunt, shoot, trap, and may be authorized by CDFW pursuant to the California Fish and Game Code.

California Species of Special Concern. These are species in which their California breeding populations are seriously declining and extirpation from all or a portion of their range is possible. This designation affords no legally mandated protection; however, pursuant to the CEQA Guidelines (14 CCR §15380), some species of special concern could be considered “rare” and in accordance with the CEQA Guidelines the potential effects of a proposed project should be considered on rare species as well as any species that are officially designated as threatened or endangered.

CNPS Rank Species. The CNPS maintains an “Inventory” of special-status plant species. This inventory has four lists of plants with varying rarity. These lists are: Rank 1, Rank 2, Rank 3, and Rank 4. Although plants on these lists have no formal legal protection (unless they are also state or federally-listed species), the CDFW requests the inclusion of Rank 1 species in environmental

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documents. In addition, other state and local agencies may request the inclusion of species on other lists as well.

The Rank 1 and 2 species are defined below:

- Rank 1A – Presumed extinct in California;
- Rank 1B – Rare, threatened, or endangered in California and elsewhere;
- Rank 2A: Plants presumed extirpated in California, but more common elsewhere;
 Rank 2B: Rare, threatened, or endangered in California, but more common elsewhere.

All of the plants constituting Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the Fish and Game Code and are eligible for state listing (CNPS 2001). Rank 2 species are rare in California, but more common elsewhere. Ranks 3 and 4 contain species about which there is some concern, and are review and watch lists, respectively.

Additionally, in 2006, CNPS updated their lists to include “threat code extensions” for each list. For example, Rank 1B species would now be categorized as Rank 1B.1, Rank 1B.2, or Rank 1B.3. These threat codes are defined as follows:

- .1 is considered “seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)”;
- .2 is “fairly endangered in California (20-80% of occurrences threatened)”;
- .3 is “not very endangered in California (less than 20% of occurrences threatened or no current threats known).”

Fully Protected Birds. Fully protected birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time.

6.2 Potential Special-Status Plants That Could Be Affected by the Project

Figure 4 provides a graphical illustration of known CNDDDB records for special-status species within 5 miles of the project site and helps readers visually understand the number of sensitive species that have been recorded in the vicinity of the project site. According to the CDFW’s CNDDDB and the CNPS 9 Quad search, a total of 56 special-status plant species are known to occur in the vicinity of the project site. However, owing to the farmed conditions of the project site which has been ongoing since the mid-1930s, special-status plants are less likely to occur. The majority of the plants from Table 3 occur in specialized habitats such as chaparral, coastal scrub, chenopod scrub, and/ or inland dunes which do not occur on or near the project site. Plant species occurring in specialized habitats that do not occur on or near the project site were summarily dismissed from consideration as indicated in Table 3.

San Joaquin spearscale (*Extriplex joaquinana*), a CNPS list 1B.2 species, was identified adjacent to the project site in 2006 (CNDDDB Occurrence No. 104). In addition, there are several rare plant species that thrive in disturbed areas and have a low potential to occur on the project site. These include big tarplant (*Blepharizonia plumosa*), Congdon’s tarplant (*Centromadia parryi*

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congdonii), Carquinez goldenbush (*Isocoma arguta*), showy golden madia (*Madia radiata*), large-flowered fiddleneck (*Amsinckia grandiflora*), Hoover's cryptantha (*Cryptantha hooveri*), caper-fruited tropidocarpum (*Tropidocarpum capparideum*), heartscale (*Atriplex cordulata cordulata*), brittlescale (also known as rhomboid bract saltbush) (*Atriplex depressa*), lesser saltbush (*Atriplex minuscula*), alkali milkvetch (*Astragalus tener tener*), Mt. Diablo fairy lantern (*Calochortus pulchellus*), diamond-petaled California poppy (*Eschscholzia rhombipetala*), California alkali grass (*Puccinellia simplex*), shining navarretia (*Navarretia nigelliformis radians*), Mount Diablo buckwheat (*Eriogonum truncatum*), and recurved larkspur (*Delphinium recurvatum*) (Table 3).

None of these species were detected on the project site during 2005/2006 rare plant surveys or surveys conducted in 2019. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines (see Impacts and Mitigation Section).

6.2.1 BIG TARPLANT

Big tarplant is a CNPS Rank 1B.1 species. It has no state or federal status. This annual member of the sunflower family is found in grassland habitats, typically with clay to clay-loam soils. It is most frequently encountered on slopes, and often in burned areas. Big tarplant flowers from July through October. The closest record for big tarplant is 1.5 miles southwest of the project site (CNDDDB Occurrence No. 33). It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to big tarplant are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.2 CONGDON'S TARPLANT

Congdon's tarplant is a CNPS Rank 1B.1 species. It has no state or federal status. This annual member of the sunflower family is found in alkaline soils in grassland habitats. It flowers from May through November. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to Congdon's tarplant are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

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6.2.3 CARQUINEZ GOLDENBUSH

Carquinez goldenbush is a CNPS List 1B.1 species. It has no state or federal status. This shrub is found in alkaline soils, flats and low hills of Suisun Bay, in the Sacramento Delta. It flowers from August through December. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to Carquinez goldenbush are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.4 SHOWY GOLDEN MADIA

Showy madia is a CNPS List 1B.1 species. It has no state or federal status. This member of the sunflower family is found in woodland and grassland habitats, most often on adobe clay soils. It can be found in open grassland habitat or among shrubs, where it flowers from March through May. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to showy madia are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.5 LARGE-FLOWERED FIDDLENECK

Large-flowered fiddleneck is a federally and state listed endangered species and a CNPS Rank 1B.1 species. The large-flowered fiddleneck is a striking annual member of the borage family (Boraginaceae), growing to 50 cm. tall, with bright orange flowers (14-20 mm. long) that bloom from April to May. This plant has been threatened by agriculture, development, grazing, invasive non-native plants, trampling, and altered fire frequency. Large-flowered fiddleneck is found in cismontane woodland and valley and foothill grasslands on various soil types at an elevation of 902 to 1804 feet. Historically, this species was reported from scattered locations throughout the northern Diablo Range in California, ranging from northern Contra Costa County to San Joaquin County. It is currently only known from three populations, one on private rangeland, one on the U.S. Department of Energy's Lawrence Livermore National Laboratory property and one on East Bay Regional Parks Land in Black Diamond Mines Regional Park (CNDDDB 2015). *The project site occurs outside of designated critical habitat.*

This plant was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and its

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limited distribution. As such, no impacts to this listed plant are anticipated. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to large-flowered fiddleneck are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.6 HOOVER'S CRYPTANTHA

Hoover's cryptantha is a CNPS Rank 1A species. This plant is considered to be extirpated (extinct). It has no state or federal status. This annual herb has calyxes for flowers that are 1.5 to 3 millimeters wide. It flowers from March to May. Hoover's cryptantha grass can be found in valley and foothill grassland in sandy soils. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000) and CNPS (2001) published rare plant survey guidelines.

Impacts to Hoover's cryptantha are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.7 CAPER-FRUITED TROPIDOCARPUM

Caper-fruited tropidocarpum is a CNPS List 1B.1 species. It has no state or federal status. It is known from only two occurrences. The species is possibly threatened by grazing, trampling, and non-native plants. Caper-fruited tropidocarpum is found in alkaline hills in valley and foothill grassland. It is an annual herb that blooms from March through April. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to caper-fruited tropidocarpum are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.8 HEARTSCALE

Heartscale is a CNPS List 1B.2 species. It has no state or federal status. This annual herb is found in chenopod scrub, meadows and seeps, and grassland habitats with sandy, saline, or alkaline soils in the Central Valley from the Sacramento region southward. It flowers from April

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through October. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to heartscale are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.1 BRITTLESCALE

Brittlescale is a CNPS Rank 1B.2 species. It has no state or federal status. This annual saltbush is found in chenopod scrub, meadows, seeps, playas, valley and foothill grasslands and vernal pools with alkaline or clay soils. It flowers from April through October. The closest record for big tarplant is located 0.1-mile immediately south of the project site (CNDDDB Occurrence No. 74). It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to brittlescale are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.2 LESSER SALT BUSH

Lesser saltbush is a CNPS List 1B.1 species. It has no state or federal status. This plant is found in sandy, alkaline soils in chenopod scrub, playas, and grasslands in the southern San Joaquin Valley. It is an annual herb that blooms from May to October. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to lesser saltbush are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.3 SAN JOAQUIN SPEARSCALE

San Joaquin spearscale is a CNPS Rank 1B.2 species. It has no state or federal status. San Joaquin spearscale is found in chenopod scrub, meadows, seeps, playas, and alkaline valley and foothill grasslands. It is an annual herb that blooms from April through October. This plant is threatened by grazing, agriculture, and development.

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San Joaquin spearscale was found adjacent to the project site during surveys conducted in 2006 (CNDDDB Occurrence No. 104). It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to San Joaquin spearscale are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.4 ALKALI MILKVETCH

Alkali milk-vetch is a CNPS Rank 1B.2 species. It has no state or federal status. This member of the pea family is found in vernal pools with alkaline soils, and in mesic grassland habitats with adobe clay soils. This annual herb blooms from March through June. This plant is threatened by development, competition from non-native plants, and habitat destruction, especially agricultural conversion. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to alkali milk-vetch are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.5 MT DIABLO FAIRY LANTERN

Mount Diablo fairy-lantern (*Calochortus pulchellus*) is not a federally or California state listed species. It is a CNPS List 1B.2 species. This plant can be found in chaparral, cismontane woodlands, riparian woodlands, and on valley and foothill grasslands in woody and brushy slopes (elevation 600-2400 feet). The flowering period for this bulbiferous herb is from April through June. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to Mount Diablo fairy-lantern are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

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6.2.6 DIAMOND-PETALED CALIFORNIA POPPY

Diamond-petaled California poppy is on CNPS List 1B.1. This plant has no state or federal status. This member of the poppy family is found in grassland habitats with alkaline or clay soils, at elevations as high as 975 meters. It flowers between March and April. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to diamond-petaled California poppy are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.7 CALIFORNIA ALKALI GRASS

California alkali grass is a CNPS Rank 1B.2 species. It has no state or federal status. This annual grass has spikelet stalks 1-18 cm long. It blooms from March to May. California alkali grass can be found in valley grassland, wetland and riparian habitats in alkaline soils. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000) and CNPS (2001) published rare plant survey guidelines.

Impacts to California alkali grass are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.8 SHINING NAVARRETIA

Shining navarretia is a CNPS Rank 1B.2 species. It has no state or federal status. This annual herb has yellow flowers with purple or brown spots, and blooms from May through July, although M&A botanists have also found it flowering in late-April. Shining navarretia occurs in clay depressions in woodlands and grasslands, and also in vernal pools. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to shining navarretia are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

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6.2.9 MOUNT DIABLO BUCKWHEAT

Mount Diablo buckwheat is a CNPS Rank 1B.1 species. It has no state or federal status. Mount Diablo buckwheat is found in chaparral, coastal scrub and sandy valley and foothill grasslands. This annual herb blooms from April through November. This plant was previously thought extinct until its 2005 rediscovery on the slopes of Mt. Diablo. It was found in fine, sandy loam on a barren strip between grassland and chaparral. This species is now known from the single extant occurrence in Mount Diablo State Park and is potentially threatened by trampling and non-native plants. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to Mount Diablo buckwheat are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.2.10 RECURVED LARKSPUR

Recurved larkspur is a CNPS List 1B.2 species. It has no state or federal status. This showy light blue-flowered perennial blooms from March through June. Recurved larkspur is found in poorly drained, fine alkaline soils in chenopod scrub, woodlands and grasslands. It was not detected on the project site in 2019, or during the 2005/2006 focused plant surveys. This species is unlikely to occur on the project site due to the farmed conditions and marginal habitat. Regardless, special-status plant surveys will be conducted the year prior to disturbance of the project site, following the current CDFW (2018), USFWS (2000), and CNPS (2001) published rare plant survey guidelines.

Impacts to recurved larkspur are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3 Potential Special-Status Wildlife Species That Could Be Affected by the Project

Figure 4 provides a graphical illustration of the known CNDDDB records for special-status wildlife species within 5 miles of the project site and helps readers visually understand the number of sensitive species that occur in the vicinity of the project site. A total of 18 special-status animal species are known to occur in the vicinity of the project site according to the CDFW's CNDDDB records (Table 4), 13 of which are discussed in detail below.

6.3.1 VERNAL POOL FAIRY SHRIMP

Vernal pool fairy shrimp (*Branchinecta lynchi*) was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was

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designated on August 6, 2003 (Federal Register 68: 46683-46867). *The project site is not located within this species' designated critical habitat (Figure 5).*

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½ to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 1994).

The female drops eggs to the pool bottom or the eggs remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs (known as cysts when dry). They remain in the dry pool bed until rains and other environmental stimuli hatch them. Cysts can withstand heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only 41 days. In warmer pools, it can be as little as eighteen (Eriksen & Belk 1999).

The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley to Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist in Southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses.

There is a 2003 CNDDDB record for vernal pool fairy shrimp located 1.6 miles west of the project site (Occurrence No. 353) (Figure 4). In addition, in 2002 vernal pool fairy shrimp were found adjacent to the project site in pools near the top-of-bank of the ephemeral drainage channel adjacent to the eastern site of the project site (Condor Country Consulting 2002). Figure 6 illustrates the pools that currently provide potential habitat for this species. These pools will not be impacted by the project, and Best Management Practices (BMPs) will be implemented to ensure that there are no indirect impacts to these pools that could affect the quality of the potential habitat. Also, the pools known in the past to support vernal pool fairy shrimp derive hydrology from vertical precipitation and do not rely on a watershed that would be impacted by the proposed project. *Accordingly, if vernal pool fairy shrimp are present in these pools, the proposed project will have no impact on the species or its habitat.*

6.3.2 CALIFORNIA RED-LEGGED FROG

The California red-legged frog (*Rana draytonii*) was federally-listed as threatened on May 23, 1996 (Federal Register 61: 25813-25833) and as such is protected pursuant to the FESA. On March 16, 2010 the USFWS issued the final designation for California red-legged frog Critical Habitat (USFWS 2010). The project site is not within mapped critical habitat (Figure 5).

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The California red-legged frog is typically found in ponds, slow-flowing portions of perennial and intermittent streams that maintain water in the summer months. This frog is also found in hillside seeps that maintain pool environments or saturated soils throughout the summer months. Populations probably cannot be maintained if all surface water disappears (i.e., no available surface water for egg laying and larval development habitat). Larval California red-legged frogs require 11-20 weeks of deep water to reach metamorphosis (i.e., to change from a tadpole into a frog), in water depths of 10 to 20 inches (USFWS 2002). Riparian vegetation such as willows and emergent vegetation such as cattails are preferred red-legged frog habitats, though not necessary for this species to be present. Populations of California red-legged frog will be reduced in size or eliminated from ponds supporting non-native species such as bullfrog, Centrarchid fish species (such as sunfish, bluegill, or large-mouth bass), and signal and red swamp crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*, respectively), all of which are known California red-legged frog predators. However, the presence of these non-native species does not preclude the presence of the California red-legged frog.

California red-legged frogs also use upland habitats for migration and dispersal. The USFWS' *Recovery Plan for the California Red-Legged Frog* states that frog's overland excursions via uplands can vary between 0.25-mile up to 3 miles during the course of a wet season, and that frogs "have been observed to make long-distance movements that are straight-line, point to point migrations rather than using corridors for moving in between habitats" (USFWS 2002). The information presented in the USFWS' Recovery Plan was taken from a publication by Bulger et al. (2003) that recounts a study in coastal redwoods in Santa Cruz area. M&A's direct observation are that such overland straight-line migrations are primarily limited to periods of heavy rainfall or during periods when ambient conditions exhibit high moisture levels such as in fog belts along the coast. Working in Pointe Reyes National Seashore on the coast of California, Fellers and Kleeman (2007) found approximately 31 percent of California red-legged frogs moved more than 30 meters from their breeding sites and about 69 percent moved less than 30 meters from their breeding site during seasonal movement periods. Similarly, Bulger et al. (2003) found that 60 percent of their radio tagged frogs stayed within 30 meters of their breeding sites.

In locations that are characterized by hot and seasonally dry climates, the California red-legged frog is inclined to stay closer to its aquatic environments or will not migrate. Tatarian (2005) who studied an inland population of California red-legged frogs in eastern Contra Costa County where the climate is far drier than the coastal environment, found that all movements started after the first 0.5 cm of rain in the fall, with more terrestrial movements being made in the fall pre-breeding season (57%) than in the winter breeding season (32%) or spring post-breeding season (11%). Tatarian (op. cit.) also found that California red-legged frogs moved greater average distances aquatically (84.6 m) than terrestrially (27.7 m). Greater terrestrial distances were moved in the pre-breeding season (35.2 m) than in the breeding season (15.5 m) or post-breeding season (16.3 m) with the majority of movements occurring for only one of the 3-4 day survey periods. The majority of frogs (57%) were position faithful within a pool, indicating they did not migrate at all. These data suggest that long forays across the landscape found in coastal populations are less likely in dry inland locations.

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The USFWS' *Recovery Plan for the California Red-Legged Frog* states that populations are "most likely to persist where multiple breeding areas are embedded within a matrix of habitats used for dispersal." "The primary constituent elements for California red-legged frogs are aquatic and upland areas where suitable breeding and non-breeding habitat is interspersed throughout the landscape and is interconnected by unfragmented dispersal habitat" (USFWS 2002).

The closest known CNDDDB record of California red-legged frog is a 2005 record located 0.70-mile west of the project site within Sand Creek (CNDDDB Occurrence No. 933). In 2013, numerous California red-legged frogs and tadpoles were found within a section of Sand Creek located approximately 0.25-mile to the west of the project site during work associated with the construction of the Upper Sand Creek Detention Basin (from USFWS Biological Opinion for the Vineyards at Sand Creek Development Project). Consequently, the USFWS regards Sand Creek as occupied habitat of the California red-legged frog. Since Sand Creek is regarded as occupied habitat, lands located adjacent to the creek, including the project site, constitute potential upland dispersal habitat for this frog. Therefore, the proposed project will impact potential California red-legged frog dispersal habitat; 58.6 acres will no longer be available as potential dispersal habitat and 11 acres will be temporarily disturbed by grading. In addition, installation of the outfall structures on the banks of Sand Creek may result in impacts to breeding habitat for this species. *Accordingly, the project will impact suitable breeding and upland dispersal habitat for the California red-legged frog. Impacts to California red-legged frog are regarded as significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.3 CALIFORNIA TIGER SALAMANDER

The California tiger salamander (*Ambystoma californiense*) is a federally-listed threatened species. The project site falls into the range of the Central California Distinct Population Segment (DPS) of the California tiger salamander. This DPS of the California tiger salamander was federally-listed as threatened on August 4, 2004. The USFWS designated critical habitat for the California tiger salamander Central California DPS in 2005. The project site is located outside of the closest mapped critical habitat for the Central California DPS which is Critical Habitat Unit 18 designated in Alameda County (Central Valley Geographic Unit 18, Map 14) (Figure 5).

California tiger salamanders occur in grasslands and open oak woodlands that provide suitable over summering and/or breeding habitats. California tiger salamanders spend the majority of their lives underground. They typically only emerge from their subterranean refugia for a few nights each year during the rainy season to migrate to breeding ponds. Adult California tiger salamanders have been observed up to 2,092 meters (1.3 miles) from breeding ponds (USFWS 2004). As such, unobstructed migration corridors are an important component of California tiger salamander habitat.

California tiger salamanders emerge during the first heavy, warm rains of the year, typically in late November and early December. In most instances, larger movements of California tiger salamander do not occur unless it has been raining hard and continuously for several hours.

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Typically, for larger movements of California tiger salamander to occur nighttime temperatures also must be above 48° F. California tiger salamander are able to move over, through or around almost all obstacles. Significant obstructions that block California tiger salamander movements include freeways and other major (heavy traffic) roads, rivers, and deep, vertical or near vertical sided, concrete irrigation/flood control ditches.

During the spring, summer, and fall months, most known populations of the California tiger salamander predominately use California ground squirrel burrows as over-summering habitat (Jennings and Hayes 1994; G. Monk personal observation from 30 plus years working with the California tiger salamander). Other secondary subterranean refugia, or primary refugia where California ground squirrels are absent, likely include Botta's pocket gopher burrows, deep fissures in desiccated clay soils, and debris piles (e.g. downed wood, rock piles).

Stock ponds, seasonal wetlands, and deep vernal pools typically provide most of the breeding habitat used by California tiger salamander. In such locations, California tiger salamander attach their eggs to rooted, emergent vegetation, and other stable filamentous objects in the water column. Eggs are gelatinous and are laid singly or occasionally in small clusters. Eggs range in size from about $\frac{3}{4}$ the diameter of a dime to the full diameter of a dime. Occasionally California tiger salamanders are found breeding in slow-moving, streams or ditches. Ditches and/or streams that are subject to rapid flows, even if only on occasion, typically will not support or sustain California tiger salamander egg attachment through hatching, and thus, are not usually used successfully by California tiger salamander for breeding (G. Monk and S. Lynch, pers. observations). Similarly, streams and/or ditches that support predators of California tiger salamander or their eggs and larvae such as fish, bullfrogs, red swamp crayfish, or signal crayfish, almost never constitute suitable breeding habitat.

Typically, seasonal wetlands that are used for breeding must hold water through the middle of May to allow enough time for larvae to fully metamorphose. In dry years, seasonal wetlands may dry too early to allow enough time for California tiger salamander larvae to successfully metamorphose. Under such circumstances, desiccated California tiger salamander larvae can be found in dried pools. In addition, as pools dry down to very small areas of inundation, California tiger salamander larvae become concentrated and are very susceptible to predation. However, in years exhibiting wet springs, these same pools can remain inundated long enough through continual rewetting to allow California tiger salamander larvae ample time to successfully metamorphose.

California tiger salamander, a state-listed species, is known to occur 0.25-mile south of the project site (CNDDDB Occurrence No. 856). It was also found during work being conducted in the Upper Sand Creek Detention Basin located approximately 0.25-mile west of the project site (from USFWS Biological Opinion for the Vineyards at Sand Creek Development Project). While CTS could conceivably disperse or migrate to the project site from these known record locations, the farmed condition of the project site presumably would reduce over-summering opportunities. Regardless, based upon this species known dispersal distances of up to 1.3 miles, CDFW and USFWS will consider the project site as migration/over-summering habitat for the California tiger salamander.

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While there is no California tiger salamander breeding habitat on the project site, the proposed project will impact 58.6 acres of potential California tiger salamander migration/over-summering habitat, and offsite grading will result in additional temporary impacts to 11 acres of potential California tiger salamander migration/over-summering habitat.

Impacts to California tiger salamander migration/over-summering habitat is regarded as significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.4 WESTERN POND TURTLE

The western pond turtle (*Emys marmorata*) is a California “species of special concern.” In April of 2015, the USFWS issued a 90-day finding on a petition to list this species under FESA. In September 2016, M&A spoke with USFWS’ Sacramento Field Office and was told that they “hope to finish a 12-month finding in the fiscal year of 2021” (G. Tarr, USFWS, Sacramento Field Office, pers. comm. with S. Lynch of M&A, September 21, 2016). Until the western pond turtle is formally listed it is not afforded the protections of FESA.

The western pond turtle is a habitat generalist, inhabiting a wide range of fresh and brackish, permanent and intermittent water bodies from sea level to about 4,500 feet above sea level (USFWS 1992). Typically, this species is found in ponds, marshes, ditches, streams, and rivers that have rocky or muddy bottoms. This turtle is most often found in aquatic environments with plant communities dominated by watercress (*Rorippa* sp.), cattail (*Typha* sp), and other aquatic vegetation. It is a truly aquatic turtle that usually only leaves the aquatic site to reproduce and to overwinter. Field work has demonstrated that western pond turtles may overwinter on land or in water or may remain active in water during the winter season; this pattern may vary considerably with latitude, water temperature, and habitat type and remains poorly understood (Jennings and Hayes 1994).

The pond turtle also requires upland areas for burrowing habitat where it digs nests and buries its eggs. These nests can extend from 52 feet to 1,219 feet from watercourses (Jennings and Hayes 1994); however, most pond turtles nest in uplands within 250 meters of water (Bury, 2005). Upland nest sites are usually found in areas with sparse vegetation. Sunny, barren, and undisturbed (not disked) land provides optimal habitat, while shady riparian habitat and planted agricultural fields do not provide suitable habitat (op. cit.). Eggs are typically laid from March to August (Zeiner et. al. 1988), with most eggs being laid in May and June. Hatchlings will stay in the nest until the following April (Bury, unpublished). Predators of juvenile pond turtles include the non-native bullfrog (*Lithobates catesbeiana*) and Centrarchid fish (sunfish). This turtle is most visible between April and July when it can be observed basking in the sun. In areas where the water is very warm during these months, however, it will bask in the warm water and will be more difficult to observe. It eats plants, insects, worms, fish and carrion (Stebbins 2003).

The closest CNDDDB record for western pond turtle is located 3.5 miles south of the project site in Marsh Creek Reservoir (CNDDDB Occurrence No. 131). As Sand Creek is an intermittent creek without large permanent pools it is not optimal habitat for the western pond turtle. It may provide migration habitat for this turtle. Installation of the outfall structures on the banks of Sand

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Creek may result in impacts to suitable western pond turtle dispersal habitat. *Accordingly, impacts to western pond turtle are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.5 GOLDEN EAGLE

The golden eagle (*Aquila chrysaetos*) is designated as a California species of special concern and is fully protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

Additionally, its nest, eggs, and young are protected from direct “take” under the California Fish and Game Code (Sections 3503, 3503.5, and 3800).

Golden eagles are found breeding throughout western North America in remote open habitats. Typical habitats in North America include savannah woodland habitats, grasslands, aspen parkland, high and low deserts, and in taiga and zone habitats. Golden eagles feed on fresh carrion or take live prey ranging in size from small rodents to as large as new born fawns. More typical prey include rabbits, hares, and waterfowl. Golden eagles build nests in large trees, often eucalyptus, oaks, or conifers, or on large vertical cliffs. On rare occasions nests are found on the ground, especially in expansive prairie habitats where cliffs and/or trees are scarce. Often this species will return each year to the same nest stacking new sticks on the existing nest structure. Over time, nests can become piled so high with sticks that they topple over leaving huge debris piles beneath trees or at the base of cliffs.

Golden eagles nest from January until September with peak nesting occurring in March through July. One to four eggs are laid, most commonly two. Incubation lasts 44 to 45 days. Usually, one or two eaglets hatch and one eaglet fledges the nest. Family groups usually remain in undisturbed habitats until late summer. These birds are very sensitive to disturbance near the nest site, particularly in remote regions where human activities are minimal.

In 2018 and 2019, golden eagles were identified nesting in a bluegum eucalyptus (*Eucalyptus globulus*) growing along the bank of Sand Creek, immediately to the north of the project site. Since farming activities, including the use of heavy equipment for disking, planting, and harvesting crops often twice per year, has been ongoing for decades right up to the bluegum eucalyptus grove where these eagles nest, it is apparent that these golden eagles are acclimated to these recurring activities. In addition, a residential subdivision has been under construction approximately 1000 feet north of the eagles’ nests throughout 2018 and 2019, and yet these eagles fledged one young in 2018, and two young in 2019 (M&A biologist observations). Also, high density residential development activities have been ongoing within a one-mile radius around this nesting tree for over 20 years apparently without any deleterious effects on the nesting eagles.

Nesting surveys will need to be conducted to confirm or negate this species’ presence as an active nesting bird on or adjacent to the project site prior to construction. While this pair of golden eagles appears to be well-acclimated to mechanized disturbance, if an active nest is identified within the zone of influence of the development the year that construction commences, it could result in impacts or deleterious disturbance to the nesting golden eagles. Disturbance

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could result in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates) and could ultimately result in the take (killing) of nestling or fledgling golden eagles.

Accordingly, impacts to golden eagle are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.6 WHITE-TAILED KITE

The white-tailed kite (*Elanus caeruleus*) is a “Fully Protected” species under the California Fish and Game Code (§3511). Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time. It is also protected under the federal Migratory Bird Treaty Act (50 CFR 10.13). The white-tailed kite is typically found foraging in grassland, marsh, or cultivated fields where there are dense-topped trees or shrubs for nesting and perching. They nest in a wide variety of trees of moderate height and sometimes in tall bushes, such as coyote bush (*Baccharis pilularis*). Native trees used are live and deciduous oaks (*Quercus* spp.), willows (*Salix* spp.), cottonwoods (*Populus* spp.), sycamores (*Platanus* spp.), maples (*Acer* spp.), toyon (*Heteromeles arbutifolia*), and Monterey cypress (*Cupressus macrocarpa*). Although the surrounding terrain may be semi-arid, kites often reside near water sources, where prey is more abundant. The particular characteristics of the nesting site do not appear to be as important as its proximity to a suitable food source (Shuford 1993). Kites primarily hunt small mammals, with California meadow voles accounting from between 50-100% of their diet (Shuford 1993).

The nearest CNDDDB record for this species is located 2.1 miles north of the project site (Occurrence No. 87). The trees along Sand Creek provide potentially suitable nesting habitat, and preconstruction nesting bird surveys for this species are included in Mitigation Measure BIO-9 to determine whether this species is present. *Accordingly, impacts to white-tailed kite are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.*

6.3.7 SWAINSON’S HAWK

The Swainson's hawk (*Buteo swainsonii*) is a state-listed threatened species afforded protection pursuant to the CESA. While it has no special federal status, it is protected from direct take under the federal Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-711). Swainson’s hawks, their nests, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, §3513, and §3800). Finally, pursuant to CEQA, this hawk would be considered “rare” and impacts to its nest sites would be regarded as significant. Impacts to foraging habitat can be regarded as significant pursuant to the CEQA based upon guidelines provided by the CDFW for this raptor species.

The Swainson’s hawk is generally a summer visitor to California. In the fall months, most Swainson’s hawks migrate to South America before returning to the United States to breed once again in the late spring. There is a small population of Swainson’s hawks that remain residents in California year-round. The nesting population of Swainson’s hawks in California was reduced

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considerably over historical nesting populations when the species was afforded protections pursuant to the CESA in 1984. Since that time, the nesting population of Swainson's hawk has significantly recovered in California, as have other raptor species that were previously protected both as state and federally-listed species. Both the peregrine falcon (*Falco peregrinus* subsp. *anatum*) and the bald eagle (*Haliaeetus leucocephalus*) were similarly listed species under both the CESA and FESA but have both been delisted owing to population recovery. A Swainson's hawk nesting population now occurs in western Contra Costa County where this species was not known to be actively nesting when it was listed under the CESA. Similarly, eBird records suggest this hawk's population in California has greatly recovered since it was originally listed. Regardless, owing to the absence of a thorough nesting population census in California since near the time that the species was originally listed by the CDFW, the extent of this hawk's statewide recovery remains unknown. Thus, this hawk remains protected pursuant to the CESA.

The Swainson's hawk inhabits open to semi-open areas at low to middle elevations in valleys, dry meadows, foothills, and level uplands (Kochert 1986). It nests almost exclusively in trees and will nest in almost any tree species that is at least 10 feet tall (Schmutz et. al. 1984). Nests are constructed in isolated trees that are dead or alive along drainages and in wetlands, or in windbreaks in fields and around farmsteads (Palmer 1988). Swainson's hawks occasionally nest in shrubs, on telephone poles, and on the ground. In the Central Valley of California, the majority of Swainson's hawk nests and territories are associated with riparian systems and nests are commonly found in cottonwoods and oaks (Schlorff et. al. 1984). They have also been documented nesting in eucalyptus (*Eucalyptus* spp.), black walnut (*Juglans hindsii*), black locust (*Robinia pseudoacacia*), almond, Osage orange (*Maclura pomifera*), Arizona cypress (*Cupressus arizonica*), and pine (*Pinus* spp.) (CNDDDB records).

Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Its primary prey in the Central Valley is California meadow vole. Agricultural areas are often preferred over more natural grassland habitats due to larger prey populations. In addition, agricultural practices (planting, maintenance, harvesting, disking) allow for access to prey, and very likely increases foraging success of Swainson's hawks when farm equipment flushes prey during harvesting (observed many times by G. Monk). During the nesting season, Swainson's hawks usually forage within two miles of their nests. Swainson's hawk does not require habitats that contain many perches because it most often searches for prey aerially; therefore, it can occupy habitats with few or no perches except the nest tree (James 1992).

The closest CNDDDB nesting record for the species is 0.10-mile east of the project site (CNDDDB Occurrence No. 1681) in a large valley oak tree along Sand Creek. No Swainson's hawks have been detected nesting on or adjacent to the project site during multiple surveys in the vicinity of the project site over the last 4 years by M&A biologists. However, trees growing along Sand Creek provide suitable nesting trees, and preconstruction nesting bird surveys for this species are included in Mitigation Measure BIO-7 to determine whether this species is present. In addition, the project site constitutes foraging habitat that could be used by the Swainson's hawk. *Accordingly, impacts to Swainson's hawk are regarded as potentially significant pursuant to the*

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CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the *CEQA*. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.8 WESTERN BURROWING OWL

The western burrowing owl is a California “species of special concern.” Its nest, eggs, and young are also protected under California Fish and Game Code (§3503, §3503.5, and §3800). The burrowing owl is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13).

Burrowing owl habitat is usually found in annual and perennial grasslands, characterized by low-growing vegetation. Often, the burrowing owl utilizes rodent burrows, typically California ground squirrel burrows, for nesting and cover. They may also on occasion dig their own burrows or use man-made objects such as concrete culverts or rip-rap piles for cover. They exhibit high site fidelity, reusing burrows year after year. Occupancy of suitable burrowing owl habitat can be verified at a site by observation of these owls during the spring and summer months or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement (white wash) at or near a burrow. Burrowing owls typically are not observed in grasslands with tall vegetation or wooded areas because the vegetation obscures their ability to detect avian and terrestrial predators. Since burrowing owls spend the majority of their time sitting at the entrances of their burrows, grazed grasslands seem to be their preferred habitat because it allows them to view the world at 360 degrees without obstructions.

Western burrowing owls were identified 0.8-mile northwest of the project site in 2018 (CNDDDB Occurrence No. 623) (Figure 4), and a presumed wintering western burrowing owl was observed onsite during the January 2019 survey. The majority of the project site consists of disked farmed fields; however, there are a limited number of burrows onsite that provide potentially suitable habitat for western burrowing owl, and preconstruction nesting bird surveys for this species are included in Mitigation Measure BIO-6 to determine whether this species is present *Accordingly, impacts to western burrowing owl are regarded as potentially significant pursuant to the CEQA*. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the *CEQA*. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.9 NORTHERN HARRIER

The northern harrier (*Circus hudsonius*) is a California species of special concern. This raptor is also protected under California Fish and Game Code §3503.5 that protects nesting raptors and their eggs/young. The northern harrier is also protected from direct take under the Migratory Bird Treaty Act (50 CFR 10.13). Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices.

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The closest CNDDDB nesting record for the species is 13.5 miles southwest of the project site (CNDDDB Occurrence No. 27). Northern harriers likely forage over the project site and may nest in the remnant area of non-native annual grassland east of the project site that provides suitable nesting habitat for this species. Hence, there is a small possibility that there could be noise impacts associated with construction of the proposed project that could result in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates), and preconstruction nesting bird surveys for this species are included in Mitigation Measure BIO-9 to determine whether this species is present. *Accordingly, impacts to northern harriers are regarded as potentially significant pursuant to the CEQA unless appropriate impact avoidance measures are implemented.* Mitigation measures could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.10 LOGGERHEAD SHRIKE

The loggerhead shrike (*Lanius ludovicianus*) is a California “species of special concern.” It is also protected under the federal Migratory Bird Treaty Act and California Fish and Game Code (§3503 and 3800) that protects birds, their nests, eggs, and young. This small, predaceous bird of open and often arid habitats prefers areas with scattered shrubs, trees, posts, fences, utility lines, and other acceptable perching locations. This shrike preys mostly upon large insects, but also takes small birds, mammals, amphibians, reptiles, fish, carrion, and various invertebrates. It typically constructs a stick nest on a stable branch in a densely foliated tree or shrub. Blackberry (*Rubus* spp.), rose (*Rosa* spp.) and willows (*Salix* spp.) provide nest sites. Site selection is apparently based on the degree of protective cover rather than on a particular plant species (Shuford 1993). Although nest height varies from 1.5 to 30 feet above ground, it is rarely less than three feet (Shuford 1993). There has been a national decline in this species (Burrige 1995). The conversion of rural areas into subdivisions or commercial areas steadily reduces the available habitat for this small, predaceous bird.

The closest CNDDDB nesting record for the species is 4.6 miles northeast of the project site (CNDDDB Occurrence No. 3). Loggerhead shrikes likely forage over the project site and may nest in the trees growing along Sand Creek that provide suitable nesting trees. Hence, there is a small possibility that there could be noise impacts associated with construction of the proposed project that could result in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates). Nesting surveys will need to be conducted to confirm or negate this species’ presence as an active nesting bird adjacent to the project site prior to construction. *Accordingly, impacts to loggerhead shrikes are regarded as potentially significant pursuant to the CEQA unless appropriate impact avoidance measures are implemented.* Mitigation measures could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.11 TRICOLORED BLACKBIRD

The tricolored blackbird (*Agelaius tricolor*) is a State listed threatened species pursuant to the CESA. While it has no special federal status, it is also protected under the federal Migratory Bird

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Treaty Act and California Fish and Game Code (§3503 and 3800) that protects birds, their active nests, eggs, and young.

A gregarious species, the tricolored blackbird is typically found near freshwater, particularly near marsh habitat. Loss of wetland habitats is regarded as the principal factor responsible for this species' population decline (Beedy, 1992). Nesting colonies are typically found in stands of cattail (*Typha* spp.) and bulrush (*Scirpus* spp.), although they are also known to utilize blackberry patches (*Rubus* sp.) and thistle clumps (*Cirsium* spp. and *Cynara* spp.) adjacent to water. Flooded lands, margins of ponds, and grassy fields in summer and winter provide typical foraging habitat for this species.

The closest known CNDDDB record for this species is located 2 miles southwest of the project site (Occurrence No. 838) in ponds on the Roddy Ranch golf course. Sand Creek provides limited nesting habitat within the creek corridor, but they cannot be discounted as potential nesters in this corridor. Although no tricolored blackbirds have been detected on the site during multiple site surveys in the project vicinity, installation of the outfall structures in Sand Creek could disturb nesting birds, and preconstruction nesting bird surveys for this species are included in Mitigation Measure BIO-8 to determine whether this species is present. *Accordingly, impacts to tricolored blackbird are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

6.3.12 SAN JOAQUIN KIT FOX

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally-listed endangered species protected pursuant to the FESA and a state-listed threatened species protected pursuant to the CESA. The San Joaquin kit fox live primarily in the lowlands of the San Joaquin Valley of California but are also known to occur in several counties in the coast mountain ranges including Santa Barbara, San Luis Obispo, Monterey, San Benito, Santa Clara, Contra Costa, and Alameda counties. This fox species is usually found in open grassland and shrub land communities but has also been observed in ruderal plant communities.

The San Joaquin kit fox relies on dens for breeding, and to provide escape cover from potential predators. Dens are excavated in loose-textured soils, generally in areas with low to moderate relief. Kit fox will also utilize existing burrows dug by rabbits, ground squirrels, and on occasion, American badgers (*Taxidea taxus*), and on occasion will use man-made structures for denning such as well-casings, culverts, and abandoned pipes. Typically, dens are small enough to discourage easy predation by coyotes.

The San Joaquin kit fox is carnivorous, usually feeding on small rodents such as San Joaquin pocket mice (*Perognathus inornatus*), deer mice (*Peromyscus maniculatus*), western harvest mice (*Reithrodontomys megalotis*), kangaroo rats (*Dipodomys* spp.), and larger rodents such California ground squirrel. Kit fox also prey upon lagomorphs such as black-tailed jackrabbit (*Lepus californicus*) and Audubon's cottontail (*Sylvilagus audubonii*). Both adults care for pups until they are about four to five months old at which time family bonds begin to dissolve.

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The closest CNDDDB record for this species was recorded in the 1970s and is located 2.75 miles south of the project site (Occurrence No. 936). More recently, independently conducted surveys cited in *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006) were unable to document presence of San Joaquin kit fox in Contra Costa County. Although this report suggests that it is likely that San Joaquin kit fox is extirpated from Contra Costa County, Figure 5-5 in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCCC HCP 2006) indicates that the project site is within the “Suitable Core Habitat” of the San Joaquin kit fox. Suitability does not infer the presence of this fox species, only that the model used indicates there is suitable habitat in which the species could occur.

The on-going disturbance and cultivation of the project site would likely preclude the presence of an occupied den. As such, the federally-listed San Joaquin kit fox is not expected to occur on the project site. Regardless, implementation of avoidance and conservation measures listed in the Impacts and Mitigation Measures that follow in the sections below, will confirm that this species is not present on the project site and will ensure that there is no take of this species. *Accordingly, impacts to San Joaquin kit fox is regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

6.3.13 AMERICAN BADGER

The American badger is a California “species of special concern.” It has no federal status. This species is found in a variety of habitats, especially in open habitats such as oak-savannah and grasslands where its presence is typically identified by its distinctive, large underground dens (burrows) excavated in friable (loose) soils. This nocturnal mammal is rarely observed. In the region, this animal is uncommon. When present, this animal would be expected to prey upon Botta's pocket gopher, California ground squirrel, and several species of mice common in the area. Except during breeding, badgers are typically highly solitary and have vast home ranges.

This species was identified adjacent to the project site in 2007 (CNDDDB Occurrence No. 398). Owing to farming practices the project site provides marginal habitat for this species, but unfarmed edges provide unlikely but suitable foraging habitat. Therefore, development of the project could result in impacts to American badgers. *Thus, impacts to American badger are regarded as potentially significant pursuant to the CEQA.* Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA. The Impacts and Mitigation Measures that follow in the sections below address these impacts.

7. REGULATORY FRAMEWORK FOR NATIVE WILDLIFE, FISH, AND PLANTS

This section provides a discussion of those laws and regulations that are in place to protect native wildlife, fish, and plants. Under each law we discuss their pertinence to the proposed development.

7.1 Federal Endangered Species Act

The FESA forms the basis for the federal protection of threatened or endangered plants, insects, fish and wildlife. FESA contains four main elements, they are as follows:

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Section 4 (16 USCA §1533): Species listing, Critical Habitat Designation, and Recovery Planning: outlines the procedure for listing endangered plants and wildlife.

Section 7 (§1536): Federal Consultation Requirement: imposes limits on the actions of federal agencies that might impact listed species.

Section 9 (§1538): Prohibition on Take: prohibits the "taking" of a listed species by anyone, including private individuals, and State and local agencies.

Section 10: Exceptions to the Take Prohibition: non-federal agencies can obtain an incidental take permit through approval of a HCP.

In the case of salt water fish and other marine organisms, the requirements of FESA are enforced by the NMFS. The USFWS enforces all other cases. Below, Sections 9, 7, and 10 of FESA are discussed since they are the sections most relevant to the proposed project.

Section 9 of FESA as amended, prohibits the "take" of any fish or wildlife species listed under FESA as endangered. Under federal regulation, "take" of fish or wildlife species listed as threatened is also prohibited unless otherwise specifically authorized by regulation. "Take," as defined by FESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." "Harm" includes not only the direct taking of a species itself, but the destruction or modification of the species' habitat resulting in the potential injury of the species. As such, "harm" is further defined to mean "an act which actually kills or injures wildlife; such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). A December 2001 decision by the 9th Circuit Court of Appeals (Arizona Cattle Growers' Association, Jeff Menges, vs. the U.S. Fish and Wildlife Service and Bureau of Land Management, and the Southwest Center for Biological Diversity) ruled that the USFWS must show that a threatened or endangered species is present on a project site and that it would be taken by the project activities. According to this ruling, the USFWS can no longer require mitigation based on the probability that the species could use the site; rather, they must show that it is actually present.

Section 9 applies to any person, corporation, federal agency, or any local or State agency. If "take" of a listed species is necessary to complete an otherwise lawful activity, this triggers the need to obtain an "incidental take permit" either through a Section 7 Consultation as discussed further below (for federal actions or private actions that are permitted or funded by a federal agency such as the Corps), or through Section 10 of FESA which requires preparation of a HCP (for state and local agencies, or individuals, and projects without a federal "nexus"; for example, projects that do not need a Corps permit).

Section 7(a)(2) of the Act requires that each federal agency consult with the USFWS to ensure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for listed species. Critical habitat designations mean: (1) specific

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areas within a geographic region currently occupied by a listed species, on which are found those physical or biological features that are essential to the conservation of a listed species and that may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by a listed species that are determined essential for the conservation of the species.

The Section 7 consultation process only applies to actions taken by federal agencies that are considering authorizing discretionary projects. Section 7 is by and between the NMFS and/or the USFWS and the federal agency contemplating a discretionary approval (that is, the “federal nexus agency,” for example, the Corps or the Federal Highway Administration). Private parties, cities, counties, etc. (i.e., applicants) may participate in the Section 7 consultation at the discretion of the federal agencies conducting the Section 7 consultation. The Section 7 consultation process is triggered by a determination of the “action agency” – that is, the federal agency that is carrying out, funding, or approving a project - that the project “may affect” a listed species or critical habitat. If an action is likely to adversely affect a listed species or designated critical habitat, formal consultation between the nexus agency and the USFWS/NMFS is required. As part of the formal consultation, the USFWS/NMFS may resolve any issues informally with the nexus agency or may prepare a formal Biological Opinion assessing whether the proposed action would be likely to result in “jeopardy” to a listed species or if it could adversely modify designated critical habitat. If the USFWS/NMFS prepares a Biological Opinion, it will contain either a “jeopardy” or “non-jeopardy” decision. If the USFWS/NMFS concludes that a proposed project would result in adverse modification of critical habitat or would jeopardize the continued existence of a federally-listed species (that is, it will issue a jeopardy decision), the nexus federal agency would be most unlikely to authorize its discretionary permit. If the USFWS/NMFS prepares a “non-jeopardy” Biological Opinion, the nexus federal agency may authorize the discretionary permit making all conditions of the Biological Opinion conditions of its discretionary permit. A non-jeopardy Biological Opinion constitutes an “incidental take” permit that allows applicants to “take” federally-listed species while otherwise carrying out legally sanctioned projects.

For non-federal entities, for example private parties, cities, counties that are considering a discretionary permit, Section 10 provides the mechanism for obtaining take authorization. Under Section 10 of FESA, for the applicant to obtain an "incidental take permit," the applicant is required to submit a "conservation plan" to the USFWS or NMFS that specifies the impacts that are likely to result to federally-listed species, and the measures the applicant will undertake to minimize and mitigate such impacts, and the funding that will be available to implement those steps. Conservation plans under FESA have come to be known as "habitat conservation plans" or "HCPs" for short. The terms incidental take permit, Section 10 permit, and Section 10(a)(1)(B) permit are used interchangeably by the USFWS. Section 10(a)(2)(B) of FESA provides statutory criteria that must be satisfied before an incidental take permit can be issued.

7.1.1 RESPONSIBLE AGENCY

FESA gives regulatory authority to the USFWS for federally-listed terrestrial species and non-anadromous fish. The NMFS has regulatory authority over federally-listed marine mammals and anadromous fish.

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7.1.2 APPLICABILITY TO THE PROPOSED PROJECT

Sand Creek provides known habitat for the California red-legged frog, and the project site provides habitat that would be regarded by the USFWS as suitable migration/over-summering habitat for California tiger salamander. Since the proposed project will result in impacts to waters of the U.S. regulated by the Corps, prior to the time the Corps could issue a permit for the proposed project, the Corps is required to consult with the USFWS pursuant to Section 7 of the FESA if the Corps determines the project “may affect” a federally listed species. With implementation of the proposed mitigation for impacts to federally listed species as detailed below in the Impacts and Mitigation Sections of this report, the USFWS is likely to issue a “non-jeopardy” Biological Opinion to the Corps, authorizing incidental take of FESA listed species.

7.2 Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to “take” (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations, Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.). In a December 22, 2017 Memorandum issued by the U.S. Department of the Interior’s Office of the Solicitor, the Department of Interior expressed the view that the Migratory Bird Treaty Act’s take prohibitions apply only to “direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control.”

7.2.1 APPLICABILITY TO PROPOSED PROJECT

Migratory birds, such as birds of prey such as the golden eagle, Swainson’s hawk, white-tailed kite, red-tailed hawk, and red-shouldered hawk and many common passerine bird species are known to nest in the region of the project site, and trees along Sand Creek on the project site provide suitable nesting habitat for these species. With the implementation of mitigation measures, discussed in the Impacts and Mitigation Measures that follow in the sections below, no direct mortality of species protected pursuant to this Act are expected to occur and feasible mitigation measures are available to protect active nest sites during construction. Please review specific requirements for avoidance of nest sites for potentially occurring nesting birds in the Impacts and Mitigations section below.

7.3 California Endangered Species Act

In 1984, the state legislated the CESA (Fish and Game Code §2050). The basic policy of CESA is to conserve and enhance endangered species and their habitats. Because CESA does not have a provision for “harm” (see discussion of FESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

If proposed projects would result in take of a state-listed species, a project applicant may secure an “incidental take” permit pursuant to §2081 of the Fish and Game Code CDFW will issue an incidental take permit only if:

- 1) The authorized take is incidental to an otherwise lawful activity;

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- 2) the impacts of the authorized take are minimized and fully mitigated;
- 3) measures required to minimize and fully mitigate the impacts of the authorized take:
 - a) are roughly proportional in extent to the impact of the taking on the species;
 - b) maintain the project applicant's objectives to the greatest extent possible; and,
 - c) capable of successful implementation; and,
- 4) adequate funding is provided to implement the required minimization and mitigation measures and to monitor compliance with, and the effectiveness of, the measures.

If an applicant is preparing a HCP as part of the federal 10(a) permit process, the HCP might be incorporated into the §2081 permit if it meets the substantive criteria of §2081(b). To ensure that an HCP meets the mitigation and monitoring standards in Section 2081(b), an applicant should involve CDFW staff in development of the HCP. If a final Biological Opinion (federal action) has been issued for the project pursuant to Section 7 of the FESA, it might also be incorporated into the §2081 permit if it meets the standards of §2081(b).

No §2081 permit may authorize the take of a species for which the Legislature has imposed strict prohibitions on all forms of "take." These species are listed in several statutes that identify "fully protected" species and "specified birds." See Fish and Game Code §§ 3505, 3511, 4700, 5050, 5515, and 5517. If a project is planned in an area where a "fully protected" species or a "specified bird" occurs, an applicant must design the project to avoid all take.

Fish and Game Code §2081 allows an applicant who has obtained a "non-jeopardy" federal Biological Opinion pursuant to Section 7 of the FESA, or who has received a federal 10(a) permit (federal incidental take permit) pursuant to the FESA, to submit the federal opinion or permit to CDFW for a determination as to whether the federal document is "consistent" with CESA. If after 30 days CDFW determines that the federal incidental take permit is consistent with state law, and that all state-listed species under consideration have been considered in the federal Biological Opinion, then no further permit or consultation is required under CESA for the project. However, if CDFW determines that the federal opinion or permit is not consistent with CESA, or that there are state-listed species that were not considered in the federal Biological Opinion, then the applicant must apply for a state CESA permit under Section 2081(b). Section 2081(b) is of no use if an affected species is state-listed, but not federally-listed.

7.3.1 APPLICABILITY TO PROPOSED PROJECT

California tiger salamander, a state-listed species, is known to occur 0.25-mile south of the project site (CNDDDB Occurrence No. 856). It was also found during work being conducted in the Upper Sand Creek Detention Basin located approximately 0.25-mile west of the project site (from USFWS Biological Opinion for the Vineyards at Sand Creek Development Project). While CTS could conceivably disperse or migrate to the project site from these known record locations, the farmed condition of the project site presumably would reduce over-summering opportunities. Regardless, based upon this species known dispersal distances of up to 1.3 miles,

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CDFW will consider the project site as migration/dispersal habitat for the California tiger salamander.

While there is no California tiger salamander breeding habitat on the project site, the proposed project will impact 58.6 acres of potential California tiger salamander migration/over-summering habitat, and offsite grading will result in additional temporary impacts to 11 acres of potential California tiger salamander migration/over-summering habitat. In addition, Swainson's hawk, tricolored blackbird, and San Joaquin kit fox are state-listed species; however, the proposed project will not result in direct take of these species, following implementation of the proposed mitigation measures, as detailed in the Impacts and Mitigation section below.

7.4 California Fish and Game Code § 3503, 3503.5, 3511, and 3513

California Fish and Game Code §3503, 3503.5, 3511, and 3513 prohibit the “take, possession, or destruction of birds, their nests or eggs.” Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered “take.” Such a take would also violate federal law protecting migratory birds (Migratory Bird Treaty Act).

All raptors (that is, hawks, eagles, owls) their nests, eggs, and young are protected under California Fish and Game Code (§3503.5). Additionally, “fully protected” birds, such as the white-tailed kite and golden eagle, are protected under California Fish and Game Code (§3511). “Fully protected” birds may not be taken or possessed (that is, kept in captivity) at any time.

7.4.1 APPLICABILITY TO THE PROPOSED PROJECT

Raptors that are known to nest in the region of the project site and for which suitable nesting habitat is provided by the project site include Swainson's hawk, golden eagle, white-tailed kite, red-tailed hawk, red shouldered hawk, and western burrowing owl. Many common passerine birds also could nest on the project site. Preconstruction nesting surveys would have to be conducted for nesting birds to ensure that there is no direct take of these birds including their eggs, or young, during the construction of the proposed project. Any active nests that are found during preconstruction surveys would have to be avoided by the proposed project. Suitable non-disturbance buffers should be established around nest sites until the nesting cycle is complete. More specifics on nesting bird surveys and protection buffers are provided below in the Impacts and Mitigations section.

7.5 City of Antioch General Plan Biological Resources Policies

The City of Antioch General Plan Biological Resources Policies:

- a. Comply with the Federal policy of no net loss of wetlands through avoidance and clustered development. Where preservation in place is found not to be feasible (such as where a road crossing cannot be avoided, or where shore stabilization or creation of shoreline trails must encroach into riparian habitats), require 1) on-site replacement of wetland areas, 2) off-site replacement, or 3) minimum ratio of one acre of replacement/restoration for each acre of impacted onsite habitat, such that the value of impacted habitat is replaced.

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b. Preserve in place and restore existing wetlands and riparian resources along the San Joaquin River and other natural streams in the Planning Area, except where a need for structural flood protection is unavoidable.

c. Require appropriate setbacks adjacent to natural streams to provide adequate buffer areas ensuring the protection of biological resources, including sensitive natural habitat, special-status species habitats and water quality protection.

d. Through the project approval and environmental review processes, require new development projects to protect sensitive habitat areas, including, but not limited to, oak woodlands, riparian woodland, vernal pools, and *native* grasslands. Ensure the preservation in place of habitat areas found to be occupied by state and federally-protected species.

If impacts to sensitive habitat areas are unavoidable, appropriate compensatory mitigation shall be required off-site within eastern Contra Costa County. Such compensatory mitigation shall be implemented through the provisions of a Resource Management Plan ("RMP") as described in Policy 10.3.2.e, except where, in the discretion of the Community Development Director, an RMP is not necessary or appropriate due to certain characteristics of the site and the project. Among the factors that are relevant to determining whether an RMP is necessary or appropriate for a given project are the size of the project and the project site, the location of the project (e.g., proximity to existing urban development or open space), the number and sensitivity of biological resources and habitats on the project site, and the nature of the project (e.g., density and intensity of development).

Where preserved habitat areas occupy areas that would otherwise be graded as part of a development project facilitate the transfer of allowable density to other, non-sensitive portions of the site.

e. Limit uses within preserve and wilderness areas to resource-dependent activities and other uses compatible with the protection of natural habitats (e.g., passive recreation and public trails).

f. Through the project review process, review, permit the removal of healthy, mature oak trees on a case-by-case basis only where it is necessary to do so.

g. Preserve heritage trees throughout the Planning Area.

h. Within areas adjacent to preserve habitats, require the incorporation of native vegetation and avoid the introduction of invasive species in the landscape plans for new development.

i. Design drainage within urban areas so as to avoid creating perennial flows within intermittent streams to prevent fish and bullfrogs from becoming established within a currently intermittent stream.

j. Whenever a biological resources survey is undertaken to determine the presence or absence of a threatened or endangered species, or of a species of special concern identified by the U.S. Fish

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and Wildlife Service or the California Department of Fish and Wildlife, require the survey to follow established protocols for the species in question prior to any final determination that the species is absent from the site.

7.5.1 APPLICABILITY TO THE PROPOSED PROJECT

The project site supports primarily agricultural fields and therefore would not be considered a sensitive habitat area. Consistent with the City of Antioch's Biological Resources Policies listed above, the proposed project is set back from the Sand Creek riparian corridor (separated from Sand Creek by the Sand Creek Buffer Area) and includes free span bridges to avoid filling aquatic resources.

7.6 City of Antioch Tree Ordinance

There are six categories of "trees" defined in the City of Antioch's Tree Ordinance.

ESTABLISHED TREE. This shall be any tree which is at least 10 inches in diameter, as measured four and one half feet above natural or finished grade.

INDIGENOUS TREE. This shall be a naturally growing tree of the following species:

- Blue Oak (*Quercus douglasii*)
- Valley Oak (*Quercus lobata*)
- Coast Live Oak (*Quercus agrifolia*)
- Canyon Live Oak (*Quercus chrysolepis*)
- Interior Live Oak (*Quercus wislizenii*)
- California Buckeye (*Aesculus californica*)
- California Bay (*Umbellularia californica*)

LANDMARK TREE. This shall be any tree which is at least 48 inches in diameter and/or in excess of 40 feet in height.

MATURE TREE. This shall be any tree which is at least 26 inches in diameter, as measured four and one-half feet above natural grade.

PROTECTED TREE. This shall be defined as any of the following:

- (a) Any tree required to be preserved as a condition of an approval from a "regular development application" as defined by this section, and/or any tree that is shown to be preserved on an approved development plan as submitted by the applicant and subsequently approved by the city.
- (b) All established indigenous trees as defined by this section.
- (c) All street trees as defined by this section.
- (d) All mature and landmark trees as defined by this section.

STREET TREE. This shall be any tree planted within either the public right-of-way and/or tree planting easement, where applicable.

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Approval is required to remove any trees within the City of Antioch, as detailed below:

(A) Permit or development application. Except as provided below, it is unlawful to destroy or remove any established tree on any property within the city without either:

- (1) Obtaining a tree removal permit from the Department of Parks, Leisure and Community Services; or
- (2) Receiving approval to remove such trees as part of the regular development application process.

(B) Penalty. A person who either removes or destroys an established tree prior to obtaining the required permits and/or approvals, or deliberately damages an established tree so that its removal is then necessitated for public safety, is subject to the penalties of this chapter and code.

(C) Exceptions. The following trees may be removed without either a tree removal permit and/or regular development application:

- (1) If the condition of any tree presents an immediate hazard to life and/or property its removal may be authorized by the City Engineer.
- (2) Other than for protected trees as defined by this article, trees on developed residential properties may be removed without a permit.

7.6.1 APPLICABILITY TO THE PROPOSED PROJECT

Installation of the two outfall structures on the banks of Sand Creek and installation of the two clear span bridges across Sand Creek may require removal of up to 12 trees. If any City protected trees are slated for removal, the project proponent will need to request a tree removal permit as part of the regular development application to the City. Since there are protected trees on the project site along Sand Creek, the following information will be provided with the regular development application to the City:

- (1) A site plan showing the existing topography with location of all established trees, clearly labeling those trees which are proposed for either saving or removal.
- (2) A description of all established trees on the property, including the size (in diameter), estimated height, species, and relative condition (i.e., healthy vs. in decline).
- (3) A written statement requesting permission to remove the subject tree(s) providing the reason for the request.

All trees planted are to be California native trees that are found in Antioch in similar habitats to those habitats present on the project; for example, coast live oaks and valley oaks. *Accordingly, impacts to trees are regarded as potentially significant pursuant to the CEQA.* Mitigation could

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be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

8. REGULATORY REQUIREMENTS PERTAINING TO WATERS OF THE UNITED STATES AND STATE

This section presents an overview of the criteria used by the Corps, the RWQCB, the State Water Resources Control Board (SWRCB), and the CDFW to determine those areas within a project area that would be subject to their regulation.

8.1 U.S. Army Corps of Engineers Jurisdiction and Permitting

8.1.1 SECTION 404 OF THE CLEAN WATER ACT

Congress enacted the Clean Water Act (CWA) “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 U.S.C. §1251(a)). Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the disposal of dredged or fill material into “waters of the United States” (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from the Corps prior to discharging dredged or fill materials into any water of the United States.

In the Federal Register “waters of the United States” are defined as, “...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce...” (33 CFR Section 328.3).

Limits of Corps’ jurisdiction:

- (a) Territorial Seas. The limit of jurisdiction in the territorial seas is measured from the baseline in a seaward direction a distance of three nautical miles. (See 33 CFR 329.12)
- (b) Tidal Waters of the United States. The landward limits of jurisdiction in tidal waters:
 - (1) Extends to the high tide line, or
 - (2) When adjacent non-tidal waters of the United States are present, the jurisdiction extends to the limits identified in paragraph (c) of this section.
- (c) Non-Tidal Waters of the United States. The limits of jurisdiction in non-tidal waters:
 - (1) In the absence of adjacent wetlands, the jurisdiction extends to the ordinary high water mark, or
 - (2) When adjacent wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the limit of the adjacent wetlands.
 - (3) When the water of the United States consists only of wetlands the jurisdiction extends to the limit of the wetland.

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Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the OHWM or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is:

- the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]).

Wetlands are defined as: "...those areas that are inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by the Corps pursuant to Section 404 of the CWA.

8.1.1.1 Permitting Corps Jurisdictional Areas

To remain in compliance with Section 404 of the CWA, project proponents and property owners (applicants) are required to be permitted by the Corps prior to discharging to waters of the United States. In many cases, the Corps must visit a proposed project area (to conduct a "jurisdictional determination") to confirm the extent of area falling under their jurisdiction prior to authorizing any permit for that project area. Typically, at the time the jurisdictional determination is conducted, applicants (or their representative) will discuss the appropriate permit application that would be filed with the Corps for permitting the proposed impact(s) to "waters of the United States."

Pursuant to Section 404, the Corps normally provides two alternatives for permitting impacts to the type of waters of the United States found in the project area. The first alternative would be to use Nationwide Permit(s) (NWP). The second alternative is to apply to the Corps for an Individual Permit (33 CFR Section 235.5(2)(b)). The application process for Individual Permits is extensive and includes public interest review procedures (i.e., public notice and receipt of public comments) and must contain an "alternatives analysis" that is prepared pursuant to Section 404(b)(1) of the CWA (33 U.S.C. 1344(b)).

NWPs are a type of general permit administered by the Corps and issued on a nationwide basis that authorize minor activities that affect Corps regulated waters. Under NWP, if certain conditions are met, the specified activities can take place without the need for an individual or regional permit from the Corps (33 CFR, Section 235.5[c][2]). In order to use NWP(s), a project must meet 27 general nationwide permit conditions, and all specific conditions pertaining to the NWP being used (as presented at 33 CFR Section 330, Appendices A and C). It is also important to note that pursuant to 33 CFR Section 330.4(e), there may be special regional conditions or modifications to NWPs that could have relevance to individual proposed projects. Finally, pursuant to 33 CFR Section 330.6(a), Nationwide permittees may, and in some cases must,

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request from the Corps confirmation that an activity complies with the terms and conditions of the NWP intended for use (*i.e.*, must receive “verification” from the Corps).

Prior to finalizing design plans, the applicant needs to be aware that the Corps maintains a policy of “no net loss” of wetlands (waters of the United States) from project area development. Therefore, it is incumbent upon applicants that propose to impact Corps regulated areas to submit a mitigation plan that demonstrates that impacted regulated areas would be recreated (*i.e.*, impacts would be mitigated). Typically, the Corps requires mitigation to be “in-kind” (*i.e.*, seasonal wetlands would be filled, mitigation would include seasonal wetland mitigation), and at a minimum of a 1:1 replacement ratio (*i.e.*, one acre or fraction thereof recreated for each acre or fraction thereof lost). Often a 2:1 replacement ratio is required if the Permittee is responsible for the mitigation. In some cases, the Corps allows “out-of-kind” mitigation if the compensation site has greater value than the impacted site. Finally, there are many Corps approved wetland mitigation banks where wetland mitigation credits can be purchased by applicants to meet mitigation compensation requirements. Mitigation banks have defined service areas and the Corps may only allow their use when a project would have minimal impacts to wetlands.

8.1.2 APPLICABILITY TO THE PROPOSED PROJECT

On April 8, 2019, M&A biologists conducted a wetland delineation of the project site. The draft wetland delineation map is provided as Sheet 1. Sand Creek, an intermittent creek, flows west to east along the northern boundary of the project site. Sand Creek is a tributary to Marsh Creek, which is a tributary to the San Joaquin River, a Traditional Navigable Water of the U.S. Therefore, Sand Creek would be regulated as “waters of the U.S.” pursuant to Section 404 of the CWA.

A small portion of this creek will be affected by the proposed construction of two stormwater outfall structures on the banks of Sand Creek. The two proposed outfall structures will result in permanent impacts (fill) to 600 square feet (0.0137-acre) of Corps regulated other waters in Sand Creek, as illustrated on the Creekside Impacts Exhibits, prepared by CBG dated July 9, 2019 (Attachment B). The remaining portions of Sand Creek will be permanently preserved in the 400-ft wide (23.7-acre) Sand Creek Buffer Area along Sand Creek.

In addition, there is an ephemeral drainage channel and some small pools east of the project site, along the toe of the eastern hillside that would also be regulated as “waters of the U.S.” pursuant to Section 404 of the CWA. A culverted road crossing is proposed over this drainage to provide access to the stormwater detention basins in the northeastern corner of the project site. The culverted crossing will result in permanent impacts (fill) to 1,380 square feet (0.0316-acre) of Corps regulated other waters of the U.S., as illustrated on the Creekside Impacts Exhibits, prepared by CBG dated July 9, 2019 (Attachment B).

Since the proposed project will fill less than 0.5-acre of waters of the U.S., the proposed project likely meets conditions to use NWPs as administered by the Corps pursuant to Section 404 of the CWA. The Corps will likely authorize use of NWP 7 (outfalls), NWP 33 (access and dewatering), NWP 14 (Linear transportation projects), and NWP 29 (Residential Development). A notification (*i.e.*, known as a Preconstruction Notice) must be filed with the Corps’ District Engineer to obtain authorization to use these NWPs.

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8.2 California Regional Water Quality Control Board (RWQCB)

8.2.1 SECTION 401 OF THE CLEAN WATER ACT

The SWRCB and RWQCB regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the CWA. While the Corps administers a permitting program that authorizes impacts to waters of the United States, including wetlands and other waters, any Corps permit authorized for a proposed project would be inoperative unless it is a NWP that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the permit (the term is typically for five years). Certification must be consistent with the requirements of the federal CWA, the CEQA, the CESA, and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual Corps permits, would require a project specific RWQCB certification of water quality.

8.2.2 APPLICABILITY TO THE PROPOSED PROJECT

Any Section 404 permit authorized by the Corps for the project will be subject to Section 401 water quality certification by the RWQCB, and also may be subject to the state's Porter-Cologne Water Quality Control Act (see below).

8.2.3 PORTER-COLOGNE WATER QUALITY CONTROL ACT

The uncontrolled discharge of pollutants into impaired water bodies is considered particularly detrimental. According to the EPA, sediment is one of the most widespread pollutants contaminating U.S. rivers and streams. Sediment runoff from construction sites is 10 to 20 times greater than from agricultural lands and 1,000 to 2,000 times greater than from forest lands (EPA 2005). Consequently, the discharge of stormwater from large construction sites is regulated by the RWQCB under the federal CWA and California's Porter-Cologne Water Quality Control Act.

The Porter-Cologne Water Quality Control Act, Water Code § 13260, requires that any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge with the RWQCB through an application for waste discharge (Water Code Section 13260(a)(1)). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code § 13050(e)). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of the Corps' jurisdiction pursuant to the SWANCC decision (see Corps Section above).

The RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the state by waste that unreasonably affects its beneficial uses (Water Code §13050(1)). In practice, the RWQCB's litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

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The RWQCB requires a complete pre- and post-development Best Management Practices (BMPs) Plan of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES). That is, a Stormwater Pollution Prevention Plan (SWPPP) must be developed prior to the time that a site is graded (see NPDES section below). In addition, a post-construction BMPs Plan, or a Storm Water Management Plan (SWMP) must be developed and incorporated into any site development plan.

8.2.4 APPLICABILITY TO THE PROPOSED PROJECT

Since any “threat” to water quality could conceivably be regulated by the RWQCB pursuant to the Porter-Cologne Water Quality Control Act, care will be required when constructing the proposed project to be sure that adequate pre-and post-construction BMPs are incorporated into the project implementation plans.

8.3 California Department of Fish and Wildlife Protections

8.3.1 SECTION 1602 OF CALIFORNIA FISH AND GAME CODE

Pursuant to Section 1602 of the California Fish and Game Code: “An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur:

- (1) CDFW receives written notification regarding the activity in the manner prescribed by CDFW. The notification shall include, but is not limited to, all of the following:
 - (A) A detailed description of the project’s location and a map.
 - (B) The name, if any, of the river, stream, or lake affected.
 - (C) A detailed project description, including, but not limited to, construction plans and drawings, if applicable.
 - (D) A copy of any document prepared pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.
 - (E) A copy of any other applicable local, state, or federal permit or agreement already issued.
 - (F) Any other information required by CDFW” (Fish & Game Code 2014).

Please see Section 1602 of the current California Fish and Game Code for further details.

Please also note that while not stated in the regulations above, CDFW typically considers its jurisdiction to include riparian vegetation (that is, the trees and bushes growing along the stream). Thus, any proposed activity in a natural stream channel that would substantially adversely affect an existing fish and/or wildlife resource, including its riparian vegetation, would require advance notification to CDFW and also may include entering into a Streambed Alteration Agreement (SBAA) with CDFW prior to commencing with work in the stream. However, prior to authorizing such permits, CDFW typically reviews an analysis of the expected biological impacts, any

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proposed mitigation plans that would be implemented to offset biological impacts and engineering and erosion control plans.

8.3.2 APPLICABILITY TO PROPOSED PROJECT

Any project modifications to Sand Creek and the ephemeral drainage channel that flows into Sand Creek would be subject to CDFW's jurisdiction pursuant to Section 1602 of the California Fish and Game Code. Before making any substantial changes to the bed or bank of Sand Creek or diverting/obstructing the natural flow of the creek or the ephemeral drainage channel, the project proponent will provide CDFW with written notification pursuant to Section 1602 the Fish and Game Code.

It should also be noted that prior to issuance of any permit from the CDFW this agency will require submittal of a Notice of Determination with proof that the Fish and Game Filing Fee was paid, indicating that the City of Antioch completed a review of the proposed project pursuant to CEQA.

9. STATE WATER RESOURCES CONTROL BOARD (SWRCB)/RWQCB – STORM WATER MANAGEMENT

9.1 Construction General Permit

While federal CWA NPDES regulations allow two permitting options for construction related stormwater discharges (individual permits and General Permits), the SWRCB has elected to adopt only one statewide Construction General Permit at this time that will apply to all stormwater discharges associated with construction activity, except from those on Tribal Lands, in the Lake Tahoe Hydrologic Unit, and those performed by the California Department of Transportation (CalTrans).

The Construction General Permit requires all dischargers where construction activity disturbs greater than one acre of land or those sites less than one acre that are part of a common plan of development or sale that disturbs more than one acre of land surface to:

1. Develop and implement a SWPPP which specifies BMPs that will prevent all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation. Achieve quantitatively-defined (i.e., numeric) pollutant-specific discharge standards, and conduct much more rigorous monitoring based on the project's projected risk level.
3. Perform inspections of all BMPs.

This Construction General Permit is implemented and enforced by the nine RWQCBs. It is also enforceable through citizens' suits and represents a dramatic shift in the SWRCB's approach to regulating new and redevelopment sites, imposing new affirmative duties and fixed standards on builders and developers.

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Types of Construction Activity Covered by the Construction General Permit

- clearing,
- grading,
- disturbances to the ground such as stockpiling, or excavation that results in soil disturbances of at least one acre or more of total land area.

Construction activity that results in soil disturbances to a smaller area would still be subject to this General Permit if the construction activity is part of a larger common plan of development that encompasses greater than one acre of soil disturbance, or if there is significant water quality impairment resulting from the activity.

Construction activity does not include:

- routine maintenance to maintain original line and grade,
- hydraulic capacity, or original purpose of the facility,
- nor does it include emergency construction activities required to protect public health and safety.

The Construction General Permit includes several “post-construction” requirements. These requirements entail that site designs provide no net increase in overall site runoff and match pre-project hydrology by maintaining runoff volume and drainage concentrations. To achieve the required results where impervious surfaces such as roofs and paved surfaces are being increased, developers must implement non-structural off-setting BMPs, such as landform grading, site design BMPs, and distributed structural BMPs (bioretention cells, rain gardens, and rain cisterns). This “runoff reduction” approach is essentially a State Water Board-imposed regulatory requirement to implement Low Impact Development (“LID”) design features. Volume that cannot be addressed using non-structural BMPs must be captured in structural BMPs that are approved by the RWQCB.

Improving the quality of site runoff is necessary to improve water quality in impaired and threatened streams, rivers, and lakes (that is, water bodies on the EPA’s 303(d) list). The RWQCB prioritizes the water bodies on the 303(d) list according to potential impacts to beneficial uses. Beneficial uses can include a wide range of uses, such as nautical navigation; wildlife habitat; fish spawning and migration; commercial fishing, including shellfish harvesting; recreation, including swimming, surfing, fishing, boating, beachcombing, and more; water supply for domestic consumption or industrial processes; and groundwater recharge, among other uses. The State is required to develop action plans and establish Total Maximum Daily Loads (TMDLs) to improve water quality within these impaired water bodies. The TMDL is the quantity of a pollutant that can be safely assimilated by a water body without violating the applicable water quality standards.

Pursuant to the CWA, the RWQCB regulates construction discharges under the NPDES. The project sponsor of construction or other activities that disturb more than 1 acre of land must

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obtain coverage under NPDES Construction General Permit Order 2009-0009-DWQ, administered by the RWQCB¹.

9.1.1 APPLICABILITY TO THE PROPOSED PROJECT

Since the project will impact greater than one acre of land, it must obtain coverage under the General Construction Permit. To obtain coverage under the SWRCB administered Construction General Permit, the project proponent (typically through its civil engineer) must electronically file a number of permit-related compliance documents (Permit Registration Documents (PRDs), including a Notice of Intent (NOI), a risk assessment, site map, signed certification, SWPPP, Notice of Termination (NOT), NAL exceedance reports, and other site-specific PRDs that may be required. The PRDs must be prepared by a Qualified SWPPP Practitioner (QSP) or Qualified SWPPP Developer (QSD) and filed by a Legally Responsible Person (LRP) on the RWQCB's Stormwater Multi-Application Report Tracking System (SMARTS). (QSDs are typically civil engineers, professional hydrologists, engineering geologists, or landscape architects.) Once filed, these documents become immediately available to the public for review and comment. At a minimum, the SWPPP shall identify BMPs for implementation during project construction that are in accordance with the applicable guidance and procedures contained in the California Stormwater Quality Association's *California Stormwater Best Management Practices Handbook* (2015).

9.2 RWQCB Municipal Storm Water Permitting Programs

The federal CWA was amended in 1987 to address urban stormwater runoff pollution of the nation's waters. In 1990, the EPA promulgated rules establishing Phase 1 of the NPDES stormwater program. The Phase 1 program for Municipal Separate Storm Sewer System (MS4s) requires operators that serve populations of 100,000 or greater to implement a stormwater management program to control polluted discharges from these MS4s. While Phase 1 of the municipal stormwater program has focused on large urban areas, Phase 2 of the municipal stormwater program was promulgated by the EPA for smaller urban areas including non-traditional Small MS4s, which are governmental facilities such as military bases, public campuses, and prison and hospital complexes.

MS4 permits require the discharger (or dischargers that are permitted by the MS4 permittees) to develop and implement a SWMP with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). MEP is the performance standard specified in Section 402(p) of the CWA. The management programs specify what BMPs will be used to address certain program areas. The program areas include public education and outreach; illicit discharge detection and elimination; construction and post-construction; and good housekeeping for municipal operations. In general, medium and large municipalities are required to conduct chemical monitoring, though small municipalities are not.

¹ CGP Order 2009-0009-DWQ remains in effect, but has been amended by CGP Order 2009-0014-DWQ, effective February 14, 2011, and CGP Order 2009-0016-DWQ, effective July 17, 2012. The first amendment merely provided additional clarification to Order 2009-0009-DWQ, while Order 2009-0016-DWQ eliminated numeric effluent limits on pH and turbidity (except in the case of active treatment systems), in response to a legal challenge to the original order.

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9.2.1 NPDES C.3 REQUIREMENTS

The NPDES C.3 requirements went into effect for any project (public or private) that is “deemed complete” by the City or County (Lead Agency) on or after February 15, 2005, and which will result in the creation or replacement (other than normal maintenance) of at least 10,000 square feet of impervious surface area (roofs, streets, patios, parking lots, etc. Provision C.3 requires the onsite treatment of stormwater prior to its discharge into downstream receiving waters. Note that these requirements are in addition to the existing NPDES requirements for erosion and sedimentation controls during project construction that are typically addressed through acquisition of coverage under the SWRCB administered Construction General Permit. The C.3 requirements are typically required to be implemented by MS4 permittees (and their constituencies).

Projects subject to Provision C3 must include the capture and onsite treatment of all stormwater from the site prior to its discharge, including rainwater falling on building rooftops. Project applicants are required to implement appropriate source control and site design measures and to design and implement stormwater treatment measures in order to reduce the discharge of stormwater pollutants to the *maximum extent practicable*. While the CWA does not define “maximum extent practicable,” the Stormwater Quality Management Plans required as a condition of the municipal NPDES permits identify control measures (i.e., BMPs) and, where applicable, performance standards, to establish the level of effort required to satisfy the maximum extent practicable criterion. It is ultimately up to the professional judgment of the reviewing municipal staff in the individual jurisdictions to determine whether a project’s proposed stormwater controls will satisfy the maximum extent practicable criterion. However, there are numeric criteria used to ensure that treatment BMPs have been adequately sized to accommodate and treat a site’s stormwater. The C3 requirements are quite extensive, and their complete explanation is not provided here. However, the following are minimums that should be understood and adhered to:

- The applicant must provide a detailed and realistic site design *and impervious surface area calculations*. This site design *and calculations* will be used by the Lead Agency (County or City) to determine/*verify* the amount of impervious surface area that is being created or replaced. It should include all proposed buildings, roads, walkways, parking lots, landscape areas, etc., that are being created or redeveloped. If large (greater than 10,000 square feet) lots are being created an effort will need to be made to determine the total impervious surface area that could be created on that parcel. For example, if only a portion of the lot is shown as a “building envelope” then the lead agency will need to consider that a driveway will have to be constructed to access the envelope and that the envelope will then be developed as shown. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a Storm Water Control Plan (SWCP) (if required by the Lead Agency, or whatever steps for compliance with Provision C3 are required locally) must accompany the application.
- If a SWCP is required by the Lead Agency for the project it must be stamped by a Licensed Civil Engineer, Architect, or Landscape Architect.

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9.2.2 APPLICABILITY TO THE PROPOSED PROJECT

The Cities of Contra Costa County are organized as a collaborative to work on some elements of their stormwater permit compliance. This collaborative program is called the Contra Costa Clean Water Program. Each of the Dischargers is individually responsible for adopting and enforcing ordinances, implementing assigned BMPs to prevent or reduce pollutants in stormwater, and providing funds for capital, operation, and maintenance expenditures necessary to implement such BMPs for the storm drain system that it owns and/or operates.

In Contra Costa County, for private development projects such as the proposed project, the Department of Conservation and Development is responsible for determining if the NPDES C.3 thresholds are met. If the C.3 thresholds are met (creation/redevelopment of 10,000 square feet of impervious surface area), a SWCP (based on a checklist) is submitted as part of the project approval process.

Storm drainage from the developed portions of the project site (Hillcrest Avenue and the neighborhoods) will be directed to a detention/water quality basin constructed on the eastern portion of the project site and will discharge into Sand Creek via an outfall structure constructed within the south side of an outfall facility constructed by the Vineyards at Sand Creek Project. The western hillslope drainage will be caught prior to it reaching Hillcrest Avenue and directed to the detention basins to the east.

A SWMP shall be prepared by the project civil engineer and will be submitted to the City of Antioch for their review to verify compliance with the City's NPDES MS4 permit requirements. The SWMP will provide an analysis of post-construction stormwater controls incorporating both hydromodification and treatment analyses, and BMPs that will be constructed to reduce stormwater pollution. The BMPs will ensure that the proposed project does not result in degradation of receiving waters and that it otherwise remains in compliance with the Porter-Cologne Water Quality Control Act/ MS4 requirements. The City of Antioch's NPDES compliance manager will review the SWCP to determine if it is sufficient to meet the proposed project's detention, hydromodification, and water quality requirements.

10. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) REGULATIONS

A CEQA lead agency must determine if a proposed activity constitutes a project requiring further review pursuant to the CEQA. Pursuant to CEQA, a lead agency would have to determine if there could be significant adverse impacts to the environment from a proposed project. Typically, if within the city limits, the city would be the CEQA lead agency. If a discretionary permit (i.e., conditional use permit) would be required for a project (e.g. an occupancy permit must be issued), the lead agency typically must determine if there could be significant environmental impacts. This is usually accomplished by an "Initial Study." If there could be significant environmental impacts, the lead agency must determine an appropriate level of environmental review prior to approving and/or otherwise permitting the impacts. In some cases, there are "Categorical Exemptions" that apply to the proposed activity; thus, the activity is exempt from CEQA. The Categorical Exemptions are provided in CEQA. There are also Statutory Exemptions in CEQA that must be investigated for any proposed project. If the project is not exempt from CEQA, the lowest level of review typically reserved for projects with no

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significant effects on the environment would be for the lead agency to prepare a “Negative Declaration.” If a proposed project would have only minimal impacts that can be mitigated to a level of no significance pursuant to the CEQA, then a “Mitigated Negative Declaration” is typically prepared by the lead agency. Finally, those projects that may have significant effects on the environment, or that have impacts that can’t be mitigated to a level considered less than significant pursuant to the CEQA, typically must be reviewed via an Environmental Impact Report (EIR). All CEQA review documents are subject to public circulation, and comment periods.

Section 15380 of CEQA defines “endangered” species as those whose survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. “Rare” species are defined by CEQA as those who are in such low numbers that they could become endangered if their environment worsens; or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered “threatened” as that term is used in FESA. The CEQA Guidelines also state that a project will normally have a significant effect on the environment if it will “substantially affect a rare or endangered species of animal or plant or the habitat of the species.” The significance of impacts to a species under CEQA, therefore, must be based on analyzing actual rarity and threat of extinction to that species despite its legal status or lack thereof.

10.1.1 APPLICABILITY TO THE PROPOSED PROJECT

This report has been prepared as a Biology Section that is suitable for incorporation by the CEQA lead agency (in this case City of Antioch) into a CEQA review document such as a Mitigated Negative Declaration or an EIR. This document addresses potential impacts to species that would be defined as endangered or rare pursuant to Section 15380 of the CEQA.

11. IMPACTS ANALYSIS

Below the criteria used in assessing impacts to Biological Resources is presented.

11.1 Significance Criteria

A significant impact is determined using CEQA and CEQA Guidelines. Pursuant to CEQA §21068, a significant effect on the environment means a substantial, or potentially substantial, adverse change in the environment. Pursuant to CEQA Guideline §15382, a significant effect on the environment is further defined as a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. Other Federal, State, and local agencies’ considerations and regulations are also used in the evaluation of significance of proposed actions.

Direct and indirect adverse impacts to biological resources are classified as “significant,” “potentially significant,” or “less than significant.” Biological resources are broken down into four categories: vegetation, wildlife, threatened and endangered species, and regulated “waters of the United States” and/or stream channels.

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11.1.1 THRESHOLDS OF SIGNIFICANCE

11.1.1.1 Plants, Wildlife, Waters

In accordance with Appendix G (Environmental Checklist Form) of the CEQA Guidelines, implementing the project would have a significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected “wetlands” as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

11.1.1.2 Waters of the United States and State.

Pursuant to Section 404 of the CWA (33 U.S.C. 1344), the Corps regulates the discharge of dredged or fill material into waters of the United States, which includes wetlands, as discussed in the bulleted item above, and also includes “other waters” (stream channels, rivers) (33 CFR Parts 328 through 330). Substantial impacts to Corps regulated areas on a project site would be considered a significant adverse impact. Similarly, pursuant to Section 401 of the CWA, and to the Porter-Cologne Water Quality Control Act, the RWQCB regulates impacts to waters of the state. Thus, substantial impacts to RWQCB regulated areas on a project site would also be considered a significant adverse impact.

11.1.1.3 Stream Channels

Pursuant to Section 1602 of the California Fish and Game Code, CDFW regulates activities that divert, obstruct, or alter stream flow, or substantially modify the bed, channel, or bank of a stream which CDFW typically considers to include riparian vegetation. Any proposed activity that would result in substantial modifications to a natural stream channel would be considered a significant adverse impact.

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12. IMPACT ASSESSMENT AND PROPOSED MITIGATION

In this section we discuss potential impacts to sensitive biological resources including special-status plant species, animal species, and waters of the United States and/or State. We follow each impact with a mitigation prescription that when implemented would reduce impacts to the greatest extent possible.

12.1 Impact BIO-1. Development of the proposed project would have a potentially significant impact on rare plants

No impacts would occur to State or federally listed plant species. San Joaquin spearscale, a CNPS list 1B.2 species, was identified adjacent to the project site in 2006 (CNDDDB Occurrence No. 104). In addition, there are several rare plant species that thrive in disturbed areas and have a low potential to occur on the project site. These include big tarplant, Congdon's tarplant, Carquinez goldenbush, showy golden madia, large-flowered fiddleneck, Hoover's cryptantha, caper-fruited tropidocarpum, heartscale, brittlescale, lesser saltbush, alkali milkvetch, Mt. Diablo fairy lantern, diamond-petaled California poppy, California alkali grass, shining navarretia, Mount Diablo buckwheat, and recurved larkspur (Table 3). None of these species were detected on the project site in 2006 or 2019. Regardless, in the absence of current surveys, *impacts to rare plants are regarded as potentially significant pursuant to the CEQA.*

Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to CEQA.

12.2 Mitigation Measure BIO-1. Mitigation for potentially significant impacts to rare plants

The project proponent will have a qualified biologist conduct rare plant surveys within one year of the anticipated groundbreaking for the proposed project. The surveys will be conducted following the CDFW (2018), USFWS (2000), and CNPS (2001), or the most current published survey guidelines. During the surveys, qualified botanists will search for all the plants listed in Table 3 that have potential to occur on the project site, and all plants that are considered locally rare as listed in the East Bay Chapter of the CNPS Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties for the Marsh Creek/Lone Tree Valley area. Project construction shall not be initiated until all special-status plant surveys are completed and the mitigation is implemented, if necessary and required prior to starting construction.

A special-status plant survey report that includes the methods used, survey participants, and findings shall then be prepared and submitted to the City no more than 30 days following the completion of the final site visit. A record of any special-status plant species identified within the project site during the preconstruction surveys must be submitted to the CNDDDB. If no special-status plant populations are found on the site during the appropriately timed surveys, then no additional mitigation is required. If construction is not started within two years after the rare plant surveys are completed, the City may require additional rare plant surveys.

If special-status plants are observed on the site during the survey, the populations shall be avoided to the maximum degree possible during project development and a *Mitigation and Monitoring Plan* shall be prepared detailing the measures to be implemented to avoid the plant

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population. Measures shall include establishment of appropriate buffers during construction, fencing of the population prior to and during construction, and regular monitoring of the preserved population by a biologist during and after construction activities. The Mitigation and Monitoring Plan shall be implemented prior to the initiation of grading. Applicant will acquire any necessary permits prior to impacting rare or listed plants.

Implementation of these mitigation measures would reduce impacts to special-status plant species to a level considered less than significant pursuant to CEQA.

12.3 Impact BIO-2. Development of the proposed project would have a significant impact on California red-legged frogs

California red-legged frogs are protected pursuant to the FESA as a federally listed threatened species. In 2005, adult California red-legged frogs were observed in Sand Creek 0.7-mile upstream of the project site (CNDDDB Occurrence No. 933) and in 2013 numerous California red-legged frogs and tadpoles were found within a section of Sand Creek located approximately 0.25-mile upstream of the project site during work associated with the Upper Sand Creek Detention Basin (from USFWS Biological Opinion for the Vineyards at Sand Creek Development Project). Consequently, the USFWS regards Sand Creek as occupied habitat of the California red-legged frog. As Sand Creek is regarded as occupied, lands adjacent to the creek including the project site constitute potential upland dispersal habitat for this frog. Therefore, the proposed project will impact approximately 58.6 acres of potential California red-legged frog dispersal habitat, and offsite grading will temporarily impact approximately 11 acres of potential California red-legged frog dispersal habitat. In addition, installation of the two stormwater outfall structures on the banks of Sand Creek will result in impacts to known occupied habitat for this species.

Accordingly, impacts to California red-legged frog are regarded as significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.4 Mitigation Measure BIO-2. Mitigation for significant impacts to California red-legged frogs.

To ensure that implementation of project site grading and the installation of the outfall structures on the banks of Sand Creek will not injure, kill, or harass an individual California red-legged frog, the following mitigation measures will be implemented:

- 1) An education program will be conducted by a qualified biologist to explain the endangered species concerns to contractors/operators working at the project site. This education/training program will include a description of the frog and its habitat, a review of the Endangered Species Act and the federal listing of the frog, the general protection measures to be implemented to protect the frog and minimize take, and a delineation of the limits of the work area.
- 2) The work areas adjacent to Sand Creek will be isolated with suitable wildlife exclusion fencing (see below) that would block the movement of California red-legged frogs from

entering the work areas. The wildlife exclusion fence will also prevent mammals migrating along Sand Creek from entering the project site. This fence will be installed along the northern border of the project site, adjacent to the Sand Creek Buffer Area, prior to the time any site grading or vegetation removal activities are implemented. The fence will remain in place during site grading or other construction-related activities and will prevent frogs and wildlife from entering the project site work areas.

While normally California red-legged frog exclusion fencing often consists of silt fencing, owing to the duration of project construction, the project proponent may install a more weather resilient fence that is durable enough to remain in place for the duration of construction, such as a commercially available exclusion fencing (e.g. ERTEC Fence). Fencing will be installed by staking the route of the wildlife exclusion fencing in a 4-inch-deep trench. Then, the bottom of the fence would be firmly seated in the trench. The project proponent may replace the wildlife exclusion fencing during construction with permanent fencing, approved by the City.

- 3) A qualified biologist will be onsite when grading activities occur within 300 feet of Sand Creek to conduct daily inspections of the fencing and to otherwise ensure that stranded animals are salvaged and relocated back to the stream channel. The biological monitor will be responsible for ensuring that the wildlife exclusion fencing is not compromised and shall notify the onsite contractor representative when fencing needs to be repaired.
- 4) All construction work in Sand Creek associated with the outfall structures will be scheduled for the dry season (May 15 through October 15) and when Sand Creek is dry or there is reduced flow in this creek. Any necessary in-drainage work when there are flows will be isolated from flows via the installation of temporary coffer dams that have flow-through bypass pipes ensuring that flows pass by the stormwater outfall work areas. Flows will be diverted around isolated work areas either by gravity flow or, if necessary, by pumping water around the work area. No silty water would be allowed to reenter the tributary below any in-drainage work area. Methods and materials will be adapted in the field to match the size, shape, and anticipated flow volume of the drainage, and will be pre-approved by the biological monitor. All diversions will conform to the following provisions:
 - A qualified 10(a)(1)(A) biologist will conduct preconstruction surveys for California red-legged frog prior to isolating any work area within Sand Creek. If any frogs are found in the work area, the USFWS will be notified, and if the USFWS authorizes relocation, the frogs will be moved from the two stormwater outfall work areas, up or downstream in Sand Creek to appropriate aquatic habitats. Upon completion of the survey, if the outfall construction areas must be dewatered, coffer dams may be installed. Any isolated water shall be dip-netted or as appropriate, seined by the biologist to search for frogs prior to pumping water out of the isolated work areas. The project biological monitor will be present during all in-drainage work. Dewatered work areas shall not result in stranded aquatic wildlife.

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- Drainage diversion will be practiced only where deemed unavoidable by the proposed project engineer and biological monitor.
 - Diversion will be limited to the minimum time period necessary to complete the work and restore the channel.
 - Construction equipment will work from above the top-of-bank. There will be no vehicle passage, vehicle parking, or materials storage below the top-of-bank.
 - All in-drainage and diversion work plans will reflect and incorporate standard erosion control measures and BMPs as prescribed in the project's SWPPP.
 - In certain cases where water seeps into the dewatered area, sump pits may be excavated in the work area and seepage water would then be pumped back upstream behind the coffer dam. All discharged water will be silt free. If silt is a problem, water will be pumped through a silt sock into baker tank(s) prior to discharge back into the channel.
 - All downstream flows will be maintained throughout the period that coffer dams are installed.
 - The entire work area below the top-of-bank, including the coffer dam location, will be restored to the approximate pre-construction contours and will be stabilized as necessary to withstand the expected high-water flows. All dam materials will be completely removed from the channel when work is complete and will not be disposed of in or near the channel.
 - All trash that might attract predators to the project site will be properly contained and removed from the site and disposed of regularly. All construction debris and trash will be removed from the site when construction activities are complete.
 - All fueling and maintenance of equipment and vehicles, and staging areas will be at least 60 feet from Sand Creek. The construction personnel will ensure that contamination of California red-legged frog habitat does not occur and will have a plan to promptly address any accidental spills.
- 5) To mitigate for permanent impacts to 58.6 acres of California red-legged frog dispersal habitat, the project proponent shall preserve dispersal habitat adjacent to occupied California red-legged frog habitat, or as otherwise approved by USFWS, at a minimum of a 1:1 impacts to replacement. Protection shall be via the purchase of the mitigation land in fee title or via recordation of a conservation easement over the mitigation land. In lieu of this mitigation, the project proponent may purchase California red-legged frog credits at a 1:1 ratio from a USFWS-approved mitigation bank.
- 6) If mitigation credits are not used, prior to the start of construction, the project proponent will record a conservation easement over the mitigation property preserving it in perpetuity as wildlife habitat. The easement will be granted to a qualified conservation organization as defined by Section 815.3 of the California Civil Code. The project proponent will prepare a habitat management plan that addresses management of the mitigation land that inures to the benefit of the California red-legged frog and shall

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submit the plan to the City of Antioch prior to the start of construction. The project proponent will also establish an endowment fund, or other funding mechanism to provide for the long-term management, maintenance, and monitoring of the mitigation site.

The project proponent may satisfy this mitigation by providing the City of Antioch with a copy of a biological opinion issued by the USFWS that includes these, or other functionally equivalent, habitat preservation measures.

Implementation of these mitigation measures would reduce impacts to the California red-legged frog to a level considered less than significant pursuant to CEQA.

12.5 Impact BIO-3. Development of the proposed project would have a significant impact on California tiger salamander.

California tiger salamander, a state-listed species, is known to occur 0.25-mile south of the project site (CNDDDB Occurrence No. 856). It was also found during work being conducted in the Upper Sand Creek Detention Basin located approximately 0.25-mile west of the project site (from USFWS Biological Opinion for the Vineyards at Sand Creek Development Project). While CTS could conceivably disperse or migrate to the project site from these known record locations, the farmed condition of the project site presumably would reduce over-summering opportunities. Regardless, based upon this species known dispersal distances of up to 1.3 miles, CDFW will consider the project site as migration/dispersal habitat for the California tiger salamander.

While there is no California tiger salamander breeding habitat on the project site, the proposed project will impact up 58.6 acres of potential California tiger salamander migration/over-summering habitat, and offsite grading will result in additional temporary impacts to 11 acres of potential California tiger salamander migration/over-summering habitat.

Impacts to California tiger salamander migration/over-summering habitat is regarded as significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.6 Mitigation Measure BIO-3. Mitigation for significant impacts to California tiger salamander.

To mitigate for the permanent impacts to 58.6 acres of potential California tiger salamander migration/over-summering habitat, the project proponent shall compensate for impacted California tiger salamander migration/over-summering habitat at a minimum of a 1:1 impacts to replacement ratio. Mitigation land shall be permanently protected land within the Central California DPS range of the California tiger salamander within 1.3 miles of a known breeding site, or as otherwise approved by CDFW and USFWS. Protection shall be via the purchase of the mitigation land in fee title or via recordation of a conservation easement over the mitigation land. In lieu of this mitigation, the project proponent may purchase California tiger salamander credits at a 1:1 ratio from a approved mitigation bank.

If mitigation credits are not used, prior to the start of construction, the project proponent will record a conservation easement over the mitigation property preserving it in perpetuity as

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wildlife habitat. The easement will be granted to a qualified conservation organization as defined by Section 815.3 of the California Civil Code. The project proponent will prepare a habitat management plan that addresses management of the mitigation land that inures to the benefit of the California tiger salamander and shall submit the plan to the City of Antioch prior to the start of construction. The project proponent will also establish an endowment fund, or other funding mechanism to provide for the long-term management, maintenance, and monitoring of the mitigation site.

The project proponent may satisfy this mitigation by providing the City of Antioch with a copy of a biological opinion issued by the USFWS and a CDFW incidental take permit or consistency determination that includes these, or other functionally equivalent, habitat preservation measures.

Implementation of the mitigation measures above would reduce potential impacts to California tiger salamander to a level considered less than significant pursuant to CEQA.

12.7 Impact BIO-4. Development of the proposed project would have a potentially significant impact on western pond turtles.

The western pond turtle is a CDFW designated species of special concern. Sand Creek provides potentially suitable dispersal habitat for the western pond turtle. Installation of the outfall structures on the banks of Sand Creek may result in temporary impacts to western pond turtle.

Accordingly, impacts to western pond turtle are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.8 Mitigation Measure BIO-4. Mitigation for potentially significant impacts to western pond turtle.

A qualified biologist will conduct a preconstruction survey of the two stormwater outfall work areas in Sand Creek, and if a western pond turtle is identified in the work area, the turtle will be relocated to suitable habitat downstream. The work areas adjacent to Sand Creek will be isolated with exclusion fencing in accordance with Mitigation Measure BIO-2 that will prevent western pond turtle from entering the work site and accidentally being harmed by construction activities.

The deeply incised channel with near vertical side slopes makes it very unlikely that a western pond turtle would climb up onto the project site to nest. As such, no potential nesting sites are likely to be affected by the proposed project. Regardless, preconstruction surveys for turtle nest sites in uplands adjacent to suitable aquatic habitat during spring and summer months will be conducted within 30 days prior to beginning any activities. If no nests are found, no further consideration for western pond turtle nests is warranted. If nest sites are located during preconstruction surveys adjacent to a proposed work area, the nest site plus a 50-foot buffer around the nest site shall be fenced where it intersects a project work area to avoid impacts to the eggs or hatchlings which over-winter at the nest site. In addition, if nest(s) are located during surveys, moth balls (naphthalene) should be sprinkled around the vicinity of the nest (no closer than 10 feet) to mask human scent and discourage predators.

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Construction at the nest site and within the 50-foot buffer area shall be delayed until the young leave the nest (this could be a period of many months) or as otherwise advised and directed by a qualified biologist. A qualified CDFW approved biologist, with the concurrence of CDFW, may also relocate young pond turtles.

Implementation of the mitigation measures above would reduce potential impacts to western pond turtle to a level considered less than significant pursuant to CEQA.

12.9 Impact BIO-5. Development of the proposed project would have a potentially significant impact on golden eagle.

The golden eagle is “fully protected” under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) and California Fish and Game Code §3511. It is also protected under the Federal Migratory Bird Treaty Act (16 U.S.C. 703-711 and 50 CFR 10.13), and its nest, eggs, and young are protected by Fish and Game Code §3505, §3503.5, and §3800.

In 2018 and 2019, golden eagles were identified nesting in a bluegum eucalyptus (*Eucalyptus globulus*) growing along the bank of Sand Creek, immediately to the north of the project site. Since farming activities, including the use of heavy equipment for disking, planting, and harvesting crops often twice per year, has been ongoing for decades right up to the bluegum eucalyptus grove where these eagles nest, it is apparent that these golden eagles are acclimated to these recurring activities. In addition, a residential subdivision has been under construction approximately 1000 feet north of the eagles’ nests throughout 2018 and 2019, and yet these eagles fledged one young in 2018, and two young in 2019 (M&A biologist observations). Also, high density residential development activities have been ongoing within a one-mile radius around this nesting tree for over 20 years apparently without any deleterious effects on the nesting eagles. The blue gum grove supporting the eagle’s 2018 and 2019 nests is within an existing protected area that is approximately 400-ft wide (23.7-acre) known as the Sand Creek Buffer Area.

Nesting surveys will need to be conducted to confirm or negate this species’ presence as an active nesting bird on the project site or within a “zone of influence” determined by qualified biologist prior to construction. While this pair of golden eagles appears to be well-acclimated to mechanized disturbance, if an active nest is identified within the zone of influence of the development project the year that construction commences, it could result in impacts or deleterious disturbance to the nesting golden eagles. Disturbance could result in: (1) nest abandonment; (2) loss of young; (3) reduced health and vigor of eggs and/or nestlings (resulting in reduced survival rates) and could ultimately result in the take (killing) of nestling or fledgling golden eagles.

Accordingly, impacts to golden eagles are regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

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12.10 Mitigation Measure BIO-5. Mitigation for potentially significant impacts to golden eagle.

An active eagle nest was observed in a blue gum grove immediately north of the project site in 2018 and 2019. One eaglet fledged from the nest in 2018 and two eaglets fledged in 2019. To ensure that there are no significant impacts to nesting golden eagles, preconstruction surveys must be conducted by a qualified raptor biologist on the project site and within a zone of influence (determined by a qualified biologist) of all project-related activities during the golden eagle breeding season (January-August). The zone of influence is affected by geographic barriers that affect direct line of sight from disturbance to the nest site, and/or distances that proposed activities could influence nesting behavior. The zone of influence shall be determined by a qualified raptor biologist. If nesting golden eagles are found nesting within the zone of influence, a qualified raptor biologist will determine an appropriate buffer consistent with the USFWS' 2017 Recommended Buffer Zones for Ground-Based Human Activities Around Nesting Sites of Golden Eagles in California and Nevada.

The USFWS' 2017 Recommended Buffer Zones for Ground-Based Human Activities Around Nesting Sites of Golden Eagles in California and Nevada, recommends buffer zones for active nests. These recommended buffer zones may increase or decrease in size depending on specific site or activity circumstances and local jurisdiction recommendations. For any active nest found within a zone of influence of the project site, the qualified raptor biologist will determine the appropriate buffer size(s) to ensure that project activities do not impact the active nest site. Buffer sizes are likely to be reduced in size when a qualified raptor biologist makes a determination that the nesting golden eagles are acclimated to mechanized activities and disturbances of the like, or the nest is shielded from disturbance by geographic barriers.

If no *active nesting* golden eagles are identified during survey(s), project construction may commence without further regard for protection of nesting eagles. If golden eagles are found nesting in the project vicinity after project construction has commenced, it should be assumed that the golden eagles began nesting while the project site was under construction and thus, that the eagles are habituated to the ambient level of noise and disturbance emanating from the project site.

If active nesting golden eagles are identified during the preconstruction surveys, the qualified biologist will establish a nest protection buffer and no project-related disturbance shall be allowed within any established nesting buffer until the young fledge the nest or the nesting attempt is otherwise complete for the year. The buffer will remain in place until the fledglings become independent of the nesting tree. The young can be considered successfully fledged when the eaglets no longer return to the nesting tree for several consecutive nights. A qualified raptor biologist shall monitor the nesting eagles initially for a period long enough to understand the nesting eagles' response to disturbance, and thereafter on a routine basis (at least once per week) until the nestlings successfully fledge and become independent of the nesting tree.

It should be noted that if the developer initiates grading of the project site in the non-nesting season (September to December) and development disturbance remains continuous through the nesting season, and the golden eagles return and nest, it can be assumed that these golden eagles are sufficiently acclimated to this disturbance. A qualified raptor biologist would be required to

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confirm the level of acclimation and would have to monitor the nesting attempt continuously through the nesting season to ensure that the project disturbance is not affecting the golden eagles nesting efforts and behaviors. After commencement of nesting, if the golden eagles respond negatively to the ongoing disturbance, a 600-foot buffer would be immediately established and maintained under the supervision of the raptor biologist until the nesting cycle is completed as determined by a qualified raptor biologist.

Implementation of this mitigation measure would reduce potential impacts to golden eagles to a level considered less than significant pursuant to CEQA.

12.11 Impact BIO-6. Development of the proposed project would have a potentially significant impact on western burrowing owls.

The western burrowing owl is a California “species of special concern.” This raptor (that is, bird of prey) is also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and its nest, eggs, and young are protected under California Fish and Game Code Sections 3503, 3503.5. Western burrowing owls were identified on the project site in 2007 (CNDDDB Occurrence No. 857), and a presumed wintering western burrowing owl was observed onsite during the January 2019 survey. The majority of the project site consists of disked farmed fields; however, there are a limited number of burrows that provide habitat for western burrowing owl. Therefore, the proposed project will permanently impact 58.6 acres of marginal western burrowing owl habitat, and offsite grading will temporarily impact 11 acres of marginal western burrowing owl habitat.

Accordingly, impacts to western burrowing owl from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.12 Mitigation Measure BIO-6. Mitigation for potentially significant impacts to western burrowing owls.

Based on records for western burrowing owl in the proposed project vicinity and the potential habitat found on the project site, a preconstruction survey for burrowing owls should be conducted. The CDFG’s *Staff Report on Burrowing Owl Mitigation* (CDFG 2012) states that take avoidance (preconstruction) surveys should be conducted 14 days prior to ground disturbance. As burrowing owls may recolonize a site after only a few days, time lapses between project activities trigger subsequent take avoidance surveys including but not limited to a final survey conducted within 24 hours prior to ground disturbance to ensure absence of the species.

a. Burrowing owl surveys should be conducted by walking the entire project site and (where possible) in areas within 150 meters (approx. 500 feet) of the proposed project impact zone. The 150-meter buffer zone is surveyed to identify burrows and owls outside of the proposed project area which may be impacted by factors such as noise and vibration (heavy equipment) during project construction.

Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be 7 meters to 20 meters and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility.

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Poor weather may affect the surveyor's ability to detect burrowing owls thus, avoid conducting surveys when wind speed is greater than 20 kilometers per hour and there is precipitation or dense fog. To avoid impacts to owls from surveyors, owls and/or occupied burrows should be avoided by a minimum of 50 meters (approx. 160 ft.) wherever practical to avoid flushing occupied burrows. Disturbance to occupied burrows should be avoided during all seasons.

b. If burrowing owls are detected on the site, the following restricted activity dates and setback distances are recommended per the CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012).

- From April 1 through October 15, low disturbance and medium disturbance activities should have a 200-meter buffer while high disturbance activities should have a 500-meter buffer from occupied nests.
- From October 16 through March 31, low disturbance activities should have a 50-meter buffer, medium disturbance activities should have a 100-meter buffer, and high disturbance activities should have a 500-meter buffer from occupied nests.
- No earth-moving activities or other disturbance should occur within the aforementioned buffer zones of occupied burrows. These buffer zones should be fenced as well. If burrowing owls were found in the proposed project area, a qualified biologist would also need to delineate the extent of western burrowing owl habitat on the site.

The mitigation land used to mitigate impacts to the California tiger salamander would also constitute suitable western burrowing owl mitigation land.

Implementation of the above mitigation measures would reduce impacts to western burrowing owl to a level considered less than significant.

12.13 Impact BIO-7. Development of the proposed project would have potentially significant impacts to Swainson's Hawks.

The Swainson's hawk is a state-listed threatened species. It is also protected from direct take pursuant to the federal Migratory Bird Treaty Act. Active Swainson's hawk nests are also protected pursuant to California Fish and Game Code §3503.5 and 3513. Swainson's hawks are not known to currently nest on the project site. However, in the absence of nesting season surveys that demonstrate that the project will not result in take of the Swainson's hawk, including its eggs and young, impacts to Swainson's hawk are considered potentially significant.

The Swainson's hawk generally forages in open habitats with short vegetation containing small mammals, reptiles, birds, and insects. Foraging habitats include alfalfa fields, fallow fields, beet, tomato, and other low-growing row or field crops, dry-land and irrigated pasture, and rice land when not flooded (CDFG 1994). As a known Swainson's hawk nesting record occurs 0.10-mile east of the project site, the project site constitutes potential foraging habitat of this hawk. Therefore, the proposed project would permanently impact 58.6 acres of potential foraging habitat, and offsite grading will temporarily impact 11 acres of potential foraging habitat.

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Accordingly, impacts to Swainson's hawk from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.14 Mitigation Measure BIO-7. Mitigation for potentially significant impacts to Swainson's Hawks.

To avoid impacts to nesting Swainson's hawks, the CDFW has prepared guidelines for conducting surveys for Swainson's hawk entitled: *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (CDFG 2000). These survey recommendations were developed by the Swainson's Hawk Technical Advisory Committee (TAC) to maximize the potential for locating nesting Swainson's hawks, and thus, reduce the potential for nest failures as a result of project activities and/or disturbances. To meet the CDFG's (now CDFW) recommendations for mitigation and protection of Swainson's hawks in this guideline, surveys should be conducted by a qualified raptor biologist for a 0.5-mile radius around all project activities and should be completed for at least two survey periods as is found in the California Department of Fish and Game's (now CDFW) 2000 survey guidelines (CDFG 2000). The guidelines provide specific recommendations regarding the number of surveys based on when the proposed project is scheduled to begin and the time of year the surveys are conducted. A copy of this survey report must be provided to the City of Antioch prior to starting construction.

If the proposed project could result in take of the Swainson's hawk, its nest, or eggs, typically assumed to be the case if a nest is detected within a 0.25-mile of the project site, the project proponent shall prepare a Swainson's Hawk *Monitoring and Habitat Management Plan*. If take of Swainson's hawk eggs, nestlings, fledglings could occur from the proposed activities, as determined by a qualified raptor biologist, protective buffers will be established on the project site that will prevent such take from occurring. The protective buffer around the active nest site shall be maintained until such time that the Swainson's hawks have completed their nesting cycle as determined by a qualified raptor biologist. The nest protection buffer shall be coordinated with the CDFW.

If the preconstruction surveys find Swainson's hawk nests within 0.25 mile of the project site, impacts to its foraging habitat shall be mitigated by preserving 58.6 acres of suitable Swainson's hawk foraging habitat (1:1 mitigation for permanent impacts to foraging habitat). The mitigation land used to mitigate impacts to the California tiger salamander would also constitute suitable Swainson's hawk foraging habitat.

Implementation of these mitigation measures would reduce potential impacts to Swainson's hawk and its foraging habitat to a less than significant level pursuant to CEQA.

12.15 Impact BIO-8. Development of the proposed project would have a potentially significant impact on tricolored blackbirds.

The tricolored blackbird is a State listed threatened species pursuant to the CESA. The closest known CNDDDB record for tricolored blackbird is located 2 miles southwest of the project site (Occurrence No. 838) in ponds on the Roddy Ranch golf course. Sand Creek provides limited

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nesting habitat within the creek corridor. Although no tricolored blackbirds have been detected on the site during multiple site surveys in the project vicinity, installation of the outfall structures in Sand Creek could disturb nesting birds.

Accordingly, impacts to nesting tricolored blackbird from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.16 Mitigation Measure BIO-8. Mitigation for potentially significant impacts to nesting tricolored blackbird

In order to avoid impacts to nesting tricolored blackbird, a nesting survey shall be conducted prior to commencing with construction if this work would commence between February 1 and August 31.

If nesting tricolored blackbirds are identified during the surveys, a 300-foot radius around the nesting colony must be staked with bright orange lath or other suitable staking. The size of the buffer may be altered if a qualified biologist conducts behavioral observations and determines the nesting tricolored blackbirds are well acclimated to disturbance. If this occurs, the biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance or harassment to the nesting tricolored blackbirds. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier or later and would have to be determined by a qualified biologist. If a qualified biologist is not hired to watch the nesting tricolored blackbirds, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1. If buffers are removed prior to September 1, the qualified biologist monitoring the nesting buffer(s) should prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

Implementation of these mitigation measures would reduce impacts to nesting tricolored blackbirds to a level considered less than significant pursuant to CEQA

12.17 Impact BIO-9. Development of the proposed project would have a potentially significant impact on other nesting raptors

White-tailed kite, northern harrier, red-tailed hawk, and red shouldered hawk all are known to nest in the project area. All of these raptors (that is, birds of prey) are also protected under the Migratory Bird Treaty Act (50 CFR 10.13) and their eggs and young are protected under California Fish and Game Codes Sections 3503, 3503.5. Any project-related impacts to these species would be considered a significant adverse impact. Potential impacts to these species from the proposed project include disturbance to nesting birds, and possibly death of adults and/or young.

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Accordingly, impacts to nesting raptors from the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.18 Mitigation Measure BIO-9. Mitigation for potentially significant impacts to nesting raptors

Also see Impacts and Mitigation Bio-6 above for special considerations for golden eagles. In order to avoid impacts to nesting raptors, a nesting survey shall be conducted prior to commencing with construction if this work would commence between February 1 and August 31. The raptor nesting surveys shall include examination of all trees within 300 feet of the entire project site, not just trees slated for removal.

If nesting raptors are identified during the surveys, the dripline of the nest tree must be fenced with orange construction fencing (provided the tree is on the project site), and a 300-foot radius around the nest tree must be staked with bright orange lath or other suitable staking. If the tree is located off the project site, then the buffer shall be demarcated per above where the buffer intersects the project site. *The size of the buffer may be altered if a qualified raptor biologist conducts behavioral observations and determines the nesting raptors are well acclimated to disturbance.* If this occurs, the raptor biologist shall prescribe a modified buffer that allows sufficient room to prevent undue disturbance/harassment to the nesting raptors. No construction or earth-moving activity shall occur within the established buffer until it is determined by a qualified raptor biologist that the young have fledged (that is, left the nest) and have attained sufficient flight skills to avoid project construction zones. This typically occurs by August 1. This date may be earlier or later and would have to be determined by a qualified raptor biologist. If a qualified biologist is not hired to watch the nesting raptors, then the buffers shall be maintained in place through the month of August and work within the buffer can commence September 1. If buffers are removed prior to September 1, the qualified raptor biologist monitoring the nesting buffer should prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

Implementation of these mitigation measures would reduce impacts to nesting raptors to a level considered less than significant pursuant to CEQA.

12.19 Impact BIO-10. Development of the proposed project would have a potentially significant impact on nesting special-status and common bird species

Special-status birds, such as loggerhead shrike and grasshopper sparrow (CDFW designated species of special concern), and other common birds that could nest on or within a zone of influence of the project site could be impacted by the proposed project. Passerine birds and their nests are protected under the California Fish and Game Code (Sections 3503, 3503.5), and the federal Migratory Bird Treaty Act.

Impacts to nesting birds, their eggs, and/or young caused by implementation of the proposed project would be regarded as potentially significant pursuant to the CEQA. Mitigation could be

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implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.20 Mitigation Measure BIO-10. Mitigation for potentially significant impacts to nesting special-status and common bird species

If project site disturbance associated with the proposed project would commence between March 1 and September 1, a preconstruction nesting survey should be completed in the 15-day period prior to commencing with any proposed project related disturbance on the project site. The nesting survey should be conducted on the project site and within a zone of influence around the project site. The zone of influence includes those areas off the project site where birds could be disturbed by earth-moving vibrations or noise as determined by a qualified ornithologist. Accordingly, the nesting survey(s) must cover the project site and an area around the project site boundary.

If special-status birds are identified nesting on or adjacent to the project site, a non-disturbance buffer of 100 feet should be established or as otherwise prescribed by a qualified ornithologist. If common (that is, not special-status) birds for example, California towhee, California scrub jay, or acorn woodpeckers (*Melanerpes formicivorus*) are identified nesting on or adjacent to the project site, a non-disturbance buffer of 75 feet should be established or as otherwise prescribed by a qualified ornithologist. The buffer should be demarcated with painted orange lath or via the installation of orange construction fencing. Disturbance within the buffer should be postponed until it is determined by a qualified ornithologist that the young have fledged and have attained sufficient flight skills to leave the area or that the nesting cycle has otherwise completed.

Typically, most passerine birds in the region of the project site are expected to complete nesting by August 1. However, many species can complete nesting by the end of June or early to mid-July. Regardless, nesting buffers should be maintained until September 1 unless a qualified ornithologist determines that young have fledged and are independent of their nests at an earlier date.

If nest projection buffers are removed prior to September 1, the qualified biologist conducting the nesting surveys should prepare and submit a report to the City of Antioch that provides details about the nesting outcome and the removal of buffers. This report should be submitted prior to the time that nest protection buffers are removed if the date is before September 1.

Implementation of these mitigation measures would reduce impacts to nesting special-status species and common bird species to a level considered less than significant pursuant to CEQA.

12.21 Impact BIO-11. Development of the proposed project could have a potentially significant impact on San Joaquin kit fox

The closest CNDDDB record for this species was recorded in the 1970s and is located 2.75 miles south of the project site (Occurrence No. 936). More recently, independently conducted surveys cited in *Relative Abundance of Endangered San Joaquin Kit Fox (Vulpes macrotis mutica) Based on Scat-Detection Dog Surveys* (Smith et. al. 2006) were unable to document presence of San Joaquin kit fox in Contra Costa County. Although this report suggests that it is likely that San

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Joaquin kit fox is extirpated from Contra Costa County, Figure 5-5 in the East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan (ECCCC HCP 2006) indicates that the project site is within the “Suitable Core Habitat” of the San Joaquin kit fox. Suitability does not infer the presence of this fox species, only that the model used indicates there is suitable habitat in which the species could occur.

The on-going disturbance and cultivation of the project site would likely preclude the presence of an occupied San Joaquin kit fox den. As such, the federally-listed San Joaquin kit fox is not expected to reside on the project site. Regardless, implementation of avoidance and conservation measures listed below will confirm that this species is not present from the project site and will ensure that there is no take of this species.

Accordingly, impacts to San Joaquin kit fox is regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.22 Mitigation Measure BIO-11. Mitigation for potentially significant impacts to San Joaquin kit fox

To confirm that San Joaquin kit fox is not present on the project site and to ensure that there is no take of this species, the project proponent will implement standard avoidance measures to reduce the possibility of impacts to the species:

- 1) An education program will be conducted by a qualified biologist prior to the start of construction to explain the endangered species concerns to contractors working at the project site. The program will include an explanation of the FESA and CESA and any endangered species concerns in the area.
- 2) Qualified biologists would conduct preconstruction den surveys no more than 14 days prior to site grading to ensure that potential kit fox dens are not disrupted.

If “potential dens” are located (potential dens are defined as burrows at least four inches in diameter which open up within two feet), infrared camera stations will be set up and maintained for three (3) consecutive nights at den openings prior to initiation of grading activities to determine the status of the potential dens. If no kit fox is found to be using the den, site grading can proceed unhindered. However, if a kit fox is found using a den site within the project site, the USFWS and the CDFW will be notified and consulted before work activities resume.

- 3) To prevent harm to San Joaquin kit fox, any steep-walled holes and/or trenches excavated on the project site will be completely covered at the end of each workday or escape ramps will be provided to allow any entrapped animals to escape unharmed. All pipe sections stored at the project site overnight that are four inches in diameter or greater will be inspected for San Joaquin kit fox before the pipes are moved or buried. If San Joaquin kit fox are identified in the work area at any time, the USFWS and/or the CDFW will be notified and consulted before work activities resume. All trash items will be removed

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from the site to reduce the potential for attracting predators of San Joaquin kit fox. Contractors will be prohibited from bringing firearms and pets to the job site.

Implementation of these mitigation measures would reduce impacts to San Joaquin kit fox to a level considered less than significant pursuant to CEQA.

12.23 Impact BIO-12. Development of the proposed project would have a potentially significant impact on American badger

The American badger is a CDFW designated species of special concern. The closest known record for this species is located on the project site in 2007 (CNDDDB Occurrence No. 398). The project site provides marginal habitat for this species. Therefore, development of the project could result in impacts to American badgers.

Accordingly, impacts to American badger is regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.24 Mitigation Measure BIO-12. Mitigation for potentially significant impacts to American badger.

To ensure there are no direct impacts to American badger, a qualified biologist will conduct a preconstruction den survey no more than 21 days prior to site grading. If a potential den is located, infrared camera stations will be set up and maintained for three (3) consecutive nights at the potential den openings prior to initiation of grading/work activities to determine the status of the potential dens. If American badger is not found to be using the den, the burrow will be filled, and site grading may proceed in the vicinity of this burrow(s) unhindered. However, if American badger is found to be using a den site within the area of proposed grading, provided it is not a natal den, the badger will be passively and humanely evicted from its den if it could be impacted by grading or other activities. If a natal den is found, the project proponent will consult with CDFW to prepare an eviction plan and shall submit the eviction plan to the City prior to implementation.

Implementation of these mitigation measures would reduce impacts to American badger to a level considered less than significant pursuant to CEQA.

12.25 Impact BIO-13. Development of the proposed project would have a significant impact on Waters of the United States and/or State.

The proposed project will result in impacts to areas that are within the Corps' and RWQCB's jurisdiction pursuant to Sections 404 and 401 of the CWA, respectively. Areas subject to regulation by these two agencies include Sand Creek and an ephemeral drainage channel that flows to Sand Creek. The proposed project will result in permanent impacts to 0.045-acre of waters of the U.S. and/or State from the installation of two stormwater outfalls in Sand Creek and the culverted crossing of an ephemeral drainage channel as illustrated on the Creekside Impacts Exhibits, prepared by CBG dated July 9, 2019 (Attachment B).

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Impacts to waters of the United States and/or State would be regarded as significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.26 Mitigation Measure BIO-13. Mitigation for significant impacts to Waters of the United States and/or State

The project proponent shall mitigate for project-related impacts to 0.045-acre of waters of U.S./State by purchasing seasonal wetland credits from the Cosumnes Mitigation Bank or other wetland mitigation bank that services the project site area as approved by the Corps and the RWQCB. Mitigation credits shall be purchased at no less than 1:1 (replacement : impact) ratio. The Service Area for the Cosumnes Mitigation Bank covers the project site.

Alternatively, the project proponent may create, preserve, and manage new seasonal wetlands on or off of the project site at a 2:1 mitigation ratio (acres created and preserved: acre impacted). A project-specific *Wetland Mitigation and Monitoring Plan* prepared by a qualified wetland restoration ecologist that includes the following information will be provided to the City prior to conducting any activity that would result in the placement of any fill material into a water of the U.S. or water of the State:

- 1) a description of the impacted water;
- 2) a map depicting the location of the mitigation site(s) and a description of existing site conditions;
- 3) a detailed description of the mitigation design that includes: (i) the location of the new seasonal wetlands; (ii) proposed construction schedule; (iii) a planting/vegetation plan; (iv) specific monitoring metrics, and objective performance and success criteria, such as delineation of created area as jurisdictional waters using Corps published methods; and (v) contingency measures if the created wetlands do not achieve the specified success criteria; and
- 4) short-term and long-term management and monitoring methods.
- 5) If the wetland mitigation site is a separate mitigation property, the project proponent will grant a conservation easement to a qualified entity, as defined by Section 81.5.3 of the California Civil Code, preserving the created seasonal wetland(s) in perpetuity, and establish an endowment fund to provide for the long-term management, maintenance, and monitoring of the created seasonal wetland(s).

If the proposed project includes placing fill material into jurisdictional waters of the U.S. or waters of the State, the project proponent shall provide the City with a copy of permits issued by the Corps and RWQCB authorizing the fill.

Implementation of the measures described above would reduce significant impacts to waters of the United States/State to a level considered less-than-significant pursuant to the CEQA.

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12.27 Impact BIO-14. Development of the proposed project would have a significant impact on CDFW Fish and Game Code Section 1602 jurisdictional areas

Sand Creek and the ephemeral drainage channel on the project site are channels with a bed and bank, and as such are within the CDFW's jurisdiction pursuant to Section 1602 of the California Fish and Game Code. The proposed project will result in impacts to Sand Creek during the construction of two stormwater outfall structures on the banks of Sand Creek, the culverted crossing through the ephemeral drainage channel that flows to Sand Creek, installation of the proposed EVA/pedestrian bridge in the northeastern corner of the site, and construction of the Hillcrest Avenue bridge over Sand Creek, as illustrated on the Creekside Impacts Exhibits, prepared by CBG dated July 9, 2019 (Attachment B).

Impacts to Section 1602 jurisdictional areas would be regarded as significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.28 Mitigation Measure BIO-14. Mitigation for significant impacts to Section 1602 jurisdictional areas

Impacts to riparian habitat within CDFW's Section 1602 jurisdictional areas, as illustrated on Sheet A, that would occur during the installation of two stormwater outfalls in Sand Creek, construction of the Hillcrest Avenue bridge over Sand Creek, and the installation of the EVA/Pedestrian Bridge over Sand Creek, will be mitigated via planting California native trees/shrubs within the Sand Creek buffer area. Impacted trees and shrubs will be mitigated via a 3:1 (replacement to impacts) ratio. Replacement trees and shrubs will be a minimum of one gallon size trees/shrub replacements.

In addition, the project proponent will implement appropriate BMPs to prevent construction related impacts that could introduce de minimus fill or other pollutants into Sand Creek and the eastern ephemeral channel on the project site. These measures include the installation of wildlife-friendly hay wattles and/or silt fence that will prevent unintended de minimus fill impacts to Sand Creek while the stormwater outfalls are constructed. In addition, orange silt fencing shall be installed at the top-of-bank of Sand Creek to prevent unintended human and equipment traffic adjacent to Sand Creek. Finally, the dripline of all protected trees within the drainages on the project site, if near work areas, shall be protected via the installation of orange construction fencing.

The project proponent may satisfy this mitigation by providing the City of Antioch with a fully executed copy of a SBAA with the CDFW that includes these, or other functionally equivalent, BMPs. The project proponent will implement the conditions of the executed SBAA.

Implementation of these measures would reduce significant impacts to Section 1602 jurisdictional areas, including riparian habitat, to a level considered less-than-significant pursuant to the CEQA.

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12.29 Impact BIO-15. Development of the Project would have a potentially significant impact on protected trees (Potentially Significant).

Installation of the two outfall structures on the banks of Sand Creek and installation of the two clear span bridges across Sand Creek may require removal of up to 12 trees growing on the banks of Sand Creek.

Impacts to protected trees would be regarded as potentially significant pursuant to the CEQA. Mitigation could be implemented to reduce these impacts to levels regarded as less than significant pursuant to the CEQA.

12.30 Mitigation Measure BIO-15. Mitigation for potentially significant impact on protected trees.

If any trees are slated for removal, the project proponent will need to request a tree removal permit as part of the regular development application to the City. Since there are protected trees on the project site along Sand Creek, the following information will be provided with the regular development application to the City:

- (1) A site plan showing the existing topography with location of all established trees, clearly labeling those trees which are proposed for either saving or removal.
- (2) A description of all established trees on the property, including the size (in diameter), estimated height, species, and relative condition (i.e., healthy vs. in decline).
- (3) A written statement requesting permission to remove the subject tree(s) providing the reason for the request.

All trees planted are to be California native trees that are found in Antioch in similar habitats to those habitats present on the project; for example, coast live oaks and valley oaks.

Implementation of these measures would reduce potentially significant impacts to City protected trees to a level considered less-than-significant pursuant to the CEQA.

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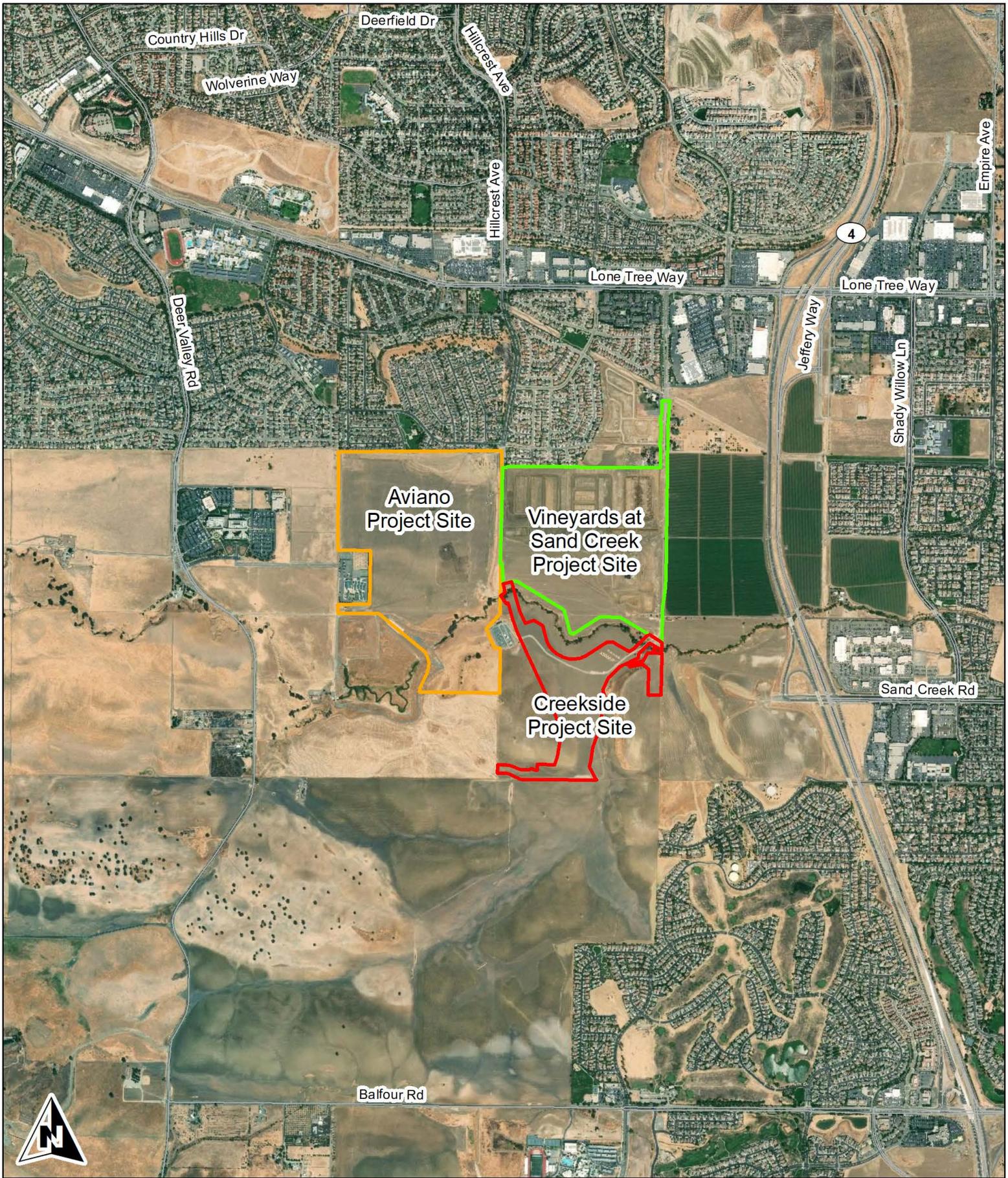
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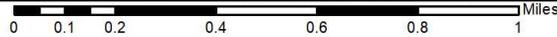
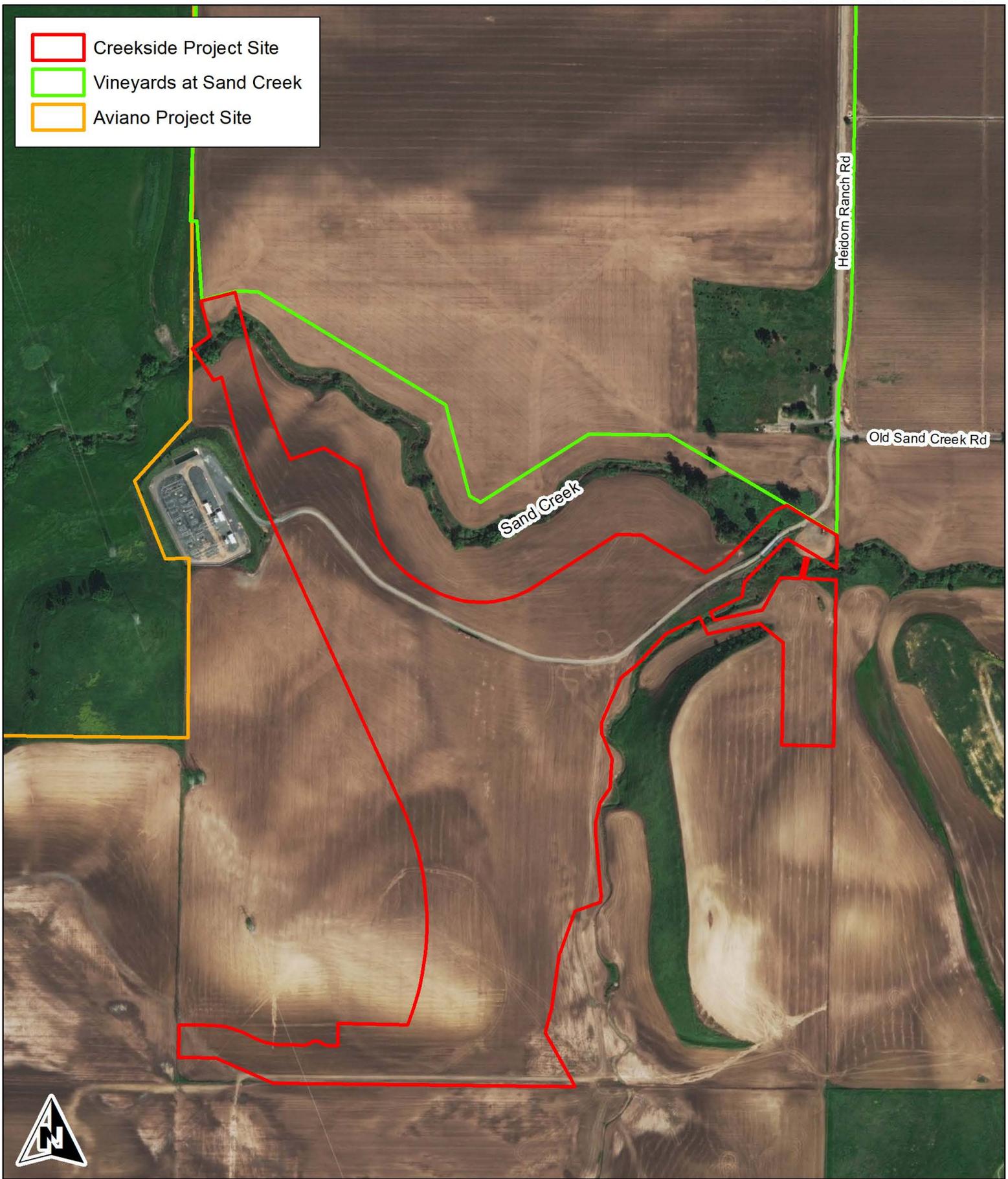


Figure 2. Creekside Project Site
 Location Map
 Antioch, California

37.943112 -121.755134
 7.5-Minute Antioch South quadrangle
 Section 9; T1N R2E
 Aerial Photograph Source: ESRI
 Map Preparation Date: November 20, 2019



- Creekside Project Site
- Vineyards at Sand Creek
- Aviano Project Site



0 100 200 400 600 800 1,000 Feet

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Environmental Consultants
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Figure 3. Aerial Photograph of the
Creekside Project Site
Antioch, California

Aerial Photograph Source: ESRI
Map Preparation Date: November 20, 2019

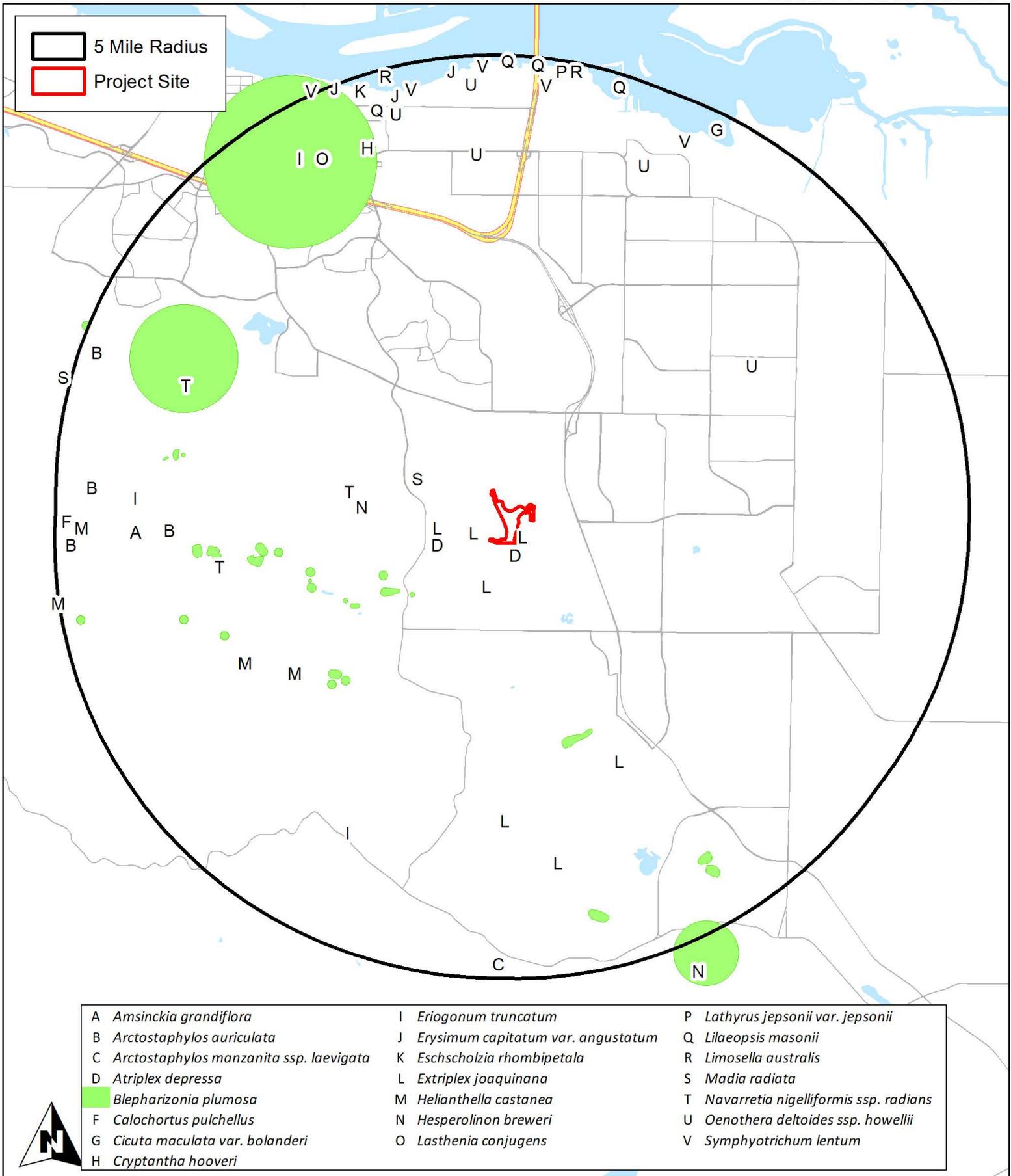
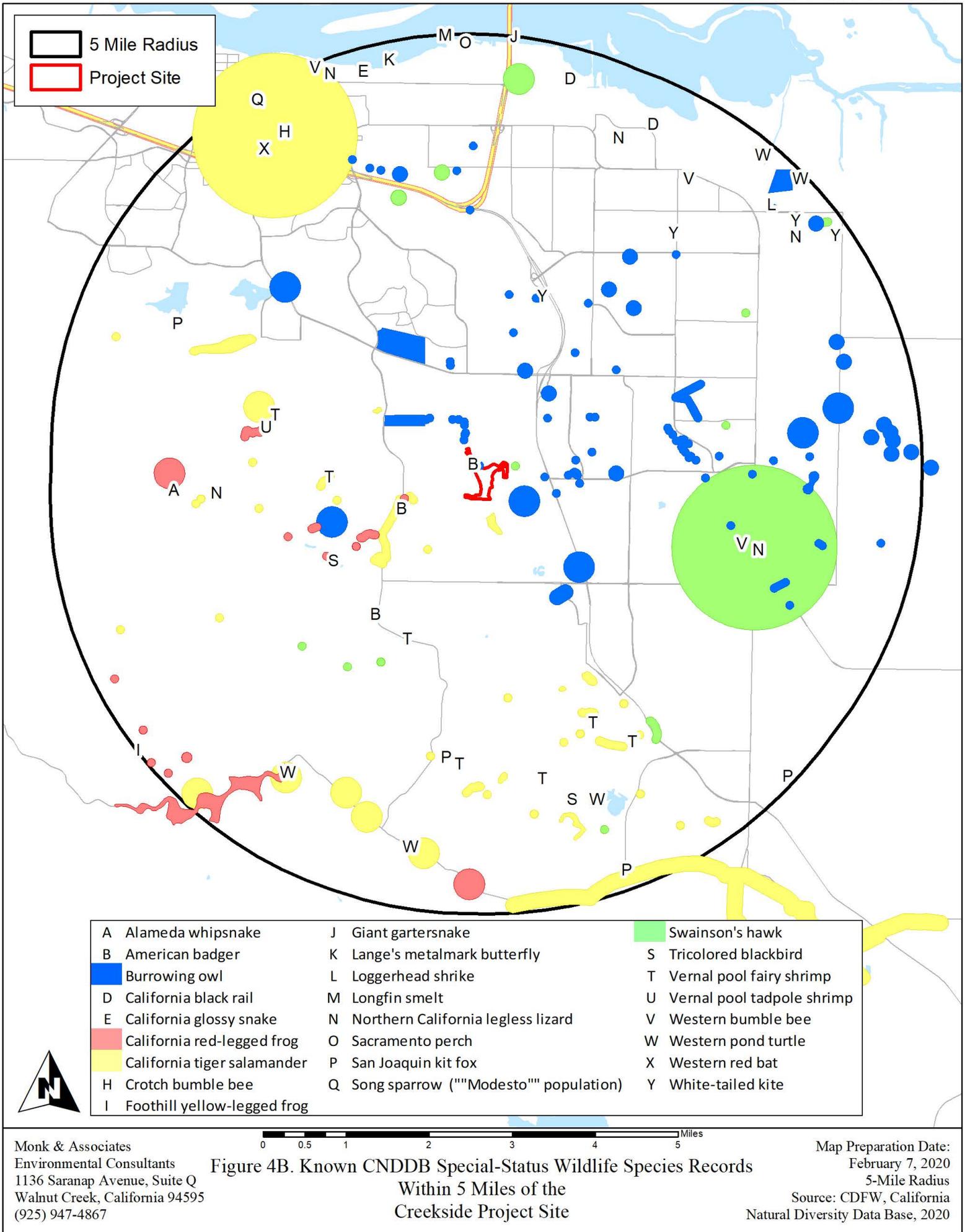


Figure 4A. Known CNDDDB Special-Status Plant Species Records
 Within 5 Miles of the
 Creekside Project Site



5 Mile Radius
 Project Site

- | | | |
|--|---|--|
| <p>A Alameda whipsnake</p> <p>B American badger</p> <p>■ Burrowing owl</p> <p>D California black rail</p> <p>E California glossy snake</p> <p>■ California red-legged frog</p> <p>■ California tiger salamander</p> <p>H Crotch bumble bee</p> <p>I Foothill yellow-legged frog</p> | <p>J Giant gartersnake</p> <p>K Lange's metalmark butterfly</p> <p>L Loggerhead shrike</p> <p>M Longfin smelt</p> <p>N Northern California legless lizard</p> <p>O Sacramento perch</p> <p>P San Joaquin kit fox</p> <p>Q Song sparrow ("Modesto" population)</p> | <p>■ Swainson's hawk</p> <p>S Tricolored blackbird</p> <p>T Vernal pool fairy shrimp</p> <p>U Vernal pool tadpole shrimp</p> <p>V Western bumble bee</p> <p>W Western pond turtle</p> <p>X Western red bat</p> <p>Y White-tailed kite</p> |
|--|---|--|



0 0.5 1 2 3 4 5 Miles

Figure 4B. Known CNDDDB Special-Status Wildlife Species Records
 Within 5 Miles of the
 Creekside Project Site

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Map Preparation Date:
 February 7, 2020
 5-Mile Radius
 Source: CDFW, California
 Natural Diversity Data Base, 2020

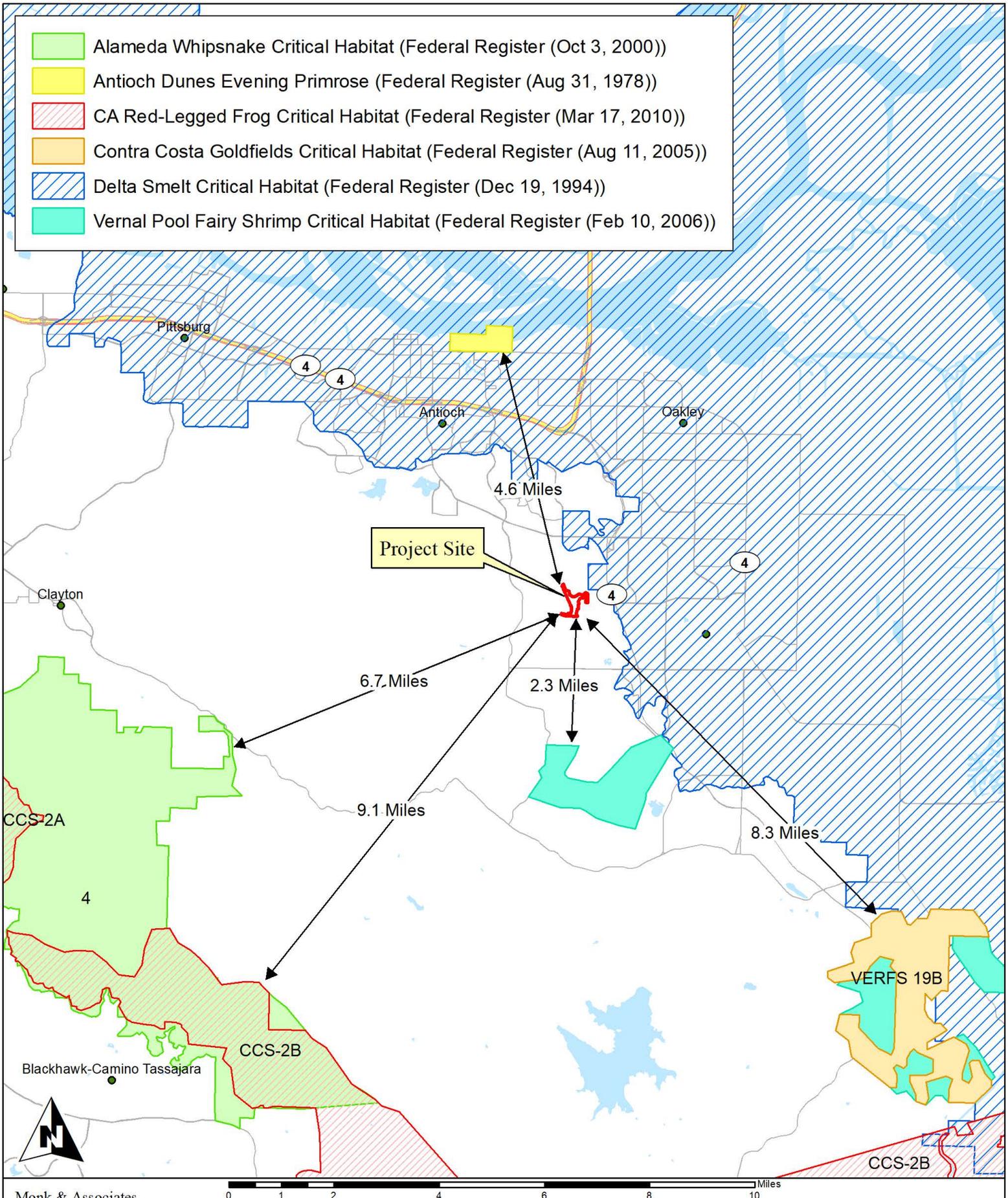


Figure 5. USFWS Critical Habitat in the Vicinity of the Creekside Project Site



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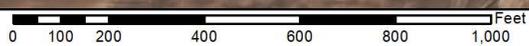


Figure 6. Potential Fairy Shrimp Habitat
on the
Creekside Project Site

Aerial Photograph Source: ESRI
Map Preparation Date: November 20, 2019

Table 1
Plant Species Observed on the Creekside Project Site in 2019

Angiosperms - Dicots

Adoxaceae

Sambucus nigra subsp. *caerulea* Blue elderberry

Asteraceae

Artemisia californica California sagebrush
Artemisia douglasiana California mugwort
Baccharis pilularis subsp. *pilularis* Baccharis
 **Carduus pycnocephalus* subsp. *pycnocephalus* Italian thistle
 **Centaurea solstitialis* Yellow starthistle
 **Cirsium vulgare* Bull thistle
Cynara cardunculus Artichoke thistle
 **Dittrichia graveolens* Stinkwort
Grindelia camporum Great Valley gumplant
Helenium puberulum Sneezeweed
 **Silybum marianum* Milk thistle
Xanthium strumarium Cocklebur

Boraginaceae

Amsinckia sp. Fiddleneck

Brassicaceae

**Brassica nigra* Black mustard
 **Hirschfeldia incana* Short-podded mustard
 **Lepidium latifolium* Broadleaf pepperweed
 **Sinapis arvensis* Wild mustard

Caryophyllaceae

**Stellaria media* Common chickweed

Chenopodiaceae

**Salsola tragus* Russian-thistle

Fabaceae

Lupinus bicolor Bicolored lupine
 **Vicia sativa* Common vetch

Fagaceae

Quercus lobata Valley oak

Frankeniaceae

Frankenia salina Alkali heath

Geraniaceae

**Geranium dissectum* Cut-leaf geranium

Montiaceae

Claytonia parviflora Miner's lettuce

Myrtaceae

**Eucalyptus globulus* Blue gum

* Indicates a non-native species

Table 1
Plant Species Observed on the Creekside Project Site in 2019

Polygonaceae	
* <i>Rumex crispus</i>	Curly dock
Rosaceae	
<i>Heteromeles arbutifolia</i>	Toyon
* <i>Prunus dulcis</i>	Almond tree
<i>Rosa californica</i>	California rose
Salicaceae	
<i>Salix laevigata</i>	Red willow
<i>Salix lasiolepis</i>	Arroyo willow
Sapindaceae	
<i>Aesculus californica</i>	California buckeye
Solanaceae	
* <i>Nicotiana glauca</i>	Tree tobacco
* <i>Solanum sp.</i>	Nightshade
Angiosperms -Monocots	
Cyperaceae	
<i>Cyperus eragrostis</i>	Tall flatsedge
<i>Schoenoplectus americanus</i>	Olney's bulrush
Poaceae	
* <i>Avena barbata</i>	Slender wild oat
* <i>Bromus diandrus</i>	Ripgut grass
* <i>Bromus hordeaceus</i>	Soft chess
<i>Elymus triticoides</i>	Creeping wildrye
* <i>Hordeum murinum</i>	Wall barley
Typhaceae	
<i>Typha angustifolia</i>	Narrow-leaved cattail

Table 2
Wildlife Species Observed on the Creekside Project Site in 2019

Fish	
Mosquito fish	<i>Gambusia affinis</i>
Amphibians	
California newt	<i>Taricha torosa</i>
California slender salamander	<i>Batrachoseps attenuatus</i>
California toad	<i>Anaxyrus boreas halophilus</i>
Sierran treefrog	<i>Pseudacris sierra</i>
Reptiles	
Western pond turtle **	<i>Emys marmorata</i>
Western fence lizard	<i>Sceloporus occidentalis</i>
Pacific gopher snake	<i>Pituophis catenifer catenifer</i>
Western aquatic garter snake	<i>Thamnophis couchii</i>
Birds	
Northern flicker	<i>Colaptes auratus</i>
Turkey vulture	<i>Cathartes aura</i>
Mallard	<i>Anas platyrhynchos</i>
White-tailed kite	<i>Elanus leucurus</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Golden eagle	<i>Aquila chrysaetos</i>
American kestrel	<i>Falco sparverius</i>
Wild turkey	<i>Meleagris gallopavo</i>
California quail	<i>Callipepla californica</i>
Killdeer	<i>Charadrius vociferus</i>
Rock pigeon	<i>Columba livia</i>
Mourning dove	<i>Zenaida macroura</i>
Great horned owl	<i>Bubo virginianus</i>
Western burrowing owl	<i>Athene cunicularia hypugaea</i>
Anna's hummingbird	<i>Calypte anna</i>
Nuttall's woodpecker	<i>Picoides nuttallii</i>
Black phoebe	<i>Sayornis nigricans</i>
Say's phoebe	<i>Sayornis saya</i>
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>
Western kingbird	<i>Tyrannus verticalis</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
California scrub jay	<i>Aphelocoma californica</i>
American crow	<i>Corvus brachyrhynchos</i>
Common raven	<i>Corvus corax</i>
Oak titmouse	<i>Baeolophus inornatus</i>
Bushtit	<i>Psaltriparus minimus</i>
White-breasted nuthatch	<i>Sitta carolinensis</i>
Marsh wren	<i>Cistothorus palustris</i>
Ruby-crowned kinglet	<i>Regulus calendula</i>
Northern mockingbird	<i>Mimus polyglottos</i>
European starling	<i>Sturnus vulgaris</i>

Table 2
Wildlife Species Observed on the Creekside Project Site in 2019

American pipit	<i>Anthus rubescens</i>
Yellow-rumped warbler	<i>Setophaga coronata</i>
Wilson's warbler	<i>Cardellina pusilla</i>
California towhee	<i>Pipilo crissalis</i>
Lark sparrow	<i>Chondestes grammacus</i>
Savannah sparrow	<i>Passerculus sandwichensis</i>
White-crowned sparrow	<i>Zonotrichia leucophrys</i>
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>
Red-winged blackbird	<i>Agelaius phoeniceus</i>
Western meadowlark	<i>Sturnella neglecta</i>
Brewer's blackbird	<i>Euphagus cyanocephalus</i>
House finch	<i>Haemorhous mexicanus</i>
House sparrow	<i>Passer domesticus</i>

Mammals

Fox squirrel	<i>Sciurus niger</i>
Audubon's cottontail	<i>Sylvilagus audubonii</i>
California ground squirrel	<i>Otospermophilus beecheyi</i>
Botta's pocket gopher	<i>Thomomys bottae</i>
California meadow vole	<i>Microtus californicus</i>
Coyote	<i>Canis latrans</i>
Raccoon	<i>Procyon lotor</i>
Striped skunk	<i>Mephitis mephitis</i>
Bobcat	<i>Lynx rufus</i>

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Adoxaceae					
<i>Viburnum ellipticum</i> Western viburnum	Fed: - State: - CNPS: Rank 2B.3	May-July	Chaparral; cismontane woodland; lower montane coniferous forest.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Apiaceae					
<i>Cicuta maculata bolanderi</i> Bolander's waterhemlock	Fed: - State: - CNPS: Rank 2B.1	July-September	Marshes and swamps (coastal, fresh, or brackish). 0 to 200 meters.	Record for this species located 4.7 miles northeast from the project site (Occurrence No. 15).	None. No suitable habitat. No impacts expected.
<i>Eryngium jepsonii</i> Button-celery	Fed: - State: - CNPS: Rank 1B.2	April-August	Occurs on clay in vernal pools and grassland	CNPS Nine Quad Search	None. No wetlands within impact area. No impacts expected.
<i>Lilaeopsis masonii</i> Mason's lilaeopsis	Fed: - State: CR CNPS: Rank 1B.1	April-October	Marshes and swamps (brackish or freshwater); riparian scrub.	Record for this species located 4.8 miles north of the project site (Occurrence No. 1).	None. No suitable habitat. No impacts expected.
<i>Sanicula saxatilis</i> Rock sanicle	Fed: - State: CR CNPS: Rank 1B.2	April-May	Broad-leaf upland forest; chaparral; valley and foothill grassland; [rocky].	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
Asteraceae					
<i>Blepharizonia plumosa</i> Big tarplant	Fed: - State: - CNPS: Rank 1B.1	July-October	Valley and foothill grassland.	Record for this species located 1.5 miles southwest from the project site in 2013 (Occurrence No. 33).	Low. Surveys will be conducted the year prior to development.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Centromadia parryi condonii</i> Congdon's tarplant	Fed: - State: - CNPS: Rank 1B.2	May-November	Valley and foothill grassland (alkaline).	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Helianthella castanea</i> Diablo helianthella	Fed: - State: - CNPS: Rank 1B.2	March-June	Broadleafed upland forest; chaparral; cismontane woodland; coastal scrub; riparian woodland; valley and foothill grassland.	Record for this species located 2.7 miles southwest of the project site (Occurrence No. 71).	None. No suitable habitat within impact area. No impacts expected.
<i>Isocoma arguta</i> Carquinez goldenbush	Fed: - State: - CNPS: Rank 1B.1	August-December	Valley and foothill grassland (alkaline).	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Lasthenia conjugens</i> Contra Costa goldfields	Fed: FE State: - CNPS: Rank 1B.1	March-June	Valley and foothill grassland (mesic); vernal pools.	Record for this species located 4.2 miles northwest of the project site (Occurrence No. 8).	None. No pools within impact area. No impact expected.
<i>Madia radiata</i> Showy golden madia	Fed: - State: - CNPS: Rank 1B.1	March-May	Cismontane woodland; valley and foothill grassland.	Record for this species located 1.0 miles west of the project site in 1941 (Occurrence No. 25).	Low. Surveys will be conducted the year prior to development.
<i>Monolopia gracilens</i> Small-flowered monolopia	Fed: State: CNPS: Rank 1B.2	March-July	Coniferous and broadleafed upland forest openings, chaparral openings, and serpentine valley and foothill grassland. Elevation 100-1200 m.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Senecio aphanactis</i> Chaparral ragwort	Fed: - State: - CNPS: Rank 2B.2	January-April	Foothill woodland; coastal scrub; (alkaline).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Symphotrichum lentum</i> Suisun Marsh aster	Fed: - State: - CNPS: Rank 1B.2	August-November	Marshes and swamps (brackish and fresh water)	Record for this species located 4.8 miles north of the project site (Occurrence No. 8).	None. No suitable habitat. No impacts expected.
Boraginaceae					
<i>Amsinckia grandiflora</i> Large-flowered fiddleneck	Fed: FE State: CE CNPS: Rank 1B.1	April-May	Cismontane woodland, Valley and foothill grassland	Record for this species located 3.9 miles west of the project site in 1887; surveys in 1969 resulted in presuming extirpation (Occurrence No. 2).	Low. Surveys will be conducted the year prior to development.
<i>Cryptantha hooveri</i> Hoover's cryptantha	Fed: - State: - CNPS: Rank 1A	April-May	Valley and foothill grassland (sandy).	Record for this species located 4.2 miles north of the project site in 1908 (Occurrence No. 4).	Unlikely. Believed extirpated. However, surveys will be conducted the year prior to development.
<i>Phacelia phacelioides</i> Mount Diablo phacelia	Fed: - State: - CNPS: Rank 1B.2	April-May	Chaparral; cismontane woodland; [rocky]; occasionally serpentine soils.	CNPS Nine Quad Search	None. No suitable habitat, no rocky soils or serpentinite. No impacts expected.
<i>Plagiobothrys hystriculus</i> Bearded-nut popcornflower	Fed: - State: - CNPS: Rank 1B.1	April-May	Valley and foothill grasslands (mesic); vernal pools.	CNPS Nine Quad Search	None. No pools within impact area. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Brassicaceae					
<i>Erysimum capitatum angustatum</i> Contra Costa wallflower	Fed: FE State: CE CNPS: Rank 1B.1	March-July	Inland dunes.	Record for this species located 4.7 miles north of the project site (Occurrence No. 2).	None. No suitable habitat. No impacts expected.
<i>Streptanthus albidus peramoenus</i> Uncommon jewelflower	Fed: - State: - CNPS: Rank 1B.2	April-June	Chaparral; valley and foothill grassland; [serpentinite].	CNPS Nine Quad Search	None. No serpentinite within impact area. No impacts expected.
<i>Streptanthus hispidus</i> Mount Diablo jewelflower	Fed: - State: - CNPS: Rank 1B.3	March-June	Chaparral; valley and foothill grassland; [rocky].	CNPS Nine Quad Search	None. No rocky habitat within impact area. No impacts expected.
<i>Tropidocarpum capparideum</i> Caper-fruited tropidocarpum	Fed: - State: - CNPS: Rank 1B.1	March-April	Valley and foothill grassland (alkaline hills).	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
Campanulaceae					
<i>Campanula exigua</i> Chaparral harebell	Fed: - State: - CNPS: Rank 1B.2	May-June	Chaparral (rocky, usually serpentinite).	CNPS Nine Quad Search	None. No suitable habitat; no serpentinite. No impacts expected.
<i>Downingia pusilla</i> Dwarf downingia	Fed: - State: - CNPS: Rank 2.2	March-May	Valley and foothill grassland (mesic); vernal pools.	CNPS Nine Quad Search	None. No wetlands within impact area. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Caryophyllaceae					
<i>Spergularia macrotheca longistyla</i> Long-styled sand-spurrey	Fed: - State: - CNPS: Rank 1B.2	February-May	Alkaline marshes, mud flats, meadows, hot springs. Occurs at elevations less than 200 M.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Chenopodiaceae					
<i>Atriplex cordulata cordulata</i> Heartscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Meadows and seeps; chenopod scrub; valley and foothill grassland (sandy); [saline or alkaline].	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Atriplex depressa</i> Brittlescale	Fed: - State: - CNPS: Rank 1B.2	May-October	Chenopod scrub; playas; valley and foothill grassland; [alkaline or clay].	Record for this species located 0.1 mile south of the project site in 2006 (Occurrence No. 74).	Unlikely. However, surveys will be conducted the year prior to development.
<i>Atriplex minuscula</i> Lesser saltbush	Fed: - State: - CNPS: Rank 1B.1	May-October	Chenopod scrub; playas; valley and foothill grassland [alkaline].	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Extriplex joaquinana</i> San Joaquin spearscale	Fed: - State: - CNPS: Rank 1B.2	April-October	Chenopod scrub; meadows; valley and foothill grassland; [alkaline].	Record for this species located adjacent to the project site in 2006 (Occurrence No. 104).	Unlikely due to farming. However, surveys will be conducted the year prior to development. No impact expected.
Ericaceae					
<i>Arctostaphylos auriculata</i> Mount Diablo manzanita	Fed: - State: - CNPS: Rank 1B.3	January-March	Chaparral (sandstone).	Record for this species located 3.6 miles west of the project site (Occurrence No. 18).	None. No suitable habitat. No manzinas onsite. No impacts expected.

Table 3

Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Arctostaphylos manzanita laevigata</i> Contra Costa manzanita	Fed: - State: - CNPS: Rank 1B.2	January-February	Chaparral (rocky),	Record for this species located 4.9 miles south of the project site (Occurrence No. 10).	None. No suitable habitat. No manzinatas onsite. No impacts expected.
Fabaceae					
<i>Astragalus tener tener</i> Alkali milkvetch	Fed: - State: - CNPS: Rank 1B.2	March-June	Playas; mesic grasslands (adobe clay), vernal pools (alkaline).	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Lathyrus jepsonii jepsonii</i> Delta tulle pea	Fed: - State: - CNPS: Rank 1B.2	May-September	Marshes and swamps (freshwater and brackish).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Lamiaceae					
<i>Monardella antonina antonina</i> San Antonio Hills monardella	Fed: - State: - CNPS: Rank 3	June-August	Chaparral; cismontane woodland.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Liliaceae					
<i>Calochortus pulchellus</i> Mt. Diablo fairy lantern	Fed: - State: - CNPS: Rank 1B.2	April-June	Chaparral; cismontane woodland; valley and foothill grassland.	CNPS Nine Quad Search	Unlikely. However, surveys will be conducted the year prior to development.
<i>Fritillaria liliacea</i> Fragrant fritillary	Fed: - State: - CNPS: Rank 1B.2	February-April	Coastal prairie; coastal scrub; valley and foothill grassland; [often serpentinite].	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
Linaceae					
<i>Hesperolinon breweri</i> Brewer's western flax	Fed: - State: - CNPS: Rank 1B.2	May-July	Chaparral; cismontane woodland; valley and foothill grassland; [mostly serpentinite].	Record for this species located 2.0 miles north of the project site (Occurrence No. 32).	None. No suitable habitat. No impact expected.
Malvaceae					
<i>Hibiscus lasiocarpus occidentalis</i> Woolly rose-mallow	Fed: - State: - CNPS: Rank 1B.2	June-September	Marshes and swamps (freshwater).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Malacothamnus hallii</i> Hall's bush mallow	Fed: - State: - CNPS: Rank 1B.2	May-September	Chaparral.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Onagraceae					
<i>Oenothera deltooides howellii</i> Antioch dunes evening-primrose	Fed: FE State: CE CNPS: Rank 1B.1	March-September	Interior dunes.	Record for this species located 3.8 miles north from the project site (Occurrence No. 3).	None. No suitable habitat. No impacts expected.
Orobanchaceae					
<i>Chloropyron molle molle</i> Soft bird's-beak	Fed: FE State: CR CNPS: Rank 1B.2	July-September	Marshes and swamps (coastal salt).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Cordylanthus nidularius</i> Mount Diablo bird's-beak	Fed: FC State: CR CNPS: Rank 1B.1	July-August	Chaparral (serpentine).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Papaveraceae					
<i>Eschscholzia rhombipetala</i> Diamond-petaled California poppy	Fed: - State: - CNPS: Rank 1B.1	March-April	Valley and foothill grassland (clay).	Record for this species located 4.7 miles north of the project site in 1994 (Occurrence No. 3).	Low. Surveys will be conducted the year prior to development.
Poaceae					
<i>Neostapfia colusana</i> Colusa grass	Fed: FT State: CE CNPS: Rank 1B.1	May-August	Vernal pools	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Puccinellia simplex</i> California alkali grass	Fed: State: CNPS: Rank 1B.2	March-June	Meadows and seeps, chenopod scrub, valley and foothill grasslands, vernal pools. Alkaline, vernal mesic. Sinks, flats, and lake margins. 1-915 m.	CNPS Nine Quad Search	Low. Surveys will be conducted the year prior to development.
Polemoniaceae					
<i>Eriastrum erterae</i> Lime Ridge eriastrum	Fed: State: - CNPS: Rank 1B.1	June-July	Alkaline or semi-alkaline, sandy. Chaparral (openings or edges)	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Navarretia gowenii</i> Lime Ridge navarretia	Fed: - State: - CNPS: Rank 1B.1	May-June	Chaparral.	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3
Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Navarretia nigelliformis radians</i> Shining navarretia	Fed: - State: - CNPS: Rank 1B.2	May-June	Cismontane woodland; valley and foothill grassland; slightly mesic depressions.	Record for this species located 1.5 miles west of the project site in 2015 (Occurrence No. 81).	Unlikely. However, surveys will be conducted the year prior to development.
Polygonaceae					
<i>Eriogonum nudum psychicola</i> Antioch Dunes buckwheat	Fed: State: CNPS: Rank 1B.1	June-October	Deltaic Great Central Valley Elevation: 0-66 ft Coastal strand, foothill woodland, chaparral, valley grassland [sandy].	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Eriogonum truncatum</i> Mount Diablo buckwheat	Fed: - State: - CNPS: Rank 1B.1	April-September	Chaparral; coastal scrub; valley and foothill grassland; [sandy].	Record for this species located 3.6 miles southwest of the project site from 1903 (Occurrence No. 3).	Unlikely. However, surveys will be conducted the year prior to development.
Potamogetonaceae					
<i>Potamogeton zosteriformis</i> Eel-grass pondweed	Fed: - State: - CNPS: Rank 2B.2	June-July	Marshes and swamps (assorted freshwater).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
<i>Stuckenia filiformis alpina</i> Slender-leaved pondweed	Fed: - State: - CNPS: Rank 2.2	May-July	Marshes and swamps (assorted shallow freshwater).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.
Ranunculaceae					
<i>Delphinium californicum interius</i> Hospital Canyon larkspur	Fed: - State: - CNPS: Rank 2.2	April-June	Cismontane woodland (mesic).	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3**Known Special Status Plant Species in the Vicinity of the Creekside Project Site**

Family Taxon Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
<i>Delphinium recurvatum</i> Recurved larkspur	Fed: - State: - CNPS: Rank 1B.2	March-June	Chenopod scrub; cismontane woodland; valley and foothill grassland; [alkaline].	CNPS Nine Quad Search	Low. Surveys will be conducted the year prior to development.
Scrophulariaceae					
<i>Limosella australis</i> Delta mudwort	Fed: - State: - CNPS: Rank 2.1	May-August	Marshes and swamps; intertidal mudflats.	Record for this species located 4.8 miles north of the project site (Occurrence No. 41).	None. No suitable habitat. No impacts expected.
Thymelaeaceae					
<i>Dirca occidentalis</i> Western leatherwood	Fed: - State: - CNPS: Rank 1B.2	January-April	Chaparral; riparian, broadleaf, and coniferous woodlands and forests; [mesic locations].	CNPS Nine Quad Search	None. No suitable habitat. No impacts expected.

Table 3

Known Special Status Plant Species in the Vicinity of the Creekside Project Site

Family	Taxon	Common Name	Status*	Flowering Period	Habitat	Area Locations	Probability on Project Site
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***Status**

Federal:

- FE - Federal Endangered
- FT - Federal Threatened
- FPE - Federal Proposed Endangered
- FPT - Federal Proposed Threatened
- FC - Federal Candidate

State:

- CE - California Endangered
- CT - California Threatened
- CR - California Rare
- CC - California Candidate
- CSC - California Species of Special Concern

CNPS Continued:

- Rank 2 - Plants rare, threatened, or endangered in California, but more common elsewhere
- Rank 2A - Extirpated in California, common elsewhere
- Rank 2B.1 - Seriously endangered in California, but more common elsewhere
- Rank 2B.2 - Fairly endangered in California, but more common elsewhere
- Rank 2B.3 - Not very endangered in California, but more common elsewhere
- Rank 3 - Plants about which we need more information (Review List)
- Rank 3.1 - Plants about which we need more information (Review List)
Seriously endangered in California
- Rank 3.2 - Plants about which we need more information (Review List)
Fairly endangered in California
- Rank 4 - Plants of limited distribution - a watch list

CNPS:

- Rank 1A - Presumed extinct in California
- Rank 1B - Plants rare, threatened, or endangered in California and elsewhere
- Rank 1B.1 - Seriously endangered in California (over 80% occurrences threatened/
high degree and immediacy of threat)
- Rank 1B.2 - Fairly endangered in California (20-80% occurrences threatened)
- Rank 1B.3 - Not very endangered in California (<20% of occurrences threatened or no
current threats known)

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Invertebrates				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Fed: FT State: - Other:	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains. Inhabit static rain-filled/vernal pools, small, clear water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression	2003 CNDDDB Record for this species located 1.6 miles west of the project site (Occurrence No. 353).	Condor County Consulting also found vernal pool fairy shrimp in 2002 in shallow pools adjacent to drainage channel outside project area. See text.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	Fed: FE State: - Other:	Inhabits large vernal pools with turbid and/or silty water. Mud substrate typical.	Record for this species located 2.4 miles west of the project site (Occurrence No. 177).	None. No large vernal pools on project site.
Insects				
Crotch bumble bee <i>Bombus crotchii</i>	Fed: State: CC Other:	Inhabits grassland and scrub areas, with select food plants: Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum. Nests underground, often in abandoned rodent dens.	Record for this species located 4.3 miles northwest of the project site (Occurrence No. 14).	None. Farmed conditions would preclude presence on project site.
western bumble bee <i>Bombus occidentalis</i>	Fed: State: CC Other:	Inhabits grassland with select food plants: Melilotus, Cirsium, Trifolium, Centaurea, Chrysothamnus, and Eriogonum. Typically nests underground in abandoned rodent burrows or other cavities.	Record for this species located 3.1 miles east of the project site (Occurrence No. 211).	None. Farmed conditions would preclude presence on project site.
Lange's metalmark butterfly <i>Apodemia mormo langei</i>	Fed: FE State: - Other:	Found in stabilized sand dunes along the San Joaquin River at Antioch (Contra Costa County). Buckwheat (<i>Eriogonum nudum</i> var. <i>auriculatum</i>) is the host plant. Nectars on other wildflowers as well as the buckwheat.	Record for this species located 4.9 miles north of the project site (Occurrence No. 1).	None. No dune habitat on the project site.

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Fish				
Longfin smelt <i>Spirinichus thaleichthys</i>	Fed: -- State: CT Other:	Endemic to the Sacramento-San Joaquin River system. Inhabits open waters in the Delta and Suisun Bay. After spawning, larvae are carried downstream to brackish nursery areas.	Record for this species located 4.9 miles north of the project site (Occurrence No. 33).	None. No rivers on the project site.
Amphibians				
California tiger salamander (Cnt Vly DPS) <i>Ambystoma californiense</i>	Fed: FT State: CT Other:	Found in grassland habitats of the valleys and foothills. Requires burrows for aestivation and standing water until late spring (May) for larvae to metamorphose.	Record for this species located 0.25-mile south of the project site (Occurrence No. 856). Eggs and larvae observed in 2002 in a pond.	Low potential to occur however, overwintering habitat is assumed to be present. See text.
Western spadefoot <i>Spea hammondi</i>	Fed: -- State: CSC Other:	Found primarily in grassland habitats, but may occur in valley and foothill woodlands. Requires vernal pools, seasonal wetlands, or stock ponds for breeding and egg laying. Eggs are typically laid in March. Eggs hatch and larval metamorphose quickly.	Record for this species located 18.3 miles south of the project site (Occurrence No. 404).	None. No suitable habitat onsite.
California red-legged frog <i>Rana draytonii</i>	Fed: FT State: CSC Other:	Occurs in lowlands and foothills in deeper pools and streams, usually with emergent wetland vegetation. Requires 11-20 weeks of permanent water for larval development.	Record for this species located 0.7-mile west of the project site in Sand Creek (Occurrence No. 933). 6 adults were observed within Sand Creek in 2005.	Species is known to occur in Sand Creek. See text.
Foothill yellow-legged frog <i>Rana boylei</i>	Fed: -- State: CC Other:	Found in partially shaded, shallow streams with rocky substrates. Requires perennial pools or flowing water. Needs some cobble-sized rocks as a substrate for egg laying. Requires water for 15 weeks for larval transformation.	Record for this species located 4.9 miles southwest of the project site (Occurrence No. 787).	None. No suitable stream habitat onsite.

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Reptiles				
California glossy snake <i>Arizona elegans occidentalis</i>	Fed: - State: CSC Other:	Found at elevations from sea level to 6000 ft. Nocturnal. Lives in burrows. Habitats: barren desert, creosote flats, sagebrush flats, coastal sage, chaparral, grasslands, oak or pine woodlands. Generally prefers open areas with soft or loamy soil.	Record for this species located 4.7 miles north of the project site (Occurrence No. 259).	None. No suitable habitat onsite.
Western pond turtle <i>Emys marmorata</i>	Fed: - State: CSC Other:	Inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs suitable basking sites and upland habitat for egg laying. Occurs in the Central Valley and Contra Costa County.	Record for this species located 3.9 miles southwest of the project site (Occurrence No. 109).	Low to moderate: Sand Creek provides potentially suitable habitat. Preconstruction surveys will be conducted.
Northern California legless lizard <i>Anniella pulchra</i>	Fed: - State: CSC Other:	Occurs from the southern edge of the San Joaquin River in northern Contra Costa County south to Ventura County. Inhabit sandy soil/dune area with bush lupine and mock heather as dominant plants. Moist soil is essential.	Record for this species located 3.1 miles west of the project site (Occurrence No. 6).	None. No suitable sandy or dune habitats on or adjacent to the project site.
Alameda Whipsnake <i>Masticophis lateralis euryxanthus</i>	Fed: FT State: CT Other:	Coastal scrub and chaparral habitats of Contra Costa and Alameda Counties. Prefers south-facing slopes with a mosaic of shrubs, trees, and grassland.	Record for this species located 3.5 miles west of the project site (Occurrence No. 68).	None. No core scrub habitats on or adjacent to site.
Giant gartersnake <i>Thamnophis gigas</i>	Fed: FT State: CT Other:	Inhabits freshwater marshes and low gradient streams. Also found in drainage canals and irrigation ditches.	Record for this species located 4.9 miles north of the project site (Occurrence No. 47).	None. No suitable stream habitat on site.

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Birds				
Song Sparrow (Modesto Population) <i>Melospiza melodia mailliardi</i>	Fed: State: CSC Other:	Endemic to California, residing only in the north-central portion of the Central Valley. Inhabits emergent freshwater marsh. vegetated irrigation canals and levees dominated by tules/cattails, and blackberry. Nests in riparian willows and valley oak.	Record for this species located 4.9 miles northwest of the project site (Occurrence No. 91).	Unlikely to occur. Preconstruction surveys will be conducted.
White-tailed kite <i>Elanus leucurus</i>	Fed: State: FP Other:	Found in lower foothills and valley margins with scattered oaks and along river bottomlands or marshes adjacent to oak woodlands. Nests in trees with dense tops.	2005 record for this species located 2.1 miles north of the project site (Occurrence No. 87).	Low to moderate: Nesting habitat exist within riparian area of Sand Creek. Preconstruction surveys will be conducted.
Northern harrier <i>Circus hudsonius</i>	Fed: - State: CSC Other:	Nests on the ground or in shrubby vegetation typically in grasslands, fallow farm lands, near freshwater and salt water marshes.	Record for this species located 13.5 miles southwest of the project site (Occurrence No. 27).	Low. May nest in habitats adjacent to project site. Preconstruction surveys will be conducted.
Swainson's hawk <i>Buteo swainsoni</i>	Fed: - State: CT Other:	Migratory and resident raptor that breeds in open areas with scattered trees. Prefers riparian and sparse oak woodland habitats for nesting. Requires nearby grasslands, grain fields, or alfalfa for foraging.	Record for this species located 0.1-mile east of the project site (Occurrence No. 1681). Nest found in a large valley oak along Sand Creek in 2007.	Low to moderate: Nesting habitat exist within riparian area of Sand Creek. Preconstruction surveys will be conducted.
Golden eagle <i>Aquila chrysaetos</i>	Fed: - State: FP Other:	Found in rolling foothill grassland with scattered trees. Nests on cliffs and in large trees in open areas.	Observed onsite and nesting immediately north of site.	Observed nesting along Sand Creek in 2018 and 2019. See text.
California black rail <i>Laterallus jamaicensis coturniculus</i>	Fed: -- State: CT Other:	Inhabits salt marshes bordering larger bays. Prefers tidal salt marshes of pickleweed.	Record for this species located 4.5 miles northeast of the project site (Occurrence No. 109).	None. No marsh habitats on site.

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
Western burrowing owl <i>Athene cucularia hypugaea</i>	Fed: -- State: CSC Other:	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Record for this species located 0.8 mile from the project site (Occurrence No. 623). 2 individuals observed at active burrow site in 2018.	Observed in 2018. California ground squirrels present on property. Preconstruction surveys will be conducted.
Loggerhead shrike <i>Lanius ludovicianus</i>	Fed: -- State: CSC Other:	Found in broken woodlands, shrubland, and other habitats. Prefers open country with scattered perches for hunting and fairly dense brush for nesting.	Record for this species located 4.6 miles northeast of the project site (Occurrence No. 3).	Low. May nest in habitats adjacent to project site. Preconstruction surveys will be conducted.
Grasshopper sparrow <i>Ammodramus savannarum</i>	Fed: -- State: CSC Other:	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	Record for this species located 13.1 miles south of the project site (Occurrence No. 21).	Low. May nest in habitats adjacent to project site. Preconstruction surveys will be conducted.
Tricolored blackbird <i>Agelaius tricolor</i>	Fed: - State: CC Other: CSC	Colonial nester in dense cattails, tules, brambles or other dense vegetation. Requires open water, dense vegetation, and open grassy areas for foraging.	Record for this species located 2 miles southwest of the project site (Occurrence No. 838). About 30 birds observed near 3 ponds on Roddy Ranch golf course in 2015.	Low to moderate: Limited nesting habitat exists within riparian area of Sand Creek. Preconstruction surveys will be conducted.
Mammals				
Pallid bat <i>Antrozous pallidus</i>	Fed: - State: CSC Other:	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in dry habitats with rocky areas for roosting. Roosts in caves, crevices, mines, and occasionally hollow trees. Night roosts in open areas such as porches and open buildings.	Record for this species located 7 miles southwest of the project site (Occurrence No. 140). Record from 1929.	None. No impacts will occur to any potential roosting habitat.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	Fed: FE State: CT Other:	Inhabits open grasslands with scattered shrubs. Needs loose-textured sand soils for burrowing.	Record for this species located 3.1 miles south of the project site (Occurrence No. 936).	Unlikely to occur. Considered extirpated from Contra Costa County. Regardless, preconstruction surveys will be conducted.

Table 4
Known Special Status Wildlife Species in the Vicinity of the Creekside Project Site

Species	*Status	Habitat	Closest Locations	Probability on Project Site
American badger <i>Taxidea taxus</i>	Fed: - State: CSC Other:	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils & open, uncultivated ground. Prey on burrowing rodents. Dig burrows.	Record for this species located on the project site (Occurrence No. 398). Burrow was observed in 2007.	Low potential to occur. Site has long history of farming. Preconstruction surveys will be conducted. See text.

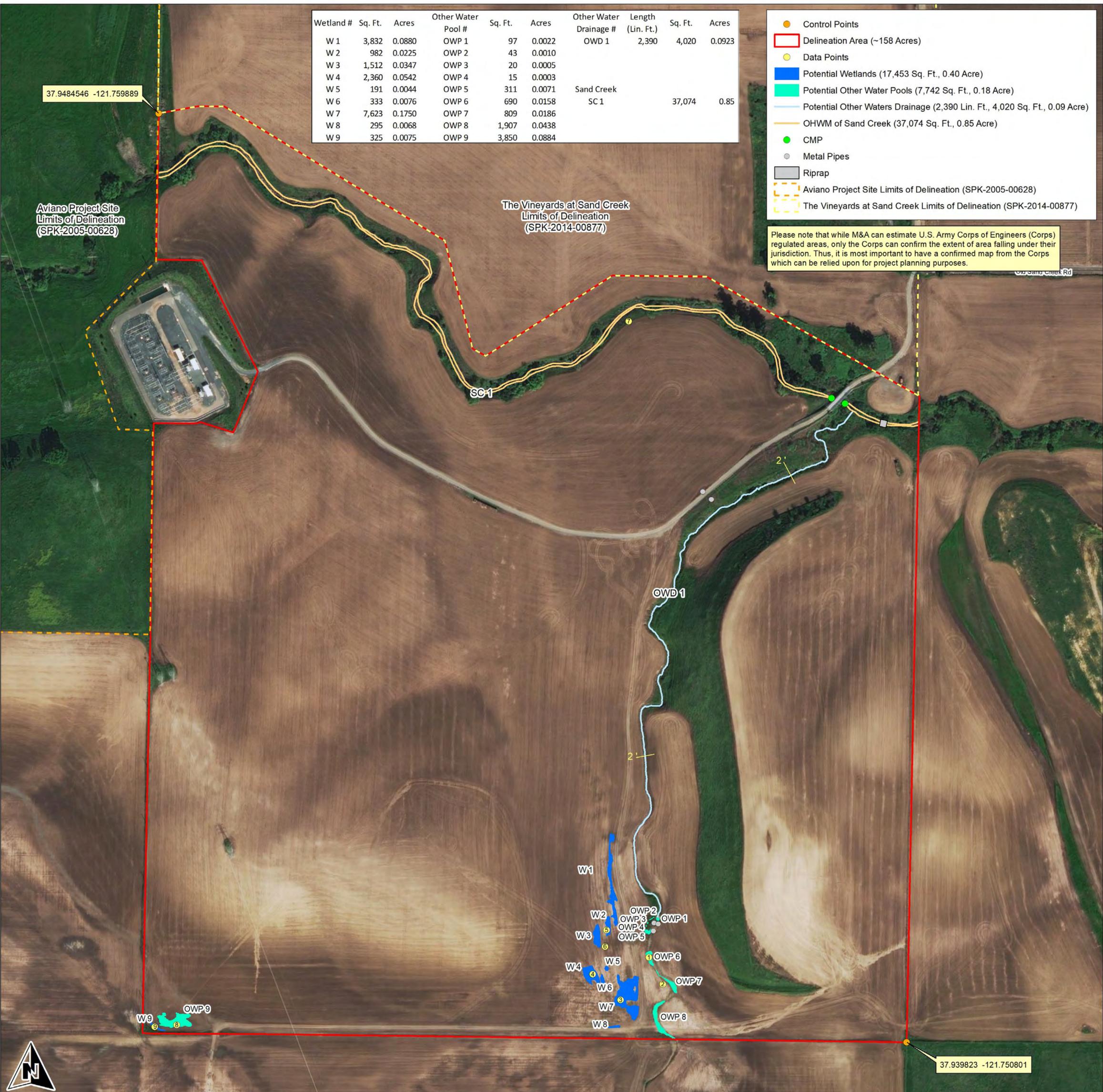
***Status**

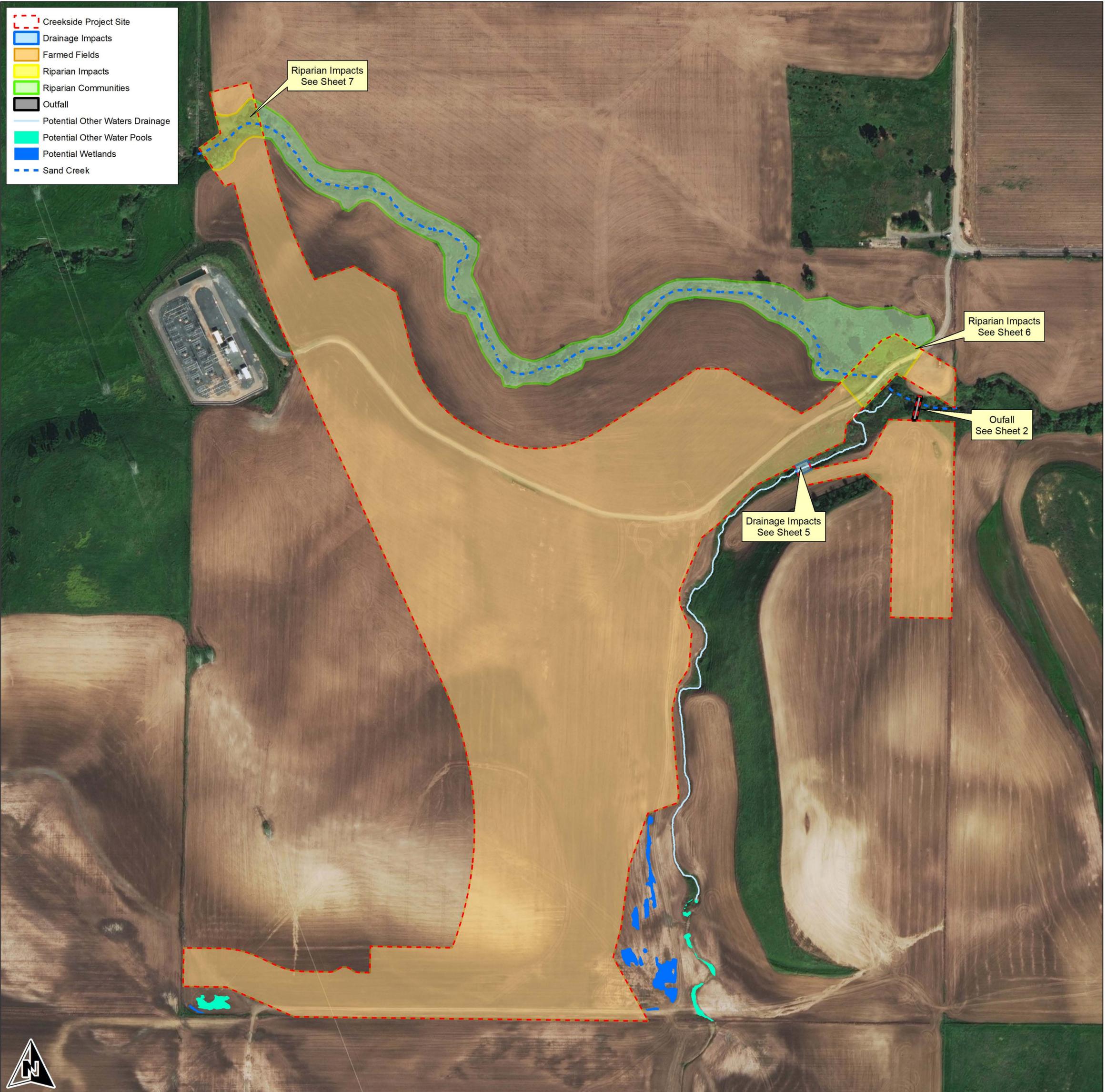
- | | |
|--|---|
| Federal: | State: |
| FE - Federal Endangered | CE - California Endangered |
| FT - Federal Threatened | CT - California Threatened |
| FPE - Federal Proposed Endangered | CR - California Rare |
| FPT - Federal Proposed Threatened | CC - California Candidate |
| FC - Federal Candidate | CSC - California Species of Special Concern |
| FPD - Federally Proposed for delisting | FP - Fully Protected |
| | WL - Watch List. Not protected pursuant to CEQA |

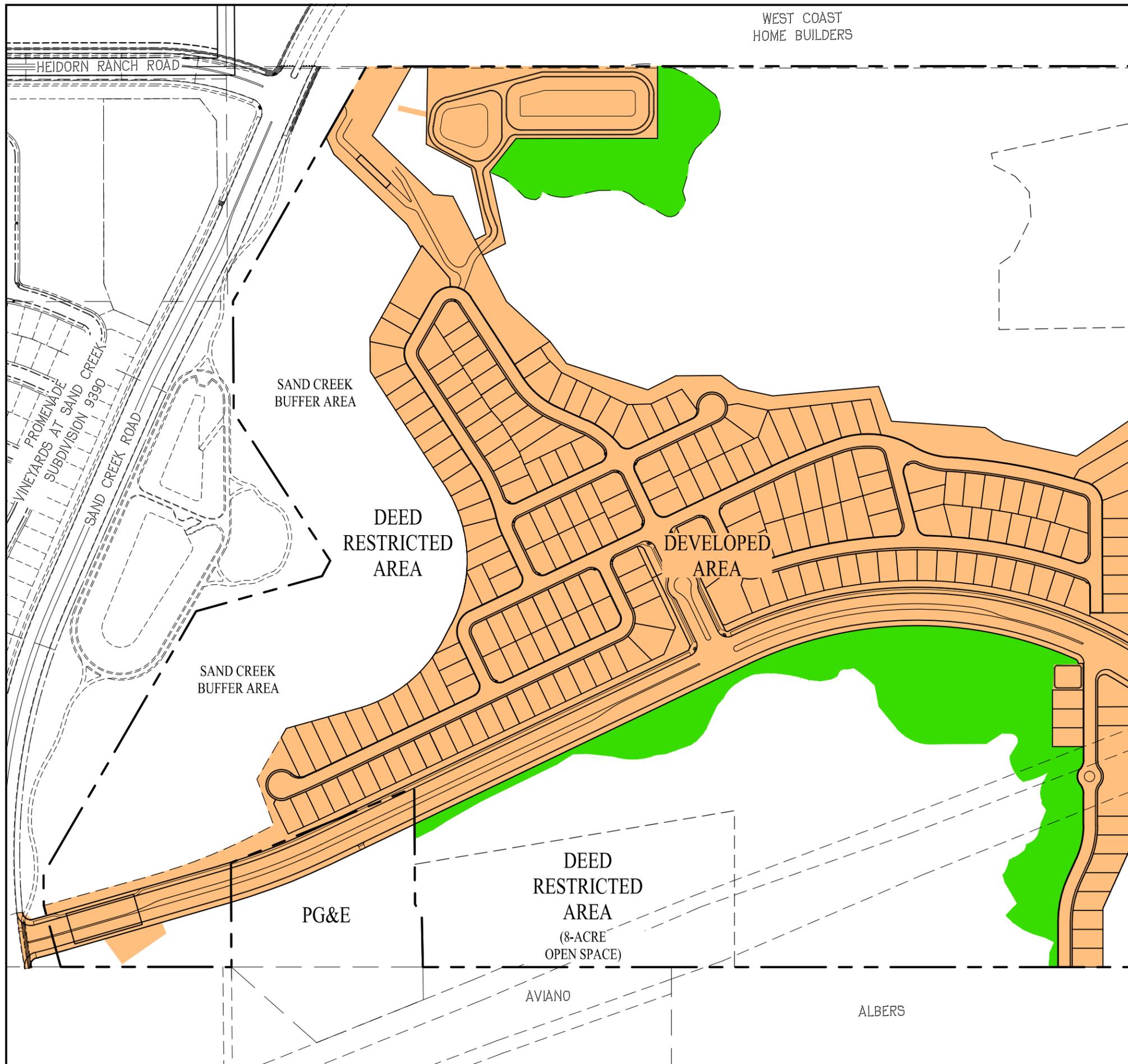
Wetland #	Sq. Ft.	Acres	Other Water Pool #	Sq. Ft.	Acres	Other Water Drainage #	Length (Lin. Ft.)	Sq. Ft.	Acres
W 1	3,832	0.0880	OWP 1	97	0.0022	OWD 1	2,390	4,020	0.0923
W 2	982	0.0225	OWP 2	43	0.0010				
W 3	1,512	0.0347	OWP 3	20	0.0005				
W 4	2,360	0.0542	OWP 4	15	0.0003				
W 5	191	0.0044	OWP 5	311	0.0071	Sand Creek			
W 6	333	0.0076	OWP 6	690	0.0158	SC 1		37,074	0.85
W 7	7,623	0.1750	OWP 7	809	0.0186				
W 8	295	0.0068	OWP 8	1,907	0.0438				
W 9	325	0.0075	OWP 9	3,850	0.0884				

- Control Points
- Delineation Area (~158 Acres)
- Data Points
- Potential Wetlands (17,453 Sq. Ft., 0.40 Acre)
- Potential Other Water Pools (7,742 Sq. Ft., 0.18 Acre)
- Potential Other Waters Drainage (2,390 Lin. Ft., 4,020 Sq. Ft., 0.09 Acre)
- OHWM of Sand Creek (37,074 Sq. Ft., 0.85 Acre)
- CMP
- Metal Pipes
- Riprap
- Aviano Project Site Limits of Delineation (SPK-2005-00628)
- The Vineyards at Sand Creek Limits of Delineation (SPK-2014-00877)

Please note that while M&A can estimate U.S. Army Corps of Engineers (Corps) regulated areas, only the Corps can confirm the extent of area falling under their jurisdiction. Thus, it is most important to have a confirmed map from the Corps which can be relied upon for project planning purposes.







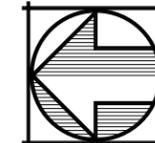
LEGEND

	OFFSITE (NO IMPACT)	(58.3 AC)
	OFFSITE GRADING/ TEMPORARY IMPACT	(11.0± AC)
	DEED RESTRICTED AREA	(31.7± AC)
	DEVELOPED AREA	(58.6± AC)

BIOLOGICAL RESOURCES ANALYSIS: PROJECT DESCRIPTION AREAS CREEKSIDE

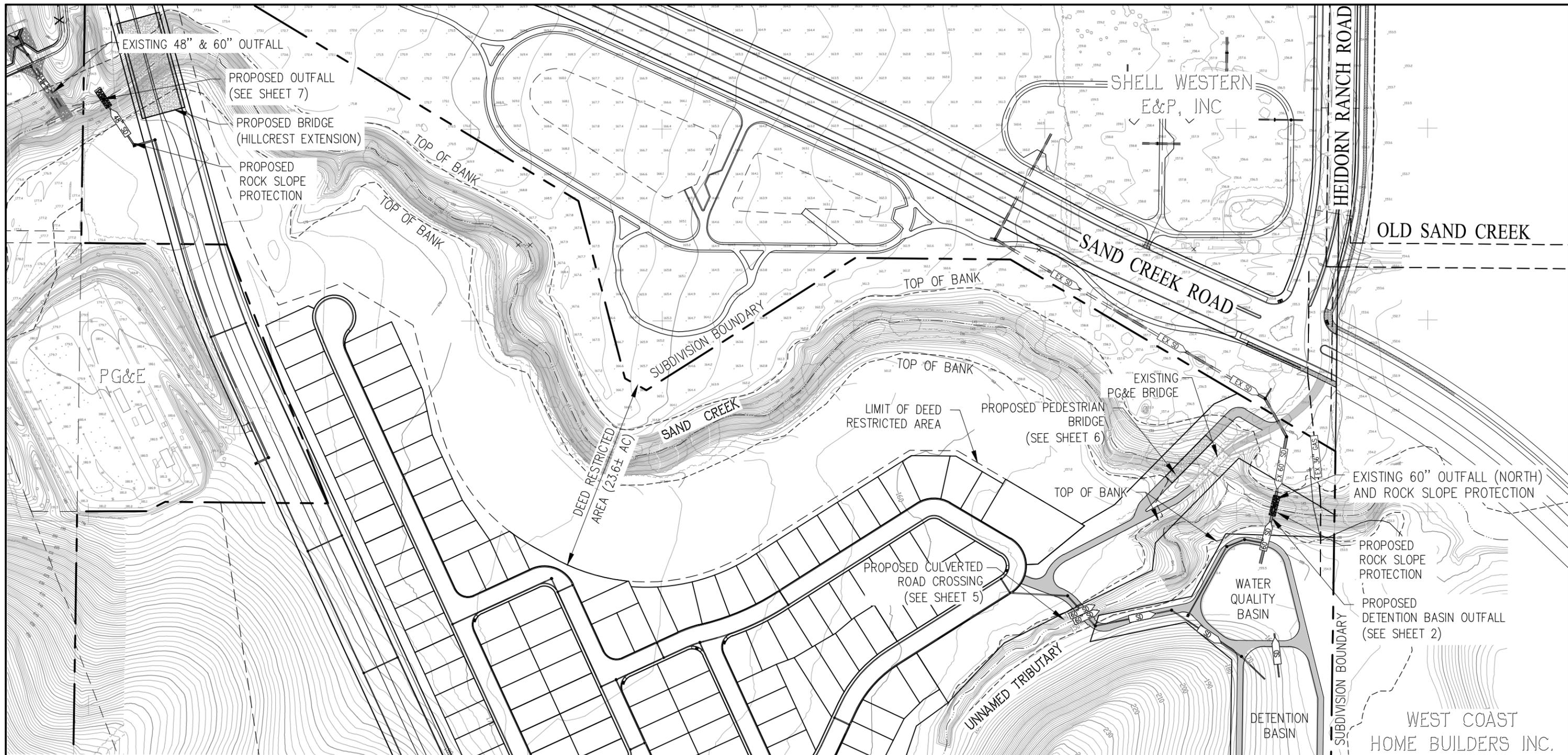
CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: NOVEMBER 7, 2019 SCALE: 1"=300'



CIVIL ENGINEERS SURVEYORS PLANNERS

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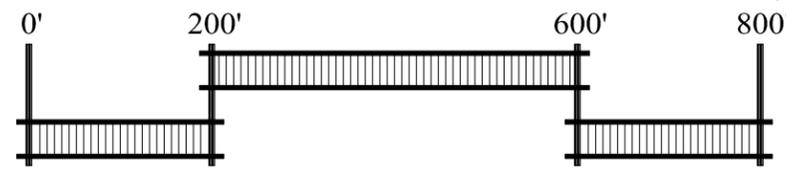
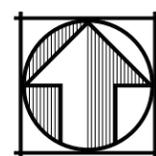


OVERVIEW CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: 1"=200'

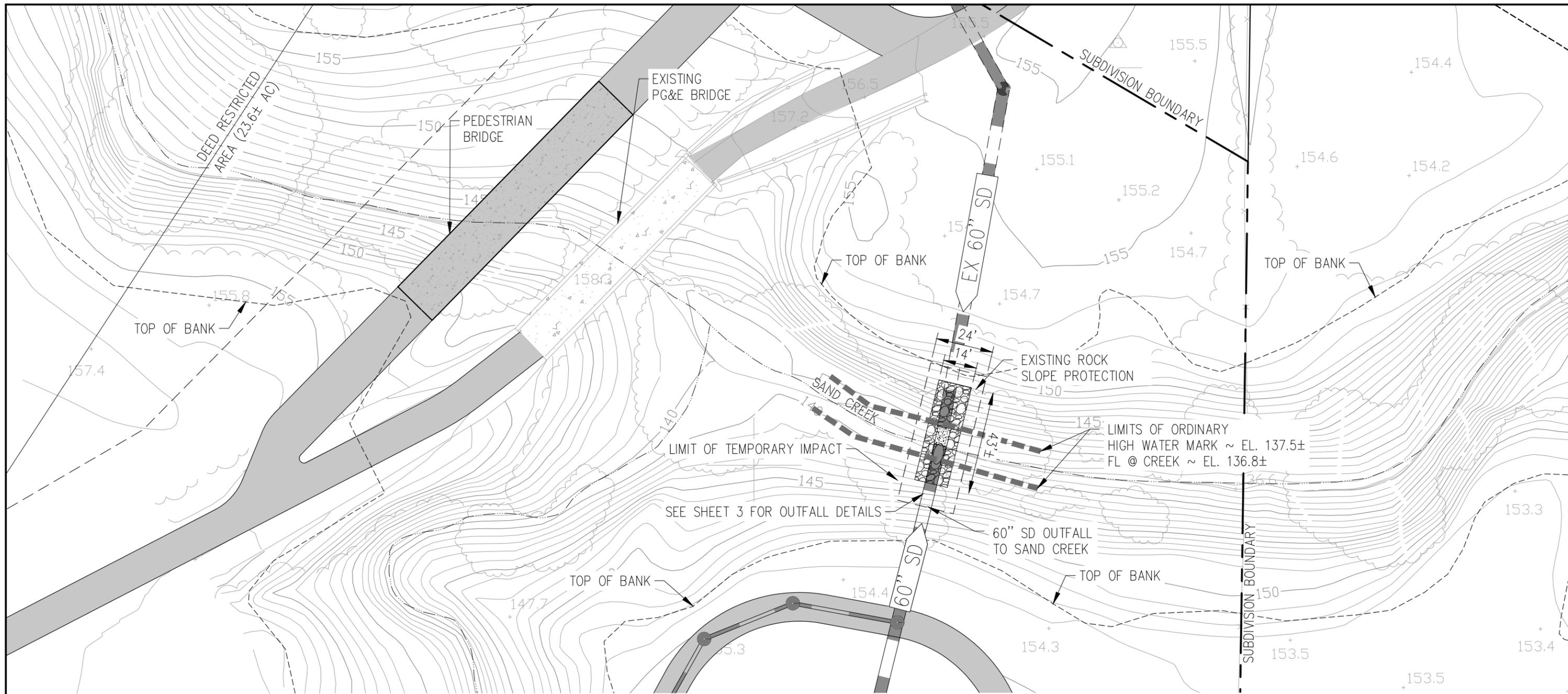
DRAFT



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SHEET NO.
1
OF 8 SHEETS



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DETENTION BASIN AND PROPOSED OUTFALL TO SAND CREEK CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: 1"=40'

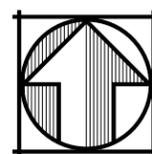
OUTFALL IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	1,200	1,800
BELOW HIGH WATER MARK	SF	300	500
VOLUME OF FILL BELOW TOP OF BANK	CY	180	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	60	-

NOTE:

THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.

THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.

THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.



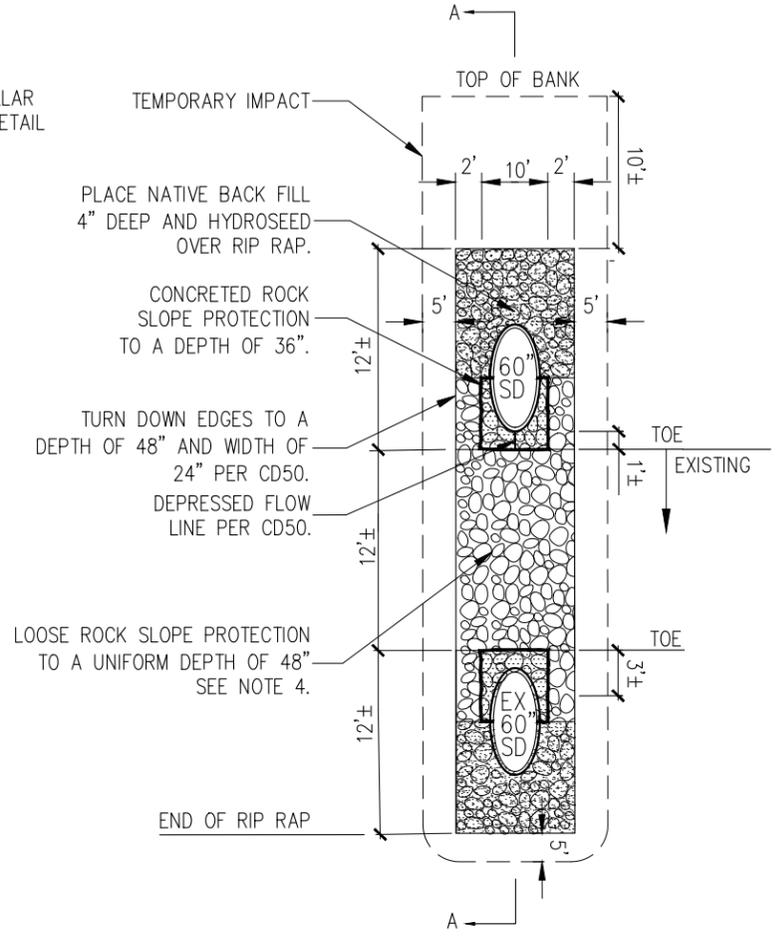
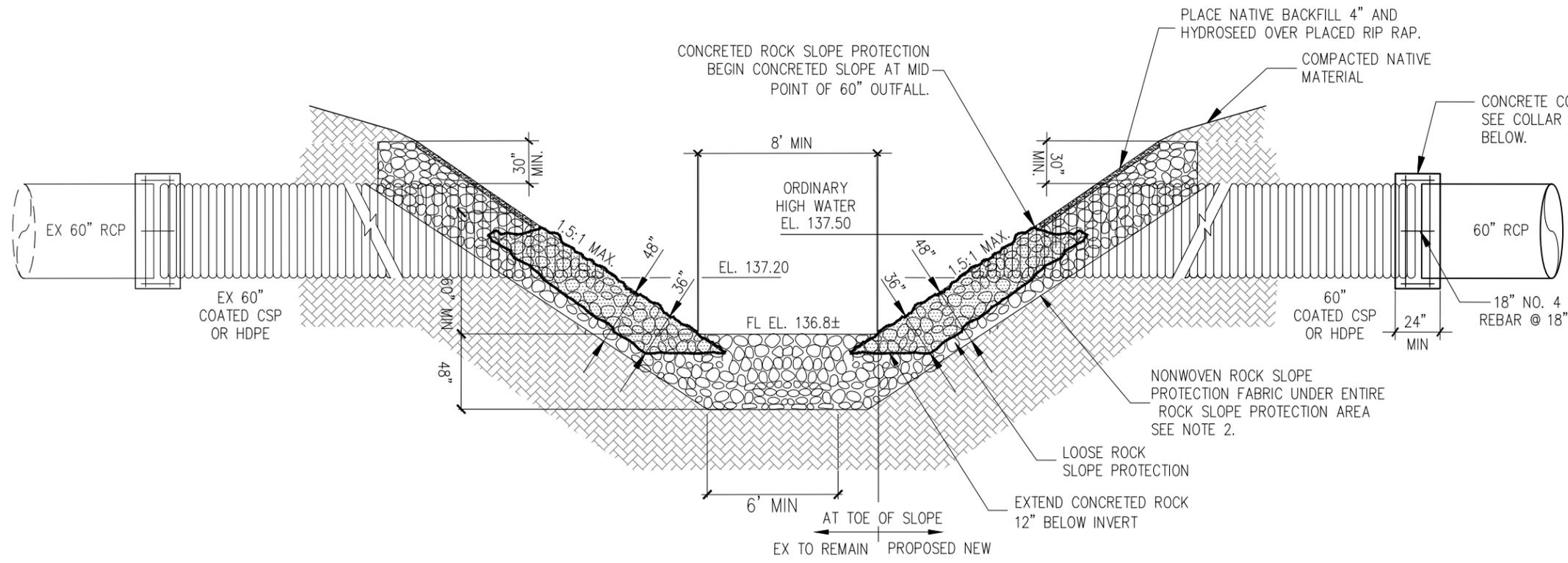
SCALE: 1" = 40'



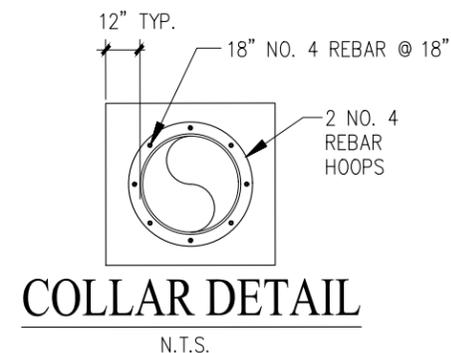
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SHEET NO.
2
OF 8 SHEETS



SECTION A-A
N.T.S.



NOTES:

1. CONCRETED-ROCK SLOPE PROTECTION AND LOOSE ROCK SLOPE PROTECTION SHALL CONFORM TO THE STATE STANDARD SPECIFICATIONS. UNLESS OTHERWISE SPECIFIED, THE ROCK CLASS SHALL BE 1/4 TON.
2. ROCK SLOPE PROTECTION FABRIC SHALL COMPLY WITH STATE STANDARD SPECIFICATIONS 72-2 "ROCK SLOPE PROTECTION". LAP ROCK SLOPE PROTECTION FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
3. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH STATE STANDARD SPECIFICATIONS.
4. ALL LOOSE ROCK SLOPE PROTECTION SHALL BE BACKFILLED WITH NATIVE SOIL.

DRAFT

MODIFIED CONTRA COSTA COUNTY CD50 OUTFALL DETAIL

**PROPOSED OUTFALL
STRUCTURE TO SAND CREEK**

CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: NTS

OUTFALL IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	1,200	1,800
BELOW HIGH WATER MARK	SF	300	500
VOLUME OF FILL BELOW TOP OF BANK	CY	180	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	60	-

NOTE:

THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.

THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.

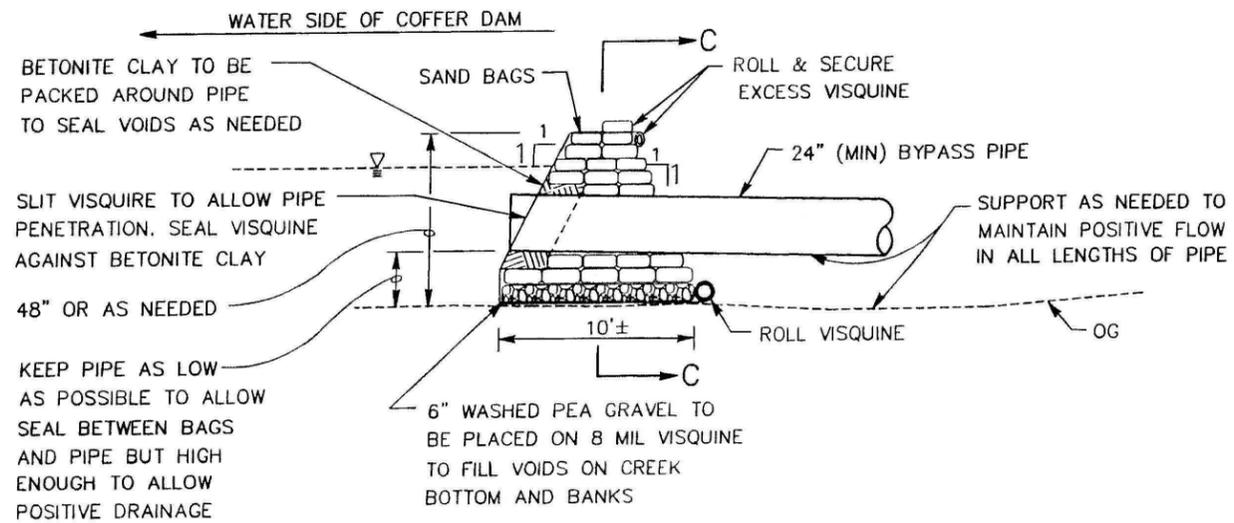
THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.



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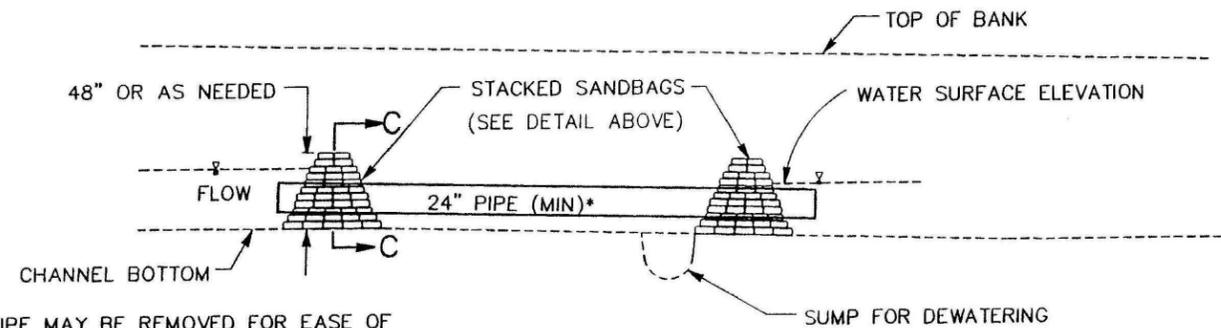
SHEET NO.
3
OF 8 SHEETS



COFFER DAM DETAIL

NTS

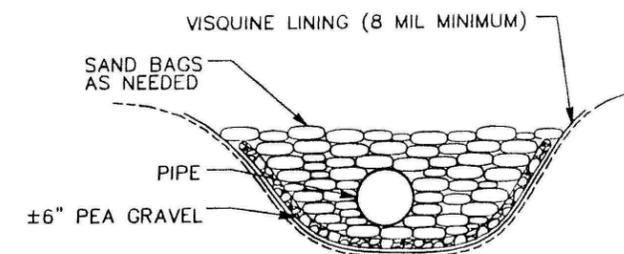
- NOTE: 1. DEWATER USING PUMPS AS NEEDED. DISCHARGE SILTY WATER PER PERMIT REQUIREMENTS. ANY WATER REMOVED FROM WORK AREA MUST BE PUMPED TO THE TOP OF BANK AND DESILTED PRIOR TO RETURNING TO THE CREEK.
2. IF OVERLAPPING OF VISQUINE IS NEEDED, OVERLAP 4 FEET MINIMUM AND SEAL SEAM WITH APPROPRIATE SEALER OR METHODS.



PROFILE

NTS

*NOTE: PIPE MAY BE REMOVED FOR EASE OF CONSTRUCTION IF WEATHER SHOWS LONG TERM CHANCE OF PRECIPITATION TO BE LOW. PUMPING LOW FLOWS AROUND SITE ARE ALLOWED DURING THESE TIMES.



SECTION C-C

COFFER DAM CROSS
NTS

**PROPOSED COFFER DAM DETAIL
CREEKSIDE**

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019



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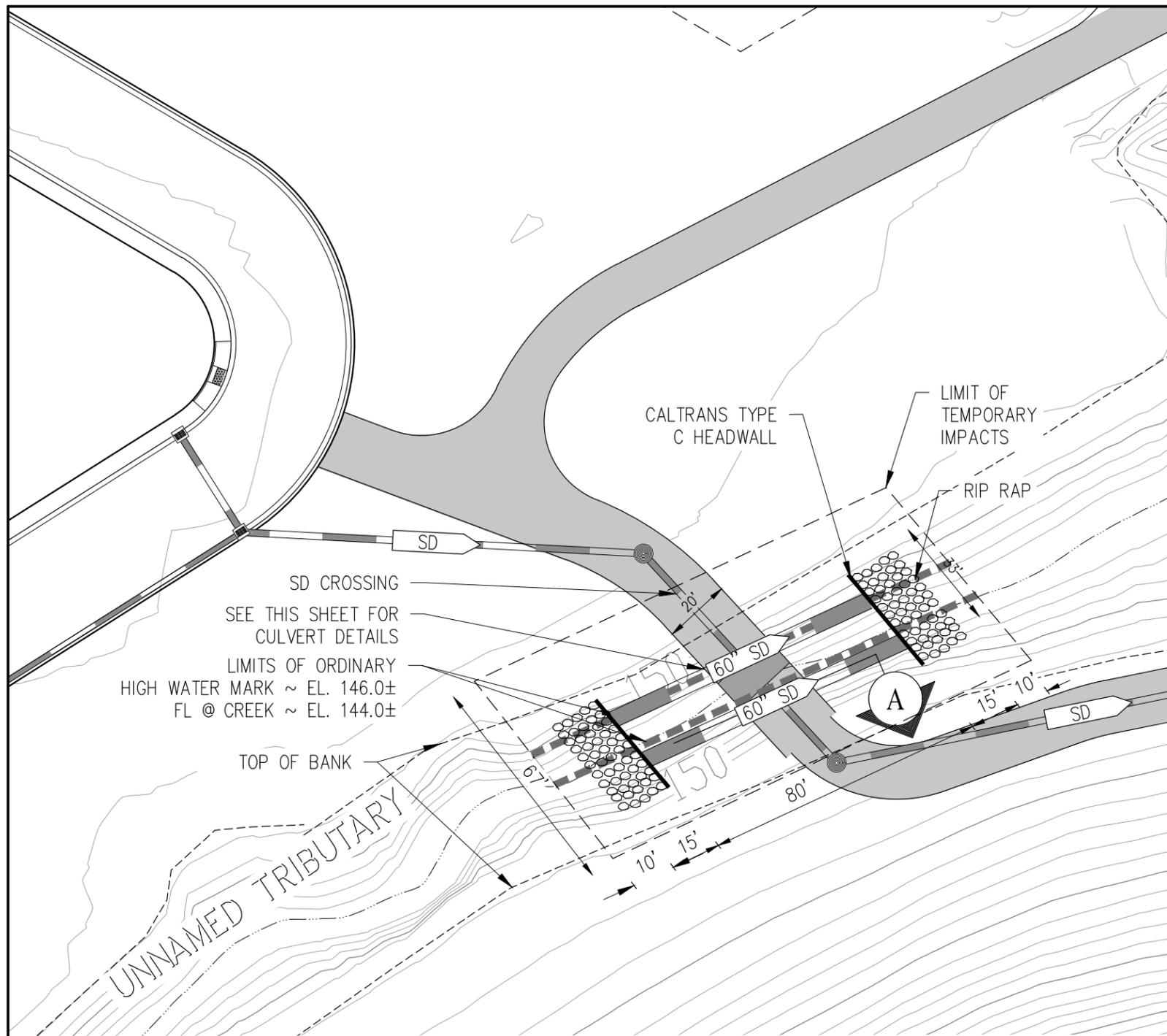
CIVIL ENGINEERS ■ SURVEYORS ■ PLANNERS

SHEET NO.

4

OF 8 SHEETS

DRAFT



LIMITS OF ORDINARY
HIGH WATER MARK ~ EL. 146.0±
FL @ CREEK ~ EL. 144.0±

SD CROSSING
SEE THIS SHEET FOR
CULVERT DETAILS

TOP OF BANK

UNNAMED TRIBUTARY

CALTRANS TYPE C HEADWALL
LIMIT OF TEMPORARY IMPACTS
RIP RAP

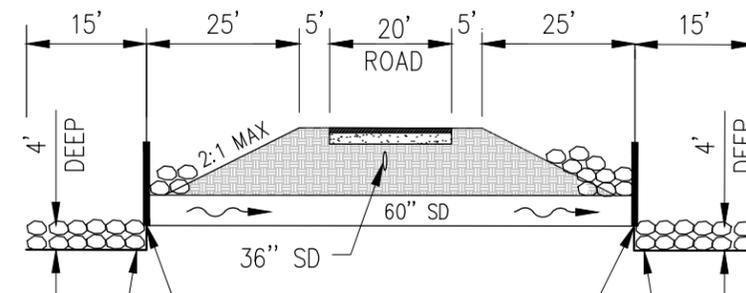
CULVERT IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	6,200	6,700
BELOW HIGH WATER MARK	SF	1,380	1,800
VOLUME OF FILL BELOW TOP OF BANK	CY	2,500	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	1,350	-

NOTE:

THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.

THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.

THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.



CALTRANS TYPE ROCK RIP RAP
(PLACEMENT METHOD B WITH
"FACING" CLASS MATERIAL)

SECTION A
NOT TO SCALE

CALTRANS TYPE ROCK RIP RAP
(PLACEMENT METHOD B WITH
"FACING" CLASS MATERIAL)

NOTE:

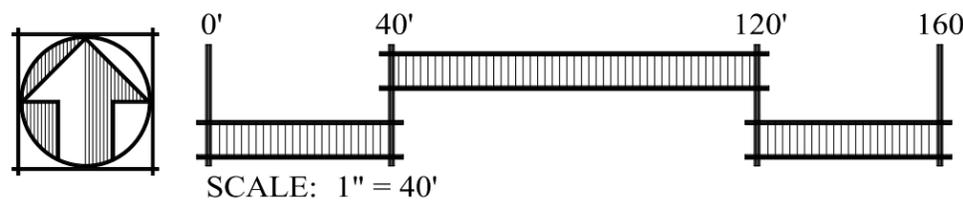
- ROCK SLOPE PROTECTION FABRIC SHALL COMPLY WITH STATE STANDARD SPECIFICATIONS 72-2 "ROCK SLOPE PROTECTION". LAP ROCK SLOPE PROTECTION FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

DRAFT

TWIN 60" SD CULVERT ROAD CROSSING
CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: 1"=40'



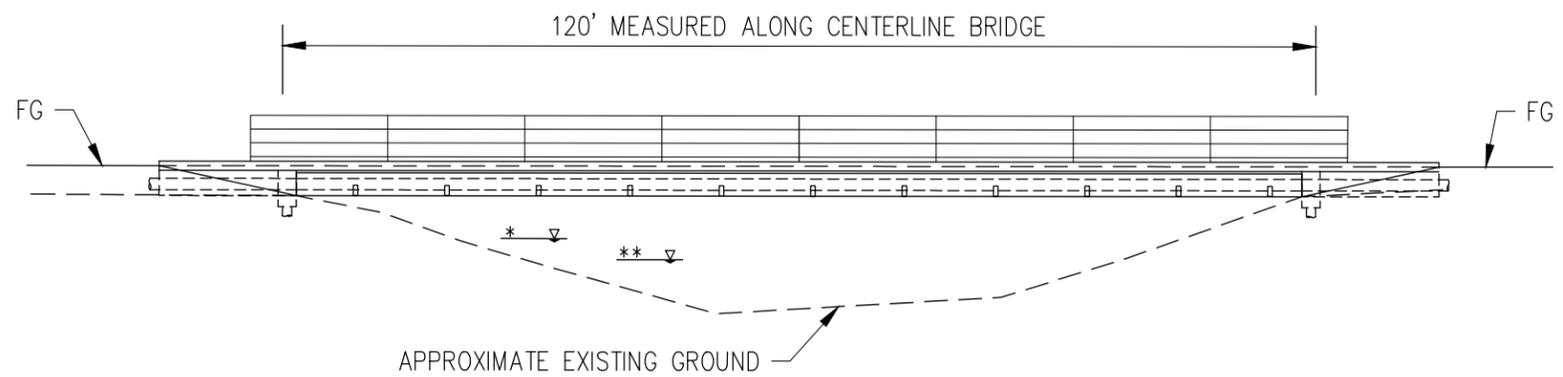
SCALE: 1" = 40'



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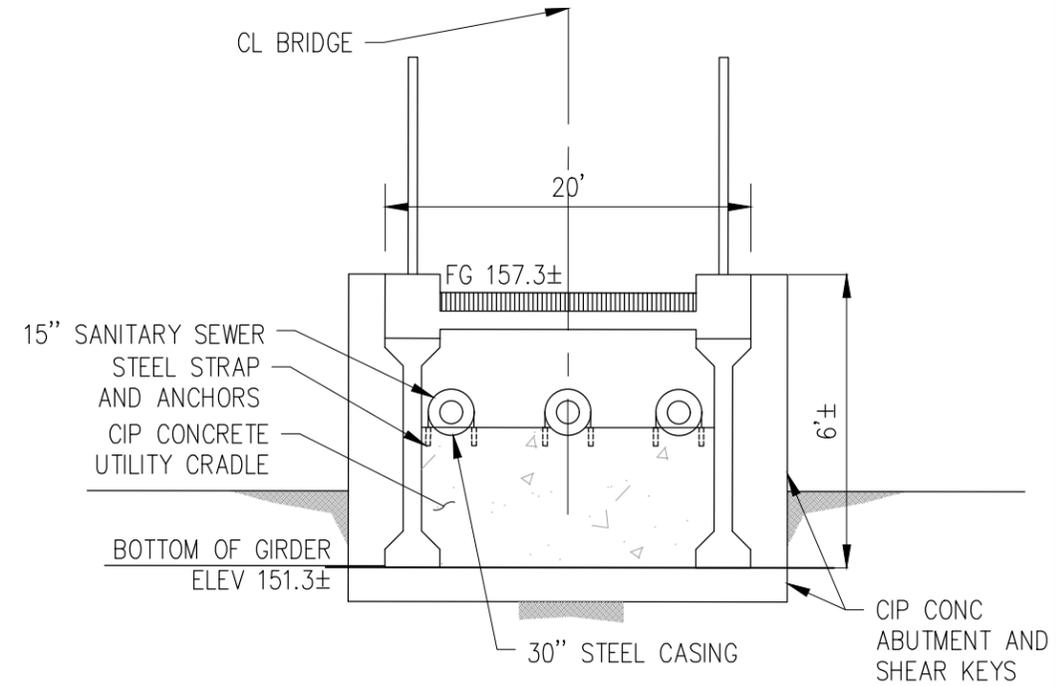
SHEET NO.
5
OF 8 SHEETS

DRAFT

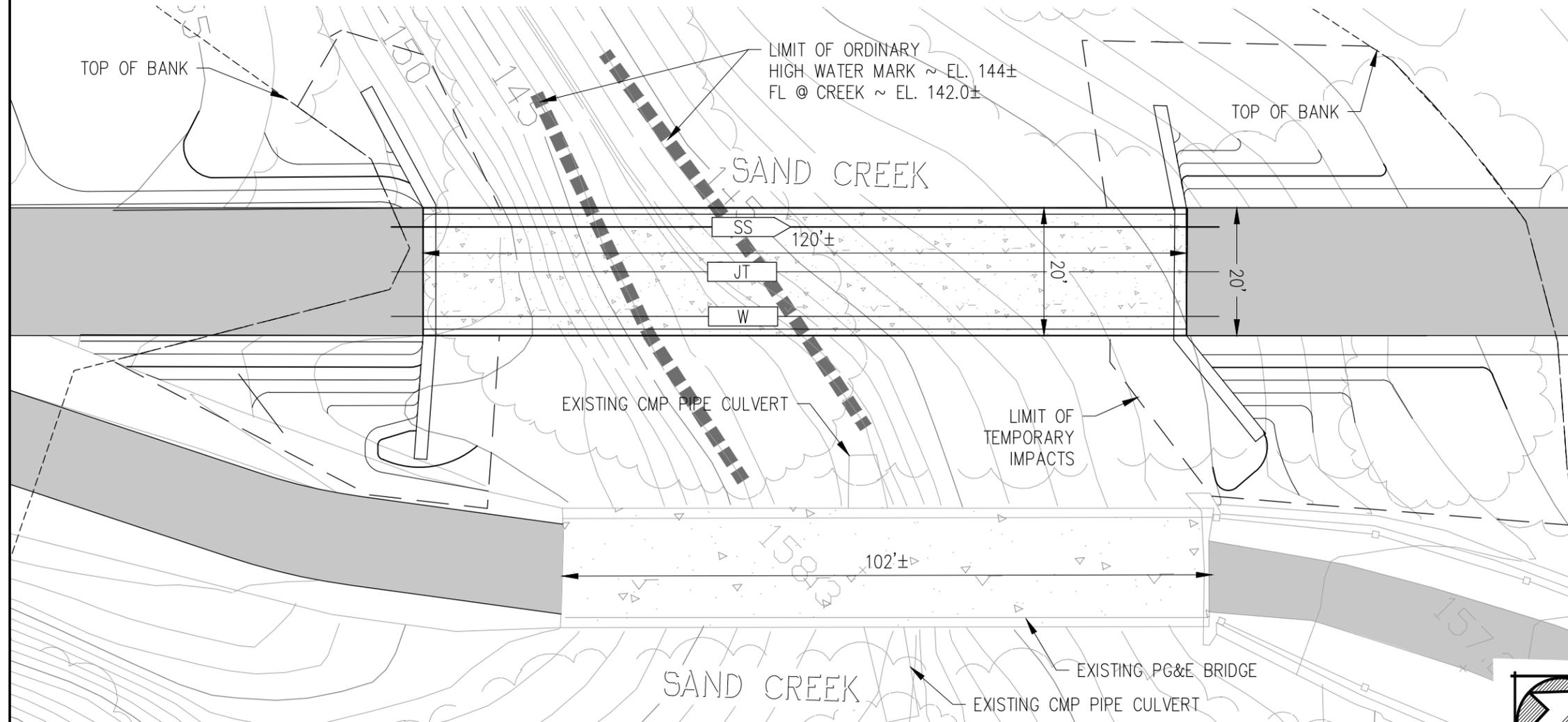


* APPROXIMATE 100 YR NON-MITIGATED WSE 149.1±
 ** APPROXIMATE 100 YR MITIGATED WSE 147.7±

ELEVATION
 NOT TO SCALE



TYPICAL SECTION
 NOT TO SCALE



PLAN VIEW
 NOT TO SCALE

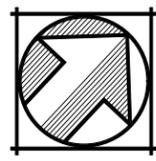
BRIDGE IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	6,500	8,400
BELOW HIGH WATER MARK	SF	0	0
VOLUME OF FILL BELOW TOP OF BANK	CY	450	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	0	-

NOTE:
 THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.
 THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.
 THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.

PEDESTRIAN BRIDGE CROSSING CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: 1"=40'

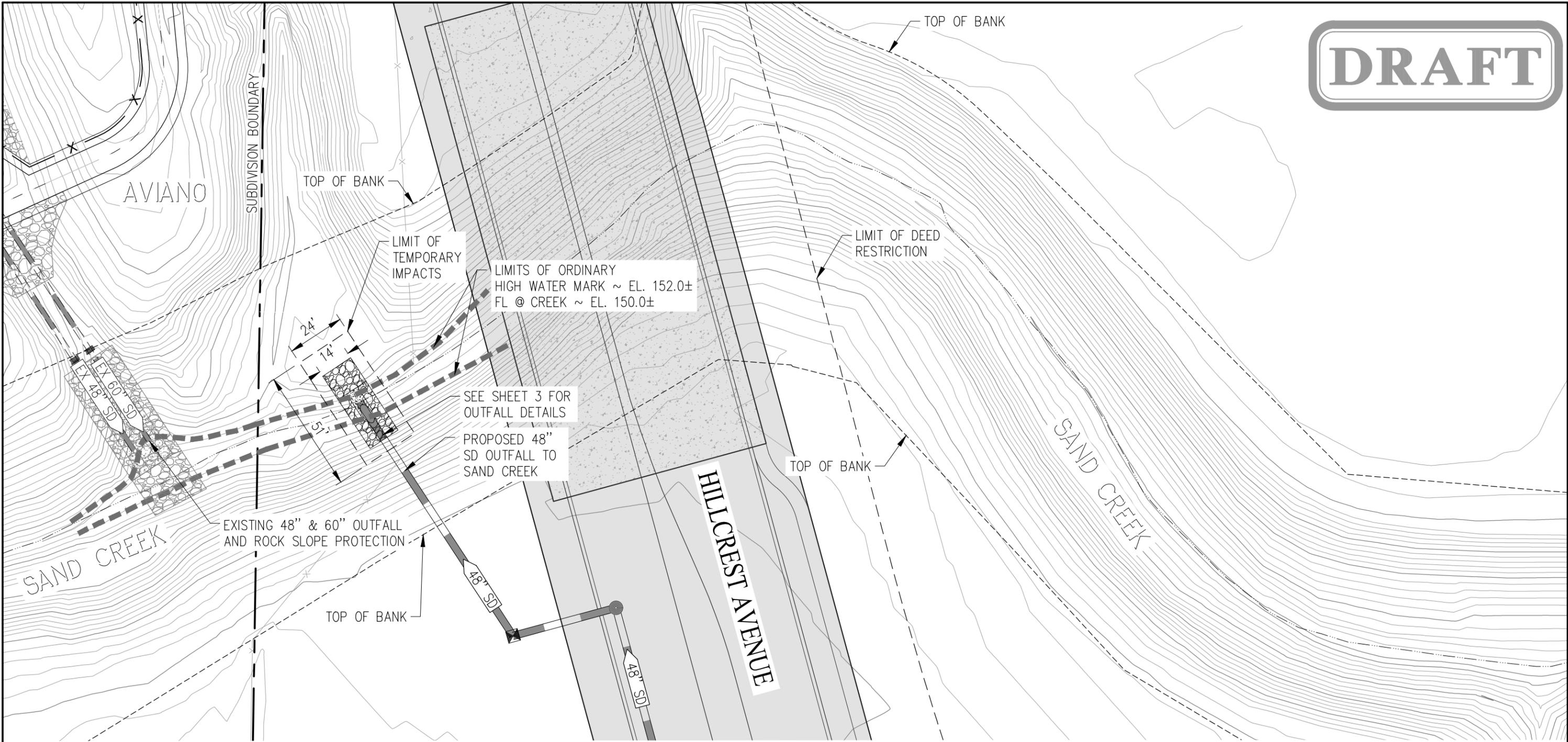


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6
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PROPOSED OUTFALL TO SAND CREEK

CREEKSIDE

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

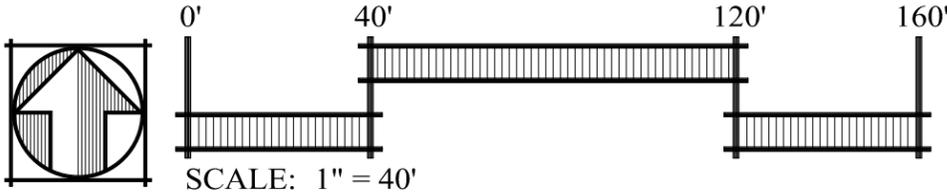
DATE: JULY 9, 2019 SCALE: 1"=200'

OUTFALL IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	1,200	1,800
BELOW HIGH WATER MARK	SF	300	450
VOLUME OF FILL BELOW TOP OF BANK	CY	180	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	50	-

NOTE:
THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.

THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.

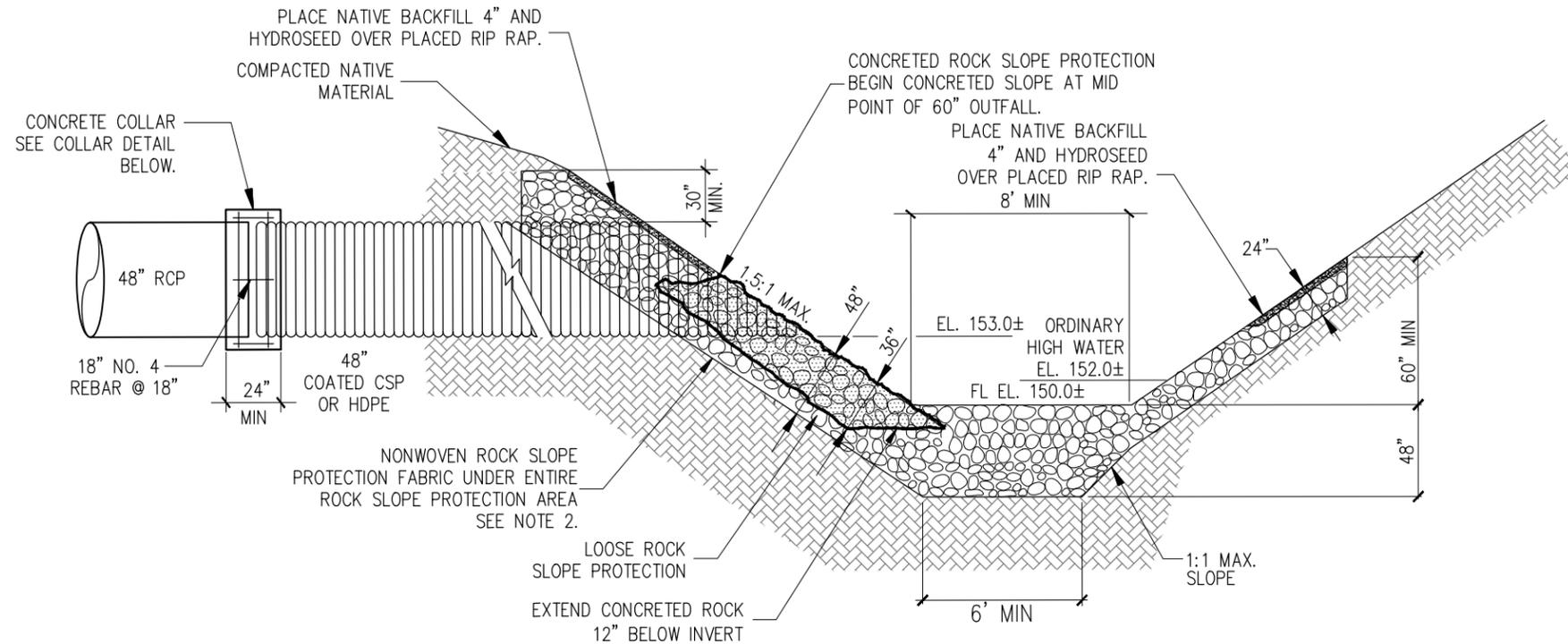
THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.



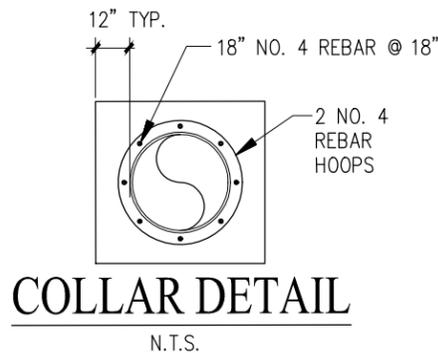
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7
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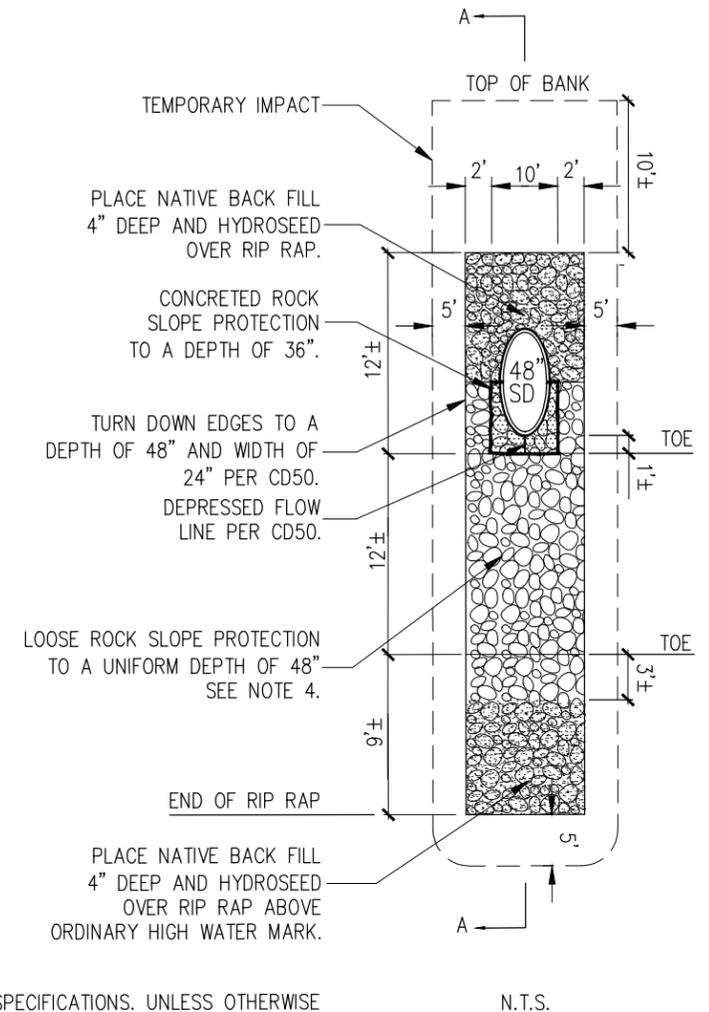


SECTION A-A
N.T.S.



NOTES:

1. CONCRETED-ROCK SLOPE PROTECTION AND LOOSE ROCK SLOPE PROTECTION SHALL CONFORM TO THE STATE STANDARD SPECIFICATIONS. UNLESS OTHERWISE SPECIFIED, THE ROCK CLASS SHALL BE ¼ TON.
2. ROCK SLOPE PROTECTION FABRIC SHALL COMPLY WITH STATE STANDARD SPECIFICATIONS 72-2 "ROCK SLOPE PROTECTION". LAP ROCK SLOPE PROTECTION FABRIC IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
3. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH STATE STANDARD SPECIFICATIONS.
4. ALL LOOSE ROCK SLOPE PROTECTION SHALL BE BACKFILLED WITH NATIVE SOIL.



MODIFIED CONTRA COSTA COUNTY CD50 OUTFALL DETAIL

**PROPOSED OUTFALL
STRUCTURE TO SAND CREEK
CREEKSIDE**

OUTFALL IMPACTS		PERMANENT	TEMPORARY
BELOW TOP OF BANK	SF	1,200	1,800
BELOW HIGH WATER MARK	SF	300	450
VOLUME OF FILL BELOW TOP OF BANK	CY	180	-
VOLUME OF FILL BELOW HIGH WATER MARK	CY	50	-

NOTE:

THE TEMPORARY IMPACT AREA INCLUDES THE PERMANENT IMPACT AREA SQUARE FOOTAGE.

THE PERMANENT AREA BELOW TOP OF BANK INCLUDES THE AREA OF FILL BELOW THE HIGH WATER MARK.

THE VOLUME OF FILL BELOW TOP OF BANK INCLUDES THE VOLUME OF FILL BELOW THE HIGH WATER MARK.

DRAFT

CITY OF ANTIOCH CONTRA COSTA COUNTY CALIFORNIA

DATE: JULY 9, 2019 SCALE: NTS



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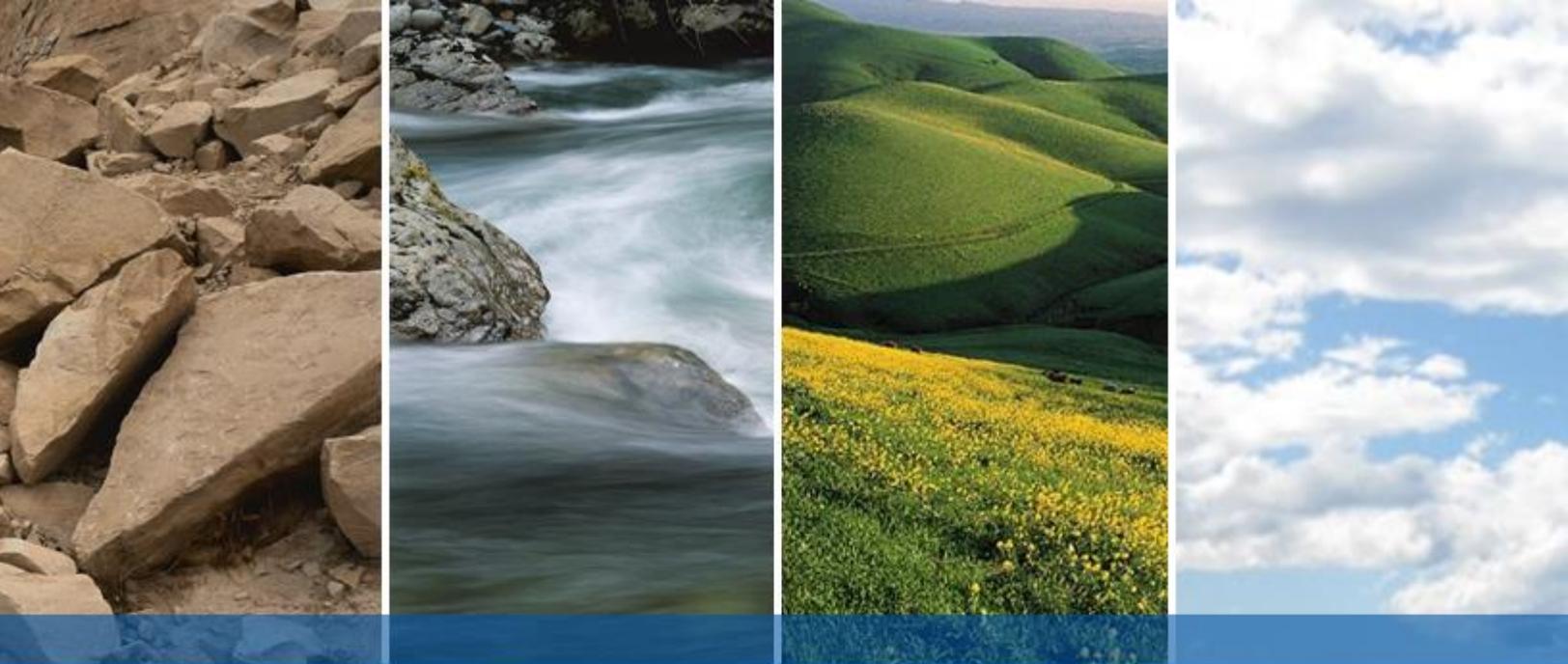
SHEET NO.

8

OF 8 SHEETS

APPENDIX B

GEOTECHNICAL SUMMARY REPORT



CREEKSIDE
ANTIOCH, CALIFORNIA

PRELIMINARY GEOTECHNICAL SUMMARY REPORT

SUBMITTED TO
Ms. Lisa Borba
GBN Partners, LLC
5006 Blackhawk Drive
Danville, CA 94506

PREPARED BY
ENGEO Incorporated

February 27, 2019
Revised March 4, 2019

PROJECT NO.
4894.002.001

Project No.
4894.002.001

February 27, 2019
Revised March 4, 2019

Ms. Lisa Borba
GBN Partners, LLC
5006 Blackhawk Drive
Danville, CA 94506

Subject: Creekside
Antioch, California

PRELIMINARY GEOTECHNICAL SUMMARY REPORT

Dear Ms. Borba:

With your authorization, ENGEO has completed this preliminary geotechnical summary report for the proposed residential development located in Antioch, California. The accompanying preliminary geotechnical summary report compiles our previous field exploration together with our preliminary conclusions and recommendations regarding development within the study area as well as recommendations for a design-level study.

We believe that the project site is suitable for the proposed development provided the recommendations of this report are incorporated into the project design and implemented during construction.

We are pleased to have been of service to you on this project and will continue to consult with you and your design team as the project planning progresses. If you have any questions regarding the information included in the report, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated



Connor Dunn
cd/sdh/jf



Steve Harris, GE



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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

ENGEO prepared this preliminary geotechnical summary report for preliminary design of the proposed residential development in Antioch, California. We prepared this preliminary report as outlined in our agreement dated January 24, 2019. GBN Partners, LLC authorized ENGEO to conduct the following scope of services:

- Review of available literature and geologic maps.
- Review of previous geotechnical reports by ENGEO.
- Data analysis and conclusions.
- Report preparation.

We reviewed geotechnical reports previously completed by ENGEO for the subject property, which included explorations on and nearby the property. These reports are cited in our selected references.

We prepared this report exclusively for GBN Partners, LLC and their design team consultants. ENGEO should review any changes made in the character, design or layout of the development to modify the conclusions and recommendations contained in this report, as 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.

1.2 PROJECT LOCATION AND DESCRIPTION

We observed the existing site conditions on February 22, 2019, in conjunction with our environmental site assessment site walk. Figure 1 displays a Site Vicinity Map. The property is approximately 158 acres in area and is identified as Assessor's Parcel Number (APN) 057-050-024. Sand Creek borders the property to the north and vacant land used for agriculture and grazing to the east, south and west. An electrical substation also borders the site near the northwest corner. The property currently consists of vacant agricultural land with electrical transmission lines running across the southwestern portion of the site. Figure 2 shows the site boundaries and our previous exploratory locations.

The conceptual site plan prepared by Carlson, Barbee & Gibson, Inc. dated September 12, 2018, shows the proposed development to include 220 single-family units, a community use site, a water quality/bio area, a detention basin, interior subdivision roads, and utilities servicing the development. The preliminary grading plan shows cuts of up to approximately 30 feet. Structural loads are yet to be determined; however, we assume that structural loads will be representative for this type of construction.

2.0 FINDINGS

2.1 PREVIOUS FIELD EXPLORATION

Our previous field exploration included conducting two solid flight auger borings and four test pits onsite as well as one solid flight auger boring just north of Sand Creek at the locations shown on the Site Plan, Figure 2. We performed our previous field exploration between October 23, 2001, and November 1, 2001. The locations of our explorations are approximate.

2.1.1 Borings

An ENGEO representative observed the drilling and logged the subsurface conditions at each boring location. We retained a truck-mounted Mobile B-24 drill rig equipped with 4-inch-diameter solid flight augers. The borings were advanced to a maximum depth of approximately 38½ feet below existing grade.

Soil samples were collected at frequent intervals using either a 3-inch outside-diameter (O.D.) California-type split-spoon sampler fitted with 6-inch-long brass liners, or a 2-inch O.D. Standard Penetration Test (SPT) split-spoon sampler. The samplers were advanced with a 140-pound hammer with a 30-inch drop, employing a rope-and-cathead hammer system. The penetration of the sampler was field recorded as the number of blows needed to drive the sampler 18 inches in 6-inch increments. The boring log shows the number of blows required for the last 1 foot of penetration, or the number of blows per depth of penetration for samples that met driving refusal. The blow counts depicted on the boring log have not been converted using any correction factors.

We used the field logs to develop the final logs presented in Appendix A. The logs depict the subsurface conditions within the borings at the time the exploration was conducted. Subsurface conditions at other locations may differ from conditions noted at these locations. The passage of time may result in altered subsurface conditions. In addition, stratification lines represent the approximate boundaries between soil types, and the transitions may be gradual.

2.1.2 Test Pits

An ENGEO representative observed the test pit excavations and logged the subsurface conditions at each location. We retained a rubber-tired backhoe to excavate the test pits using a 24-inch-wide bucket. The maximum depth penetrated by the test pits was approximately 16 feet. We obtained bulk soil samples from the test pits using hand-sampling techniques.

Test pit excavations were loosely backfilled with the excavated material. During site grading, the loosely backfilled soils within our exploratory test pits in structural areas should be removed and recompacted in accordance with Section 5.8. The depth of removal of these materials should be determined by ENGEO in the field at the time of grading.

We used the field logs to develop the final logs presented in Appendix A. The logs depict the subsurface conditions within the test pits at the time the exploration was conducted. Subsurface conditions at other locations may differ from conditions noted at these locations. The passage of time may result in altered subsurface conditions. In addition, stratification lines represent the approximate boundaries between soil types and the transitions may be gradual.

2.2 SITE BACKGROUND AND EXISTING IMPROVEMENTS

We reviewed historic aerial photographs and topographic maps of the site dating back to 1957. After review of this data, it appears that the majority of the site consisted primarily of open space, with some gas well production since at least 1957. There were four oil/gas wells identified on the property that were drilled from 1962 through 1987 and have since been plugged and abandoned. It appears that the electrical substation bordering the northwest corner of the site was constructed between 2007 and 2008.

2.3 GEOLOGY AND SEISMICITY

2.3.1 Regional Geology

The site is located in the Coast Ranges geomorphic province on the eastern side of the Diablo Range. The regional geology in this area has been mapped by Crane (1985) and Dibblee (1980), as shown on Figure 3. The geology of the low-lying areas consists of alluvial deposits from the Quaternary Period. The upland areas are underlain by sandstone and shale of the Tertiary age Markley formation.

2.3.1.1 Soil Stratigraphy and Bedrock

2.3.1.1.1 Residual Soil

Residual natural soils, derived by in-place weathering of the underlying parent bedrock, were encountered in test pits excavated in the hillside portions of the site. The residual soils consisted of dark brown sandy clays and clayey sands. The residual soil cover encountered in the test pits ranges from approximately 3½ to 4 feet thick over bedrock. The site residual soils encountered in the test pits have low to moderate plasticity.

2.3.1.1.2 Colluvial Deposits

Colluvium (Qc) has been mapped by ENGEO along the base of the slopes and within hollows or ravines as shown on Figure 3. Colluvial deposits are typically deposited as a result of soil creep and are low to moderately compressible and weak. These deposits consist of dark brown silty clay with lesser amounts of sand and gravel and are noteworthy because of their susceptibility to landsliding on slopes. The typical thickness of these deposits varied from approximately 3½ to 14 feet. In general, colluvial deposits in the site vicinity have low to high plasticity characteristics and may be considered high to very highly expansive when subjected to fluctuations in moisture content.

2.3.1.1.3 Alluvial Deposits

Pleistocene to Holocene-age alluvium “Qal” and “Qt” has been mapped in the main drainages, and on the gently sloping plains of the site (Figure 3). Alluvial deposits typically consist of unconsolidated sand, silt, gravel and clay with varying amounts of weathered bedrock fragments. The site alluvium is derived from Sand Creek, which drains from west to east across the northern portion of the site. The soil encountered in the previous borings consists of silty to sandy clay in the upper 5 feet interbedded with layers of clayey to silty sand and sandy to clayey silt at depth. With the exception of the disked soil at the surface, the clayey soils are typically very stiff to hard, and the sandy deposits are typically medium dense to dense in consistency.

2.3.1.1.4 Landslide Deposits

Areas of potential landslide deposits “Qls” were mapped by Nilsen (1975) and identified by ENGEO on the west-facing slope located in the southeastern portion of the site (Figure 3). This landslide deposit consists of multiple shallow earthflows and slumpflow-type failures apparently caused by erosion at the toe of slope.

2.3.1.1.5 [Bedrock](#)

Bedrock in the hilly portions of the site consists of Eocene-age Markley Sandstone (Tkm) (Crane 1995). Markley Sandstone is described as massive with a distinctive component of mica and also contains claystone and siltstone interbeds. The bedrock is mapped as trending to the northwest and dipping to the northeast. Excavation of the test pits exposed sandy clays and clayey sands over claystone and siltstone bedrock in Test Pit 12 and over sandstone bedrock in Test Pits 13, 14 and 15. The claystone bedrock was moderately strong with thin bedding and moderately weathered. The sandstone bedrock was fine to medium grained, massive and moderately to deeply weathered.

2.3.1.1.6 [Aerial Photograph Review](#)

Black-and-white stereo-paired aerial photographs were used for the purpose of observing natural landforms on the site. These photographs were used to study geomorphic features, interpret the relationships between landforms and the underlying bedrock, soil and geologic structures, and observe the presence, character and activity of slope failures on or adjacent to the site. Our air photo interpretations were used in conjunction with the field reconnaissance and literature review to produce the Geologic Map presented as Figure 3.

2.3.2 [Seismicity](#)

The site is located in an area of moderate seismicity. No known active faults cross the site and the property is not located within an Alquist-Priolo Earthquake Fault Zone; however, large ($>M_w7$) earthquakes have historically occurred in the Bay Area to the west and along the margins of the Central Valley and many earthquakes of low magnitude occur every year. According to the 2008 National Seismic Hazard Maps Spatial Query, the two nearest earthquake faults zoned as active by the State of California Geological Survey are the Greenville Connected fault, located approximately 6.0 miles southwest, and the Great Valley fault, located approximately 7.0 miles northwest. 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 11,000 years) (California Geological Survey, 2007). Other active faults in the region are summarized in the table below. Figure 4 shows the approximate locations of these faults and significant historic earthquakes recorded within the San Francisco Bay Region.

TABLE 2.3.2-1: Active Faults Capable of Producing Significant Ground Shaking at the Site

FAULT NAME	DISTANCE FROM SITE (MILES)	DIRECTION FROM SITE	MAXIMUM MOMENT MAGNITUDE
Greenville Connected	6.0	Southwest	7.0
Great Valley 5	7.0	Northwest	6.7
Green Valley Connected	13.2	Northwest	6.8
Mount Diablo Thrust	13.6	Southwest	6.7
Calaveras	16.4	Southwest	6.9
North San Andreas	43.4	Northwest	8.0

Portions of the Great Valley fault are considered seismically active blind thrust faults; however, since the Great Valley fault segments are not known to extend to the ground surface, the State of California has not defined Earthquake Fault Zones around postulated traces. The Great Valley

fault is considered capable of causing significant ground shaking at the site, but the recurrence interval is believed longer than for more distant, strike-slip faults. Recent studies suggest that this boundary fault may have been the cause of the Vacaville-Winters earthquake sequence of April 1892 (Eaton, 1986; Wong and Biggar, 1989; Moores and others, 1991).

2.4 SURFACE CONDITIONS

We reviewed publically available regional topographic maps. The topography at the site is variable and consists of two steeply graded hills on the east and west sides of the property with a flat valley in the center. The topography ranges from approximately 320 feet (NAVD88) at the crest of the western hill to 150 feet in the northeast corner of the site. We observed the following site features during our reconnaissance:

- The majority of the site is covered in short grass.
- There is a gravel access road running along the northern end of the site with a bridge crossing Sand Creek.
- Sand Creek runs along the northern edge of the property with several large trees along its alignment.
- Landslide scarps can be seen on the west-facing slope on the eastern side of the property.
- There is a creek channel running along the base of the slope of the eastern side of the property.
- Electrical transmission lines run across the southwestern portion of the site.

2.5 SUBSURFACE CONDITIONS

The soils encountered in our previous borings on the northern edge of the site generally consisted of clays with varying amounts of sand to a maximum depth of approximately 21 feet below ground surface underlain by silty sand, clayey sand and clayey silt to the maximum depth explored of 38½ feet. The soils encountered in our test pits on the topographically elevated portions of the site generally consisted of sandy lean clay underlain by clayey sand underlain by claystone/siltstone/sandstone bedrock to the maximum depth explored of 16 feet. The near-surface site soils generally consisted of moderately expansive lean clays.

Consult the Site Plan and previous exploration logs for specific subsurface conditions at each location. We include our previous exploration logs in Appendix A. The logs contain the soil type, color, consistency, and visual classification in general accordance with the Unified Soil Classification System. The logs graphically depict the subsurface conditions encountered at the time of the exploration.

2.6 GROUNDWATER CONDITIONS

We observed static groundwater in two of our subsurface explorations. We summarize our observations for explorations on the property and in the surrounding vicinity in the table below:

TABLE 2.6-1: Groundwater Observations

EXPLORATION LOCATION	APPROX. DEPTH TO GROUNDWATER (FEET)
B-7	25
B-8	29

Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident at the time measurements were made.

2.7 PREVIOUS LABORATORY TESTING

We previously performed laboratory tests on selected soil samples to evaluate their engineering properties. For this project, we performed moisture contents, unit weights, sieve analysis and corrosion testing. Percent passing the #200 sieve, moisture contents and unit weights are recorded on the previous exploration logs in Appendix A. Particle size distribution reports and corrosion test results are included in Appendix B.

3.0 PRELIMINARY CONCLUSIONS

From a geotechnical engineering standpoint, in our opinion, the site is suitable for the proposed development, provided the preliminary geotechnical recommendations in this report are properly incorporated into the design plans and specifications. The primary geotechnical concern that could affect development on the site is expansive soil. We summarize our preliminary conclusions below.

Other geotechnical matters addressed in this report include site preparation and grading, preliminary foundation design recommendations, underground utilities, and drainage. ENGEO should be retained to provide supplemental recommendations and modifications to preliminary geotechnical recommendations presented herein as part of a design level geotechnical exploration.

3.1 EXPANSIVE SOIL

We observed potentially expansive lean clay near the surface of the site in our explorations. These soils exhibit low to moderate shrink/swell potential with variations in moisture content. Expansive soils shrink and swell as a result of moisture changes, which can cause heaving and cracking of slabs-on-grade, pavements, and structures founded on shallow foundations. Building damage due to moisture changes in expansive soils can be reduced by appropriate grading practices and using post-tensioned slab foundations or similarly stiffened foundation systems, which are designed to resist the deflections associated with soil expansion. Our recommendations for mitigation of this potential hazard are presented in the following sections of this report.

Successful performance of structures on expansive soils requires special attention during construction. It is imperative that exposed soils be kept moist prior to placement of concrete for foundation construction. It can be difficult to remoisturize clayey soils without excavation, moisture conditioning, and recompaction.

We have also provided specific grading recommendations for compaction of clay soil at the site. The purpose of these recommendations is to reduce the swell potential of the clay by compacting

the soil at a high moisture content and controlling the amount of compaction. Expansive soil mitigation recommendations are presented in the following sections of this report.

3.2 EXISTING FILL

Non-engineered fills can undergo excessive settlement, especially under new fill or building loads. Existing known fills at the site include grading for well exploration pads and gravel road base. In general, the existing fills have been derived from onsite soils and bedrock materials; however, since the fills are not known to have been engineered, they may contain unsuitable debris. From a geotechnical standpoint, if the existing fill materials are cleared of any significant organics, debris and/or any deleterious matter, the materials can be reused as engineered fill.

Our previous explorations did not encounter any non-engineered fill; however, it is possible that undocumented fill may exist elsewhere in the project area. If undocumented fills are encountered, they should be removed and replaced throughout the site with engineered fill. In addition, any loose surface soils should be removed if greater than 12 inches in depth and replaced as engineered fill. We present fill removal recommendations in Section 5.

3.3 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary seismic hazard is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, liquefaction, and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift is considered low to negligible at the site.

3.3.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone, it is our opinion that ground rupture is unlikely at the subject property.

3.3.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the 2016 California Building Code (CBC) requirements, as a minimum. 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 (SEAO, 1996).

3.3.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded fine sands below the groundwater table. Empirical evidence indicates that loose silty sands are also potentially liquefiable. When seismic ground shaking occurs, the soil is subjected to cyclic shear stresses that can cause excess hydrostatic pressures to develop. If excess hydrostatic pressures exceed the effective confining stress from the overlying soil, the sand may undergo deformation. If the sand undergoes virtually unlimited deformation without developing significant resistance, it is said to have liquefied, and if the sand consolidates or vents to the surface during and following liquefaction, ground settlement and surface deformation may occur. The borings located on the northern edge of the site encountered medium-dense to dense sands below the groundwater table beginning as shallow as 25 feet below ground surface. Based on the previous liquefaction analysis by ENGEO (ENGEO, 2002), it appears that the subsurface sands may have the potential to liquefy during a design-level seismic event.

3.3.4 Liquefaction-Induced Settlement

Deformation of the ground surface is a common result of liquefaction. Vertical settlement may result from densification of the deposit or volume loss from venting to the ground surface. Densification occurs as excess pore pressures dissipate, resulting as vertical settlement at the ground surface.

Based on the previous liquefaction analysis performed by ENGEO, we can expect the total liquefaction-based settlement to vary over the entirety of the site. We estimate total liquefaction-induced settlements to be up to approximately 2 inches in areas where the sand thickness is approximately 10 feet, such as in Borings B-7 and B-8. Design-level exploration should further characterize liquefaction potential on the project site.

3.3.5 Lateral Spreading

Lateral spreading is a failure within a nearly horizontal soil zone (possibly due to liquefaction) which causes the overlying soil mass to move toward a free face or down a gentle slope. The potential for lateral spreading in the vicinity of Sand Creek should be evaluated in more detail during future design-level geotechnical studies.

3.3.6 Dynamic Densification

Densification of loose granular soils above the groundwater table can cause settlement due to earthquake-induced vibrations. Due to the presence of generally plastic soils within the surficial soils, we consider the potential for dynamic densification above the groundwater table to be negligible.

3.3.7 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soils. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible at the site as in other locations in the Bay Area, but based on the site location, it is our opinion that the offset is expected to be very

minor. We provide recommendations for foundations in this report that are intended to reduce the potential for adverse impacts from lurch cracking.

3.3.8 Seismically Induced Landslides

Seismically induced landslides are triggered by earthquake ground shaking. The risk of this hazard is greatest in the late winter when groundwater levels are highest and hillside colluvium is saturated. As with all slopes in the region, this risk is also present at the site to varying degrees depending on the slope conditions and time of year. Properly engineered stabilization of landslides or creation of sufficient buffers between the colluvial deposits and development areas can mitigate the hazard of seismically induced landslides to the proposed structures.

3.3.9 Compressible Colluvial Deposits

Structural areas in the southwestern portion of the site may be located in colluvial deposits. Excessive total and differential settlement at the site may result from settlement of foundation elements supported directly over these compressible colluvial deposits. To reduce settlement resulting from these deposits, it is recommended that these deposits be overexcavated to expose stiff in-place materials and grades restored with properly compacted engineered fill material as discussed in Section 5 of this report. It is anticipated that these deposits may be reused as fill material.

Portions of the proposed basin in the northeastern corner of the site are also located in colluvial deposits; however, we do not foresee the colluvial deposits posing any risks to the basin.

3.3.10 Bedrock Rippability and Suitability

Some well-cemented, thickly bedded sandstone layers may exist in the hillside portions of the site. In general, we anticipate that conventional heavy-duty grading equipment should be able to rip these bedrock units, although some well-cemented beds or lenses may be encountered that will be very difficult to rip. Most of the bedrock is considered trenchable, although, as previously noted, localized well-cemented beds or lenses may be very difficult or require special excavation techniques. During mass grading, zones of hard rock exposed near finished grade should be identified; overexcavation in these areas may be appropriate to facilitate installation of utilities. Also, in these hard rock areas, it may be appropriate to overexcavate cut lots and transition lots to facilitate foundation installation.

If rocks greater than 8 inches in diameter are generated or encountered during grading, these should be broken down such that their maximum dimension is less than 8 inches, removed from the site or placed in a designated rock disposal fill area.

3.3.11 Landsliding

The identified landslide area has a relatively high likelihood of experiencing future instability unless suitable mitigation measures are carried out. Appropriate measures to mitigate potential landslide hazards are dependent on the distance of the landslide to the proposed development. The currently mapped landslide area is located outside the area of planned development. If landslides do not have the potential to adversely impact the proposed development, they may be left in place. Landslides adversely affecting the proposed development may be mitigated during

grading by removal and replacement, setbacks, debris benches, or other stabilizing methods. This will need to be further evaluated during a design level geotechnical report.

3.3.12 Soil Creep

Soils on steeper natural slopes are subject to soil creep. Soil creep is the slow downslope movement of soil that occurs with the annual cycle of wetting and drying under the influence of gravity. The potential for adverse impacts from soil creep are negligible since development is not planned on the steep slopes.

3.3.13 Coal Mining

The subject site is located northeast of an area of historic coal mining. Mine openings and workings in the site vicinity are typically found in the Domegine Sandstone Formation, which is mapped offsite to the southwest. During our reconnaissance and geologic mapping, no features indicative of mining or mining related activities were observed onsite; therefore, it is our opinion that it is unlikely that any mining activities were performed at the site.

3.3.14 Abandoned Oil and Gas Wells

Four abandoned oil and gas wells were documented on the site. Activities associated with the well drilling may have included temporary excavations for mud pits or other uses. Areas impacted by the well-drilling activities can be mitigated by removal and replacement of the affected material, capping the well drilling area with a sufficient thickness of fill material, and/or avoidance of the area.

3.3.15 Soil Erosion

Based on our observations at the site, the soils and bedrock at the site may be erodible. We estimate that erosion control measures in the form of seeding, planting and possibly erosion control fabric will be necessary on all cut slopes in order to mitigate the hazard of erosion during winter rains. In addition to vegetated cover, viable erosion mitigation measures may include concrete or asphalt-lined drainage facilities. The purpose of the drainage facilities is to intercept and divert the surface water runoff from the slopes.

In the design of slopes, consideration should be given to surface drainage and the potential for slope degradation by erosion. Common practice has been to provide drainage benches at regular intervals on graded slopes that are steeper than 3:1 (horizontal:vertical) and higher than 30 feet for control of surface drainage. Typical requirements are included in Section 7012 of the Uniform Building Code (UBC). It is our opinion that with proper erosion protection, drainage ditches are not necessary on 3:1 (horizontal to vertical) or flatter slopes.

3.3.16 Basin Seepage/Slope Stability

Due to the proximity of the proposed basin to Sand Creek, there may be potential stability issues associated with the basin and creek slopes. During our design-level report, we will complete a slope stability and seepage analysis for the basin adjacent to Sand Creek to check for any stability issues.

3.4 FLOODING

Based on a review of the FEMA flood zone map for the subject site, the majority of the site is designated as Flood Zone X, an area of minimal flood hazard. The areas immediately surrounding Sand Creek are designated Flood Zone A, an area subject to flooding by the 1% annual chance flood with a base flood elevation of approximately 147 feet. The Civil Engineer should review pertinent information relating to possible flood levels for the subject site based on final pad elevations and provide appropriate design measures for development of the project, if necessary.

3.5 CBC SEISMIC DESIGN PARAMETERS

The 2016 CBC utilizes design criteria set forth in the 2010 ASCE 7 Standard. Based on the subsurface conditions encountered, we characterized the site as Site Class D in accordance with the 2016 CBC. We provide the 2016 CBC seismic design parameters in Table 3.5-1 below, which include design spectral response acceleration parameters based on the mapped Risk-Targeted Maximum Considered Earthquake (MCER) spectral response acceleration parameters.

TABLE 3.5-1: 2016 CBC Seismic Design Parameters, Latitude: 37.943134° Longitude: -121.754993°

PARAMETER	DESIGN VALUE
Site Class	D
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	1.50
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	0.56
Site Coefficient, F_A	1.00
Site Coefficient, F_V	1.50
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	1.50
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	0.84
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.00
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	0.56
Mapped MCE Geometric Mean (MCE_G) Peak Ground Acceleration, PGA (g)	0.50
Site Coefficient, F_{PGA}	1.00
MCE_G Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	0.50
Long period transition-period, T_L	8 seconds

3.6 SOIL CORROSION POTENTIAL

According to the previous laboratory results and conclusions by CERCO analytical, the site soils are classified as “corrosive.” CERCO recommends that all buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. CERCO also recommends that all buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion. If additional corrosion evaluation is required, we recommend contacting a corrosion engineer.

4.0 CONSTRUCTION MONITORING

Our experience and that of our profession clearly indicate that the risk of costly design, construction, and maintenance problems can be significantly lowered by retaining the design geotechnical engineering firm to:

1. Review the final grading and foundation plans and specifications prior to construction to evaluate whether our recommendations have been implemented, and to provide additional or modified recommendations, as needed. This also allows us to check if any changes have occurred in the nature, design or location of the proposed improvements and provides the opportunity to prepare a written response with preliminary recommendations.
2. Perform construction monitoring to check the validity of the assumptions we made to prepare this report. Earthwork operations should be performed under the observation of our representative to check that the site is properly prepared, the selected fill materials are satisfactory, and that placement and compaction of the fills has been performed in accordance with our recommendations and the project specifications. Sufficient notification to us prior to earthwork is important.

If we are not retained to perform the services described above, then we are not responsible for any party's interpretation of our report (and subsequent addenda, letters, and verbal discussions).

5.0 EARTHWORK RECOMMENDATIONS

The relative compaction and optimum moisture content of soil and aggregate base referred to in this report are based on the most recent ASTM D1557 test method. Compacted soil is not acceptable if it is unstable. It should exhibit only minimal flexing or pumping, as observed by an ENGEО representative.

As used in this report, the term "moisture condition" refers to adjusting the moisture content of the soil by either drying if too wet or adding water if too dry.

We define "structural areas" in Section 5 of this report as any area sensitive to settlement of compacted soil. These areas include, but are not limited to building pads, sidewalks, pavement areas, and retaining walls.

5.1 EXISTING FILL AND COLLUVIAL MATERIAL REMOVAL

Undocumented fills located in the vicinity of the previous well exploration pads as well as under the gravel access road, colluvial soils located in structural areas in the southwest portion of the site and any other colluvial soils or undocumented fills encountered during grading should be removed to competent native soil, as determined in the field by ENGEО. These materials should be subexcavated and reworked as engineered fill as recommended in Section 5.8, provided the materials are free of deleterious matter.

5.2 DEMOLITION AND STRIPPING

Site development should begin with removal of existing vegetation, all undocumented fills and colluvial soils. Following clearing, we recommend that the surface vegetation be mowed as close

to the ground as possible and removed from the site. The remaining vegetation should then be thoroughly disked into the upper 12 inches of the site until approved by ENGEO.

All excavations from demolition and stripping below design grades should be cleaned to a firm undisturbed soil surface determined by an ENGEO representative. Backfill excavations extending below the planned finished site grades with suitable material compacted as engineered fill.

5.3 SITE PREPARATION

After the site has been properly cleared and disked, the upper 12 inches should be scarified, then the scarified material should be moisture conditioned and compacted in accordance with the engineered fill recommendations presented below.

5.4 OVER-OPTIMUM SOIL MOISTURE CONDITIONS

The contractor should anticipate encountering excessively over-optimum (wet) soil moisture conditions during winter or spring grading, or during or following periods of rain. Wet soil can make proper compaction difficult or impossible. Wet soil conditions can be mitigated by:

1. Frequent spreading and mixing during warm dry weather.
2. Mixing with drier materials.
3. Mixing with a lime or cement product; or
4. Stabilizing with aggregate, geotextile stabilization fabric, or both.

Options 3 and 4 should be evaluated and approved by ENGEO prior to implementation.

5.5 CUT SLOPES

It is anticipated that the cut slopes at the site will expose bedrock units that consist of poorly- to well-cemented interbedded sandstone, siltstone and claystone. In general, cut slopes exceeding 10 feet should be constructed at slope gradients no steeper than 3:1, provided geologic bedding conditions exposed in these cuts are favorable. Cut slopes less than 10 feet may be constructed at slope gradients no steeper than 2:1. The stability of cut slopes in bedrock materials is largely dependent on the planned cut location and the orientation of the cut slope with respect to the bedrock structure or other planes of geologic weakness. Cut slopes 3:1 or flatter do not require benches; however, it is recommended that where these slopes, as well as natural slopes steeper than 5:1, are located above lots, a debris bench should be constructed.

All cut slopes should be viewed by the Engineering Geologist during grading for unsuspected stability conditions that might be detrimental to slope stability. If adverse bedrock structure or other zones of geologic weakness are encountered in the cut slopes during grading, it is anticipated that remedial measures such as flattening or constructing slope buttresses may be needed. Appropriate remedial alternatives should be provided during grading.

All cut slopes should be revegetated with hydroseed consisting of deep-rooted, fast-growing vegetation prior to the first rainy season to reduce erosion.

5.6 CUT/FILL TRANSITION OR CUT LOTS

Building pads constructed in cuts may encounter variably expansive subsurface conditions in the near-surface soil and rock; these pads may therefore be subject to damaging differential soil

movements. Building pads that transition from cut to fill within the building pad area also can experience differential soil movements.

We recommend such building pads be reconstructed to create uniform subgrade conditions. This can be accomplished by subexcavating the soil on the building pads to a minimum depth of 2 feet below finished pad grade on cut lots or lots constructed over cut-and-fill transitions and replacing the subexcavated material with uniformly mixed compacted fill. The subexcavation should be performed over the entire flat pad area. Compacted fill used to replace subexcavated soil should be placed in accordance with Section 5.8.

5.7 ACCEPTABLE FILL

Onsite material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 8 inches in maximum dimension.

Imported fill materials should meet the above requirements and have a plasticity index equal to or less than the onsite material. Allow ENGEO to sample and test proposed imported fill materials at least 5 days prior to delivery to the site.

5.8 ENGINEERED FILL COMPACTION

5.8.1 Grading in Structural Areas

Perform subgrade compaction prior to fill placement, following cutting operations, and in areas left at grade as follows.

1. Scarify to a depth of at least 12 inches.
2. Moisture condition soil to at least 3 percentage points over the optimum moisture content;
and
3. Compact the soil to a minimum of 90 percent relative compaction. Compact the upper 6 inches of finish pavement subgrade to at least 95 percent relative compaction prior to aggregate base placement.

After the subgrade has been compacted, place and compact acceptable fill as follows:

1. Spread fill in loose lifts that do not exceed 12 inches.
2. Moisture condition lifts to at least 3 percentage points over the optimum moisture content;
and
3. Compact fill to a minimum of 90 percent relative compaction; compact the upper 6 inches of fill in pavement areas to at least 95 percent relative compaction prior to aggregate base placement.

Compact the pavement Caltrans Class 2 Aggregate Base section to at least 95 percent relative compaction (ASTM D1557). Moisture condition aggregate base to or slightly above the optimum moisture content prior to compaction.

5.8.2 Underground Utility Backfill

The contractor is responsible for conducting all trenching and shoring in accordance with CALOSHA requirements. Project consultants involved in utility design should specify pipe-bedding materials. Where utility trenches are located beside foundation areas, careful backfill operations are recommended. Utility trenches should be constructed parallel to foundations 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 supplied with this information. Utility trenches in paved areas should be constructed in accordance with City of Antioch requirements.

We recommend using well-graded import or native material less than $\frac{3}{4}$ inch in maximum dimension for pipe zone backfill (i.e. material beneath and immediately surrounding the pipe). We recommend using native soil for trench zone backfill (i.e. material placed between the pipe zone backfill and the ground surface). Compact backfill in accordance with the recommendations provided above for engineered fill. Use fine- to medium-grained sand or a well-graded mixture of sand and gravel for pipe zone backfill import material. Avoid using this material within 2 feet of finish grades. In general, avoid using uniformly graded gravel 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. Where utility trenches cross underneath buildings, we recommend that a plug be placed within the trench backfill to help prevent the normally granular bedding materials from acting as a conduit for water to enter beneath the building. The plug should be constructed using a sand cement slurry (minimum 28-day compressive strength of 500 psi) or relatively impermeable native soil for pipe bedding and backfill. We recommend that the plug extend for a distance of at least 3 feet in each direction from the point where the utility enters the building perimeter.

Jetting of backfill is not an acceptable means of compaction.

5.9 SITE DRAINAGE

The project civil engineer is responsible for designing surface drainage improvements. With regard to geotechnical engineering issues, we recommend that finish grades be sloped away from buildings and pavements to the maximum extent practical. The latest California Building Code Section 1804.4 specifies minimum slopes of 5 percent away from foundations. Where development conditions restrict meeting this slope requirement, we recommend that specific drainage requirements be developed. As a minimum, we recommend the following:

1. Discharge roof downspouts into closed conduits and direct away from foundations and pavements to appropriate drainage devices.
2. Do not allow water to pond near foundations, pavements, or exterior flatwork.

6.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

We developed preliminary structural improvement recommendations using data obtained from our previous field exploration, previous laboratory test results, and engineering analysis.

6.1 POST-TENSIONED MAT FOUNDATIONS

Due to the presence of near-surface expansive soils at the site as well as potentially liquefiable subsurface soils, we recommend that the proposed residential structures be supported on post-tensioned (PT) concrete mat foundations founded on engineered fill or compacted subgrade.

We recommend that PT mats be a minimum of 10 inches thick and have a thickened edge at least 2 inches greater than the mat thickness. The Structural Engineer should determine the actual PT mat thickness using the geotechnical recommendations in this report; we defer to the professional judgment of the Structural Engineer on the necessary mat thickness. ENGEO should be retained to review the PT mat foundation design.

The 2016 CBC requires post-tensioned (PT) mat foundation design criteria be determined in accordance with the Post Tensioning Institute’s (PTI) “Design of Post-Tensioned Slabs-on-Ground, Third Edition” (2004). The following post-tensioned mat soil design parameters were developed according to methods recommended in PTI’s “Design of Post-Tensioned Slabs-on-Ground, Third Edition” (2004), in accordance with Addendum 3, “Standard Requirements for Analysis of Shallow Concrete Foundations on Expansive Soils” (2007):

TABLE 6.1-1: Post-Tensioned Mat Foundation Design Criteria

CONDITION	CENTER LIFT	EDGE LIFT
Edge Moisture Variation Distance, e_m (feet)	7.5	4.0
Differential Soil Movement, y_m (inches)	0.5	1.5

PT mats may be designed for an average allowable bearing pressure of up to 1,000 pounds per square foot (psf) for dead-plus-live loads with maximum localized bearing pressures of 1,500 psf at column or wall loads. Lateral loads may be resisted by friction along the base of the mat using an allowable coefficient of friction of 0.30.

In addition, based on our previous liquefaction analysis, on a preliminary basis the post-tensioned mat foundations should be designed for a total liquefaction-induced settlement of up to 2 inches and up to 1 inch of liquefaction-induced differential settlement acting over 50 feet.

Underlay PT mats with a moisture reduction system as recommended below. In addition, moisture conditioning of the building foundation subgrade should be to a moisture content at least 3 percentage points above optimum immediately prior to foundation construction. The subgrade should not be allowed to dry prior to concrete placement. We also recommend that ENGEO be retained to observe the pre-pour moisture conditions to check that our report recommendations have been followed.

6.1.1 Slab Moisture Vapor Reduction

When buildings are constructed with post-tensioned mats, water vapor from beneath the mat will migrate through the concrete and into the building. This water vapor can be reduced but not stopped. Vapor transmission can negatively affect floor coverings and lead to increased moisture within a building.

When water vapor migrating through the slab would be undesirable, we recommend the following to reduce, but not stop, water vapor transmission upward through the post-tensioned mat foundation.

1. Install a vapor retarder membrane directly beneath the slab. Seal the vapor retarder at all seams and pipe penetrations. Vapor retarders shall conform to Class A in the current ASTM E 1745 “Standard Specification for Plastic Water Vapor Retarders used in Contact with Soil or Granular Fill under Concrete Slabs”.
2. Concrete shall have a concrete water-cement ratio of no more than 0.50.
3. Provide inspection and testing during concrete placement to check that the proper concrete and water cement ratio are used.

The structural engineer should be consulted as to the use of a layer of clean sand or pea gravel (less than 5 percent passing the U.S. Standard No. 200 Sieve) placed on top of the vapor retarder membrane to assist in concrete curing.

7.0 PRELIMINARY PAVEMENT DESIGN

Based on our previous borings, we note that the majority of the surficial soils within the site consist of lean clays. In our experience, these soils generally provide low subgrade support for pavement sections; we therefore consider an R-Value of 5 to be appropriate for design. Using estimated traffic indices for various pavement loading requirements, we developed the following recommended pavement sections using Topic 633 of the Caltrans Highway Design Manual (including the asphalt factor of safety), presented in the table below.

We should note that mixing with sandy soils or selective grading may increase the R-Value of the subgrade soils, and potentially reduce the design pavement section. To reduce the pavement section, we recommend collecting soil samples of the subgrade materials during mass grading to evaluate the subgrade properties.

TABLE 7.0-1: Recommended Asphalt Concrete Pavement Sections

TRAFFIC INDEX	PAVEMENT SECTION	
	ASPHALT CONCRETE (INCHES)	CLASS 2 AGGREGATE BASE (INCHES)
4	2.5	8
5	3.0	10
6	3.5	13
7	4.0	16
8	5.0	18
9	5.5	21

The civil engineer should determine the appropriate traffic indices based on the estimated traffic loads and frequencies.

Compact finish subgrade and aggregate base in accordance with Section 5.8. Aggregate Base should meet the requirements for ¾-inch maximum Class 2 AB in accordance with Section 26-1.02B of the latest Caltrans Standard Specifications.

8.0 RECOMMENDATIONS FOR DESIGN-LEVEL STUDY

As previously discussed, a site-specific design-level geotechnical exploration should be performed once details of the project have been defined. Preliminary conclusions and recommendations presented herein are based on limited site exploration data. Based on our preliminary findings in this study, we recommend the design-level geotechnical exploration to include supplemental borings, surface samples, Cone Penetration Tests (CPTs) and laboratory soil testing to address the following geotechnical concerns:

- Liquefaction-induced settlement risks, lateral spreading risks and design considerations.
- Detailed foundation design criteria based on building types and surficial soil material properties.
- Identification of any undocumented fill located on the property.

The goal of the exploration is to allow for more detailed evaluations of the geotechnical issues discussed in this report and afford the opportunity to provide recommendations regarding techniques and procedures to be implemented during construction to mitigate potential geotechnical/geological hazards.

9.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents preliminary geotechnical recommendations for design of the improvements discussed in Section 1.2 for the Creekside project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations, if any. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data are representative of the actual subsurface conditions across the site. Considering possible underground variability of soil and groundwater, additional costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, ENGEO must be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials must be notified immediately.

This document must not be subject to unauthorized reuse, that is, reusing 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 documents. 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 onsite construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transition between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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FIGURES

FIGURE 1: Vicinity Map

FIGURE 2: Site Plan

FIGURE 3: Geologic Map

FIGURE 4: Regional Faulting and Seismicity Map

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BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



VICINITY MAP
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001	
SCALE: AS SHOWN	
DRAWN BY: JV	CHECKED BY: SDH

FIGURE NO.
1

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- TP-15** ● TEST PIT (ENGEO, 2001)
- B-8** ⊕ BORING (ENGEO, 2001)

Google earth

BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE AND CARLSON, BARBEE AND GIBSON



SITE PLAN
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001	2
SCALE: AS SHOWN	
DRAWN BY: JV CHECKED BY: SDH	

FIGURE NO.

2

ORIGINAL FIGURE PRINTED IN COLOR

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Google earth



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

TP-15 TEST PIT (ENGeo, 2001)

B-8 BORING (ENGeo, 2001)

— — — GEOLOGIC CONTACT

Qls LANDSLIDE

Qc COLLUVIUM

Qal STREAM DEPOSITED SAND, SILT, CLAY AND GRAVEL

Qt ALLUVIAL DEPOSIT

Tkm MARKLEY FORMATION



BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



GEOLOGIC MAP
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001

SCALE: AS SHOWN

DRAWN BY: JV

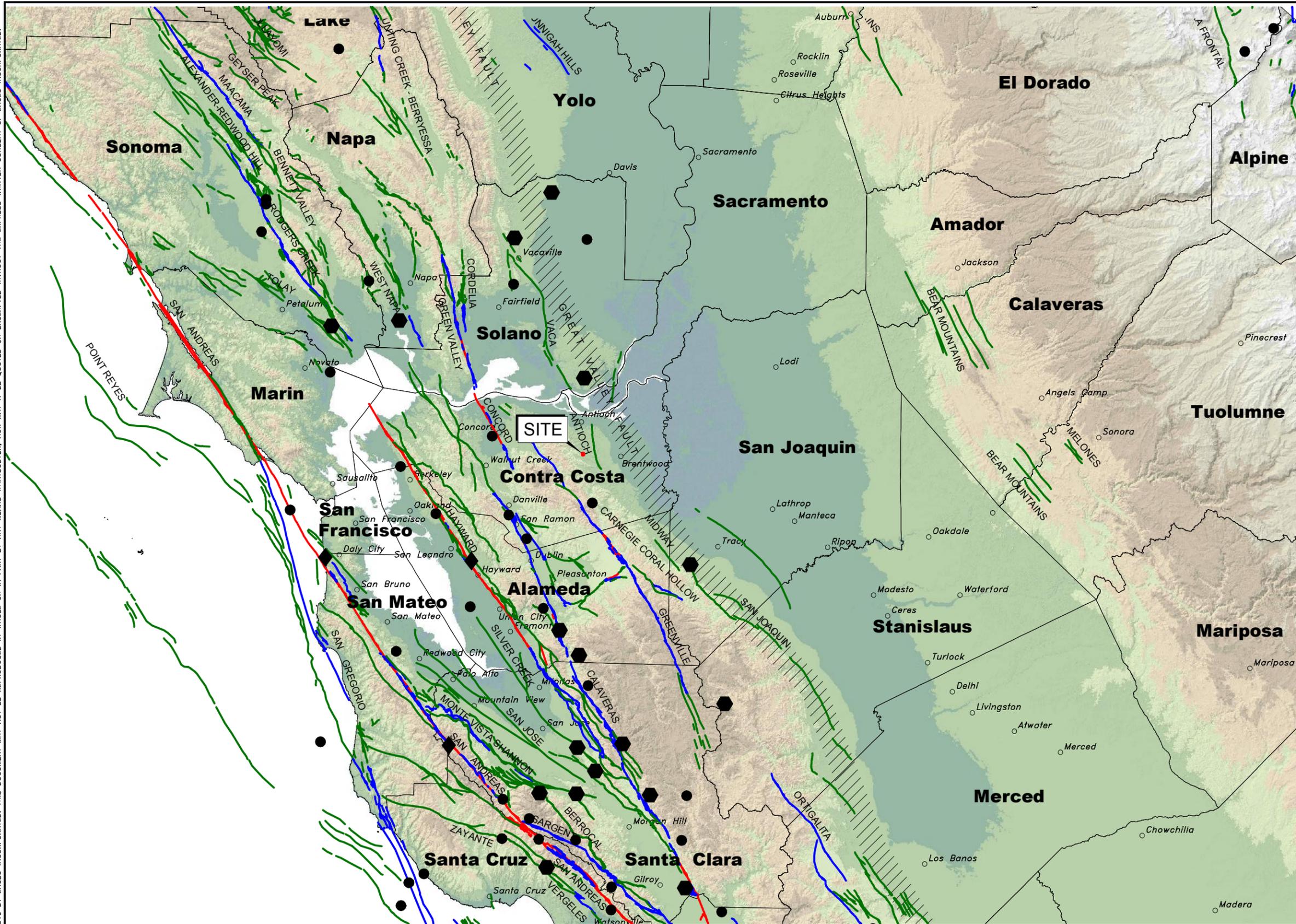
CHECKED BY: SDH

FIGURE NO.

3

ORIGINAL FIGURE PRINTED IN COLOR

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EXPLANATION

◆	MAGNITUDE 7+
⬡	MAGNITUDE 6-7
●	MAGNITUDE 5-6
— (Red)	HISTORIC FAULT
— (Blue)	HOLOCENE FAULT
— (Green)	QUATERNARY FAULT
▨	HISTORIC BLIND THRUST FAULT ZONE

BASE MAP SOURCE:
 COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
 U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
 U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800-2000)



REGIONAL FAULTING AND SEISMICITY
 CREEKSIDE
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001	FIGURE NO.
SCALE: AS SHOWN	4
DRAWN BY: JV	



APPENDIX A

**BORING LOG KEY
PREVIOUS EXPLORATION LOGS**

KEY TO BORING LOGS

MAJOR TYPES		DESCRIPTION	
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS			
	200	40	10	4	3/4 "	3"	12"
SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

RELATIVE DENSITY

<u>SANDS AND GRAVELS</u>	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

<u>SILTS AND CLAYS</u>	<u>STRENGTH*</u>
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

—————	Solid - Layer Break
-----	Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

	Groundwater level during drilling
	Stabilized groundwater level

SAMPLER SYMBOLS

	Modified California (3" O.D.) sampler
	California (2.5" O.D.) sampler
	S.P.T. - Split spoon sampler
	Shelby Tube
	Dames and Moore Piston
	Continuous Core
	Bag Samples
	Grab Samples
NR	No Recovery

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 24, 2001		BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 163 feet (50 meters)				DRY UNIT WEIGHT	MOIST. CONTENT
DESCRIPTION						*FIELD PENET. APPROX.		PCF)	% DRY WEIGHT
0				1 foot surface, loose. SANDY CLAY (CL), dark brown, medium stiff, dry to moist, with rootlets in upper 3 feet.					
		8-1C				15		90	9.8
		8-2C			SILTY CLAY (CL), dark brown, hard, moist, with carbonate.	13			
		8-3C				48			
					SILTY CLAY (CL), reddish brown, hard, moist, with sand.				
		8-4C				55			
					CLAYEY SAND (SC), reddish brown, medium dense, moist.				
		8-5C				17			
					SILTY SAND (SM), reddish brown, medium dense, moist.				
		8-6C			CLAYEY SILT (ML), reddish brown, stiff, moist, with carbonate filaments.	24	1.5*		
		8-7C			SILTY SAND (SM), reddish brown, medium dense, moist, very fine grained.	13			
		8-8C			Same as above, reddish brown with olive gray zones, very fine grained to silt.	16			

0541_4894A.GPJ 1/2/02

ENGEO
INCORPORATED
1971 - 2001 = 30 YEARS OF EXCELLENCE

VINEYARDS FUA1
ANTIOCH, CALIFORNIA

BORING NO.: B-8

LOGGED BY: C. Jensen

PROJ. NO.: 4894.5.002.01

CHECKED BY

[Signature]

FIGURE NO.

A-3

DEPTH (FEET)	DEPTH (METERS)	SAMPLE NUMBER	LOG, LOCATION AND TYPE OF SAMPLE	DATE OF BORING: October 24, 2001	BLOWS/FT.	qu UNCON STRENGTH (TSF)	IN PLACE	
				SURFACE ELEVATION: Approx. 163 feet (50 meters)			DRY UNIT WEIGHT (PCF)	MOIST. CONTENT % DRY WEIGHT
DESCRIPTION								
35	11	8-9C		Same as above, reddish brown, medium-grained sand. Percent Passing #200 Sieve = 12.2	15			
		8-10C		Same as above, gravel caving in hole.				
40				Bottom of boring at approximately 38 1/2 feet. Groundwater encountered at 29 feet during drilling.				
45								
50								
55								
60								
65								

TEST PIT LOGS

Test Pit Number	Depth (Feet)	Description
TP-12	0 – 0.5	Sandy CLAY (CL), dark brown, medium stiff, dry, with abundant organics and roots.
	0.5 – 1.5	Sandy CLAY (CL), dark brown, medium stiff, dry, with rootlets and krotovina.
	1.5 – 5	Clayey SAND (SC), reddish brown, dense, dry, with carbonate ghosting and bioturbation.
	5 – 14	Clayey SAND (SC), reddish brown, dense, dry, bioturbated with claystone fragments at 13 feet.
	14 – 16	CLAYSTONE/SILTSTONE, olive and reddish brown, moderately strong, thin bedding, moderately weathered, with small (< 1 inch) leaf imprint fossils. Bottom at 16 feet. No free groundwater encountered.
TP-13	0 – 0.5	Sandy CLAY (CL), dark brown, loose, dry, disced surface with organics and krotovina.
	0.5 – 4	Sandy CLAY (CL), dark brown, stiff, moist, with occasional subrounded orange gravel. Qc
	4 – 8	Sandy CLAY (CL), reddish brown, stiff, moist, with carbonate and bioturbation.
	8 – 12	Clayey SAND (SC), reddish brown, dense to very dense, moist.
	12 – 14	Clayey SAND (SC), reddish brown, dense to very dense, moist, with abundant carbonate.
	14 – 16	SANDSTONE, olive and reddish brown, moist, weak to friable, very closely fractured, massive, deeply weathered.

TEST PIT LOGS

Test Pit Number	Depth (Feet)	Description
		Bottom at 16 feet. No free groundwater encountered.
TP- 14	0 – 0.25	Sandy CLAY (CL), dark brown, stiff, dry, with abundant organics.
	0.25 – 2	Sandy CLAY (CL) dark brown, very stiff, dry, with rootlets and desiccation cracks.
	2 – 3.5	Sandy CLAY (CL) dark reddish brown, very stiff, dry, with carbonate and some desiccation cracks.
	3.5 – 5	SANDSTONE, olive and white, dry, friable, moderately fractured, massive, deeply weathered, with abundant carbonate zones.
	5 – 7	SANDSTONE, olive, dry, friable, massive, moderately weathered, fine to medium grained.
		Bottom at 7 feet. No free groundwater encountered.
TP-15	0 – 0.25	Clayey SAND (SC), brown, loose, dry, with abundant organics.
	0.25 – 1.5	Clayey SAND (SC), brown, medium dense, dry, with rootlets.
	1.5 – 4	Clayey SAND, (SM/SC), brown and olive, dense, dry, with carbonate ghosting and sandstone blocks.
	4 – 6	SANDSTONE, olive, dry, friable to moderately strong, moderately fractured, thin bedding, moderately weathered, with carbonate and interbedded claystone layers.
		Bottom at 6 feet. No free groundwater encountered.

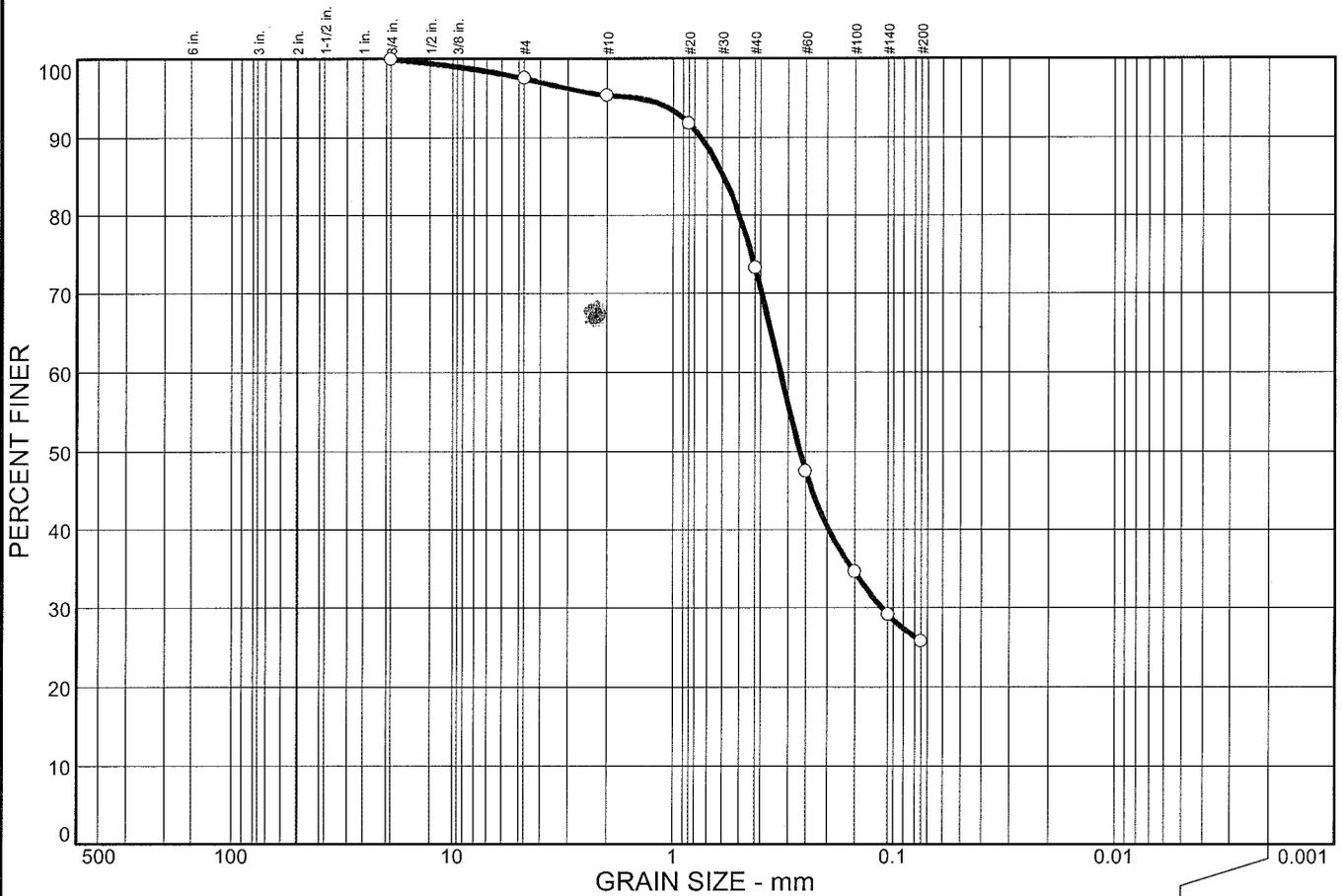


APPENDIX B

PREVIOUS LABORATORY TEST DATA

**Particle Size Distribution Reports
Corrosion Test Results**

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	2.4	2.2	22.1	47.5	25.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
#4	97.6		
#10	95.4		
#20	91.8		
#40	73.3		
#60	47.5		
#100	34.6		
#140	29.2		
#200	25.8		

Soil Description

Yellowish brown silty Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.593 D₆₀= 0.326 D₅₀= 0.265
D₃₀= 0.113 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

F.M.=0.68

* (no specification provided)

Sample No.: 6-7
Location:

Source of Sample: Grad.

Date: 12-12-01
Elev./Depth: 26 ft.

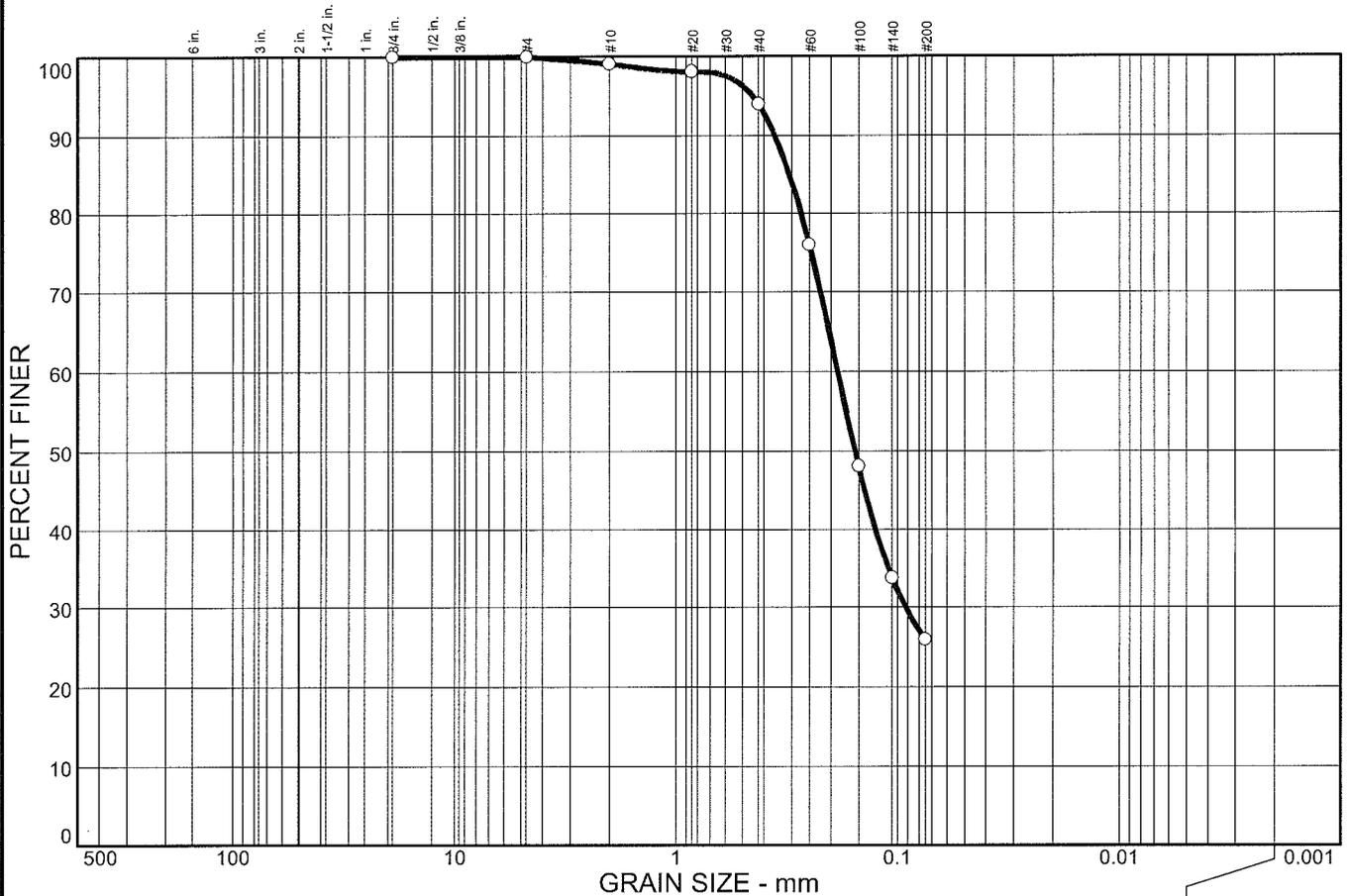


Client: Nunn Farms
Project: Vineyards FUA1, Antioch, CA

Project No: 4894.5.002.01

Figure C-2

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.9	5.1	68.1	25.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
#4	100.0		
#10	99.1		
#20	98.1		
#40	94.0		
#60	76.0		
#100	48.1		
#140	33.8		
#200	25.9		

Soil Description

Dark yellowish brown silty Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.308 D₆₀= 0.186 D₅₀= 0.156
D₃₀= 0.0918 D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

F.M.=0.52

* (no specification provided)

Sample No.: 7-9
 Location:

Source of Sample: Grad.

Date: 12-12-01
 Elev./Depth: 27 ft.

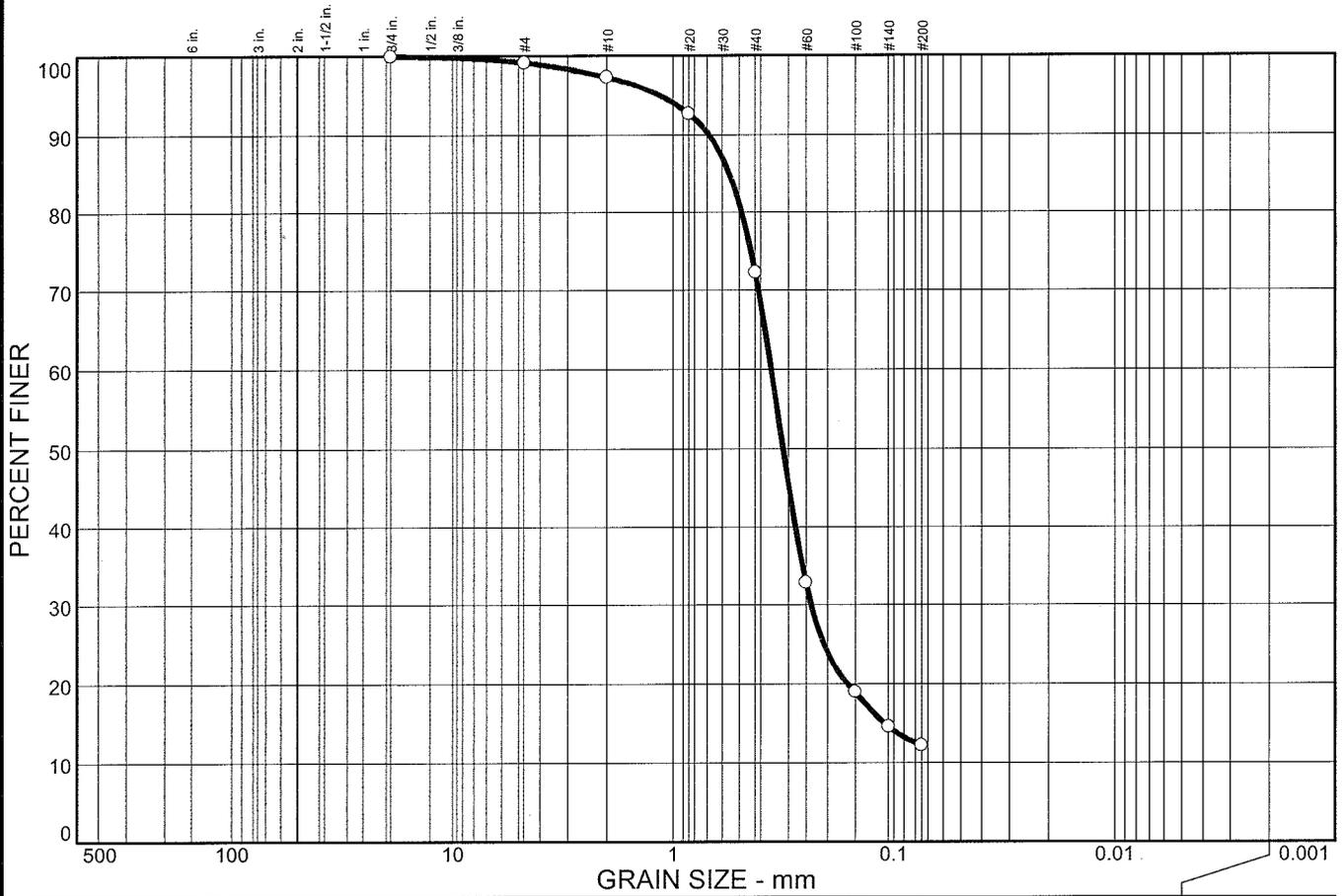


Client: Nunn Farms
 Project: Vineyards FUA1, Antioch, CA

Project No: 4894.5.002.01

Figure C-3

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.8	1.8	25.1	60.1	12.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
#4	99.2		
#10	97.4		
#20	92.7		
#40	72.3		
#60	32.9		
#100	19.0		
#140	14.6		
#200	12.2		

Soil Description

Dark yellowish brown poorly graded Sand with silt

Atterberg Limits

PL= LL= PI=

Coefficients

D₈₅= 0.557 D₆₀= 0.359 D₅₀= 0.318
D₃₀= 0.236 D₁₅= 0.110 D₁₀=
C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

F.M.=0.82

* (no specification provided)

Sample No.: 8-9
Location:

Source of Sample: Grad.

Date: 12-12-01
Elev./Depth: 36 ft.



Client: Nunn Farms
Project: Vineyards FUA1, Antioch, CA

Project No: 4894.5.002.01

Figure C-4

20 December, 2001

Job No.0111225
Cust. No.10169

3942-A Valley Avenue
Pleasanton, CA 94566-4715
Tel: 925.462.2771
Fax: 925.462.2775

Mr. Casey Lee Jones
ENGEEO Inc.
2401 Crow Canyon Rd., Ste 200
San Ramon, CA 94583

Subject: Project No.: 4894.5.001.01
Project Name: Vineyard
Corrosivity Analysis – ASTM Test Methods

Dear Mr. Jones:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on November 21, 2001. Based on the analytical results, a brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurements, both samples are classified as "corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations reflect none detected with a detection limit of 15 mg/kg.

The sulfate ion concentrations range from none detected to 15 mg/kg and are determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The pH of both samples is 6.6, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

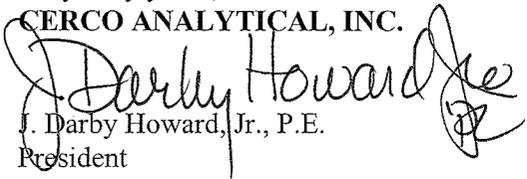
The redox potentials range from 490 to 540-mV, which is indicative of aerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc.* at (925) 927-6630.

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,

CERCO ANALYTICAL, INC.


J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

CERCO Analytical, Inc.

3942-A Valley Avenue, Pleasanton, CA 94566-4715 (925) 462-2771 Fax (925) 462-2775

FINAL RESULTS

Client: ENGEO Incorporated
 Client's Project No.: 4894.5.001.01
 Client's Project Name: Vineyard
 Authorization: Signed Chain of Custody

Date Sampled: 10/31 & 11/01/01
 Date Received: 21-Nov-2001
 Date of Report: 19-Dec-2001
 Matrix: Soil

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
0111225-001	3-1	490	6.6	-	2,000	-	N.D.	N.D.
0111225-002	7-1	540	6.6	-	1,900	-	N.D.	15

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Detection Limit:	-	-	10	-	50	15	15
Date Analyzed:	12-Dec-2001	13-Dec-2001	-	14-Dec-2001	-	13-Dec-2001	13-Dec-2001


 Cheryl McMillen
 Laboratory Director

* Results Reported on "As Received" Basis
 N.D. - None Detected



APPENDIX C

PHASE I ENVIRONMENTAL SITE ASSESSMENT



CREEKSIDE
ANTIOCH, CALIFORNIA

PHASE I ENVIRONMENTAL SITE ASSESSMENT

SUBMITTED TO
Ms. Lisa Borba
GBN Partners LLC
3820 Blackhawk Drive
Danville, CA 94506

PREPARED BY
ENGEO Incorporated

March 1, 2019

PROJECT NO.
4894.002.001

Project No.
4894.002.001

March 1, 2019

Ms. Lisa Borba
GBN Partners LLC
3820 Blackhawk Drive
Danville, CA 94506

Subject: Creekside
Antioch, California

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Dear Ms. Borba:

ENGEO is pleased to present our phase I environmental site assessment of the subject property (Property), located in Antioch, California. The attached report includes a description of the site assessment activities, along with ENGEO's findings, opinions, and conclusions regarding the Property.

ENGEO has the specific qualifications based on education, training, and experience to assess the nature, history, and setting of the Property, and has developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312 and the American Standard Testing Method (ASTM) Practice E1527-13. We declare that, to the best of our professional knowledge and belief, the responsible charge for this study meets the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312 and ASTM E1527-13.

We are pleased to be of service to you on this project. If you have any questions concerning the contents of our report, please contact us.

Sincerely,

ENGEO Incorporated



Victoria Drake, EIT
vd/sm/jf



Shawn Munger, CHG

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EXECUTIVE SUMMARY

ENGEO conducted a phase I environmental site assessment for the Property located southwest of the intersection of Heidorn Ranch Road and Old Sand Creek Road in Antioch, California. The approximately 158-acre Property is identified as APN 057-050-024.

The Property is currently undeveloped, except for an unpaved access road within the northern portion of the Property, generally trending west to east. Historically, the Property has been used for dry land farming, cattle grazing, and oil production, the latter of which has since been abandoned. Four abandoned oil/gas wells are located within the Property boundaries. An electrical transmission line extends through the southwestern portion of the Property, trending northwest to southeast. Review of historical records indicates that the Property has remained undeveloped, apart from oil and gas production wells, since 1939.

This assessment included a review of local, state, tribal, and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources. A reconnaissance of the Property was conducted to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials and interviews with persons knowledgeable about current and past site use.

The site reconnaissance and records review did not find documentation or physical evidence of soil or groundwater impairments associated with the use or past use of the Property. A review of regulatory databases maintained by county, state, tribal, and federal agencies found no documentation of hazardous materials violations or discharge on the Property and did not identify contaminated facilities within the appropriate American Society for Testing and Materials (ASTM) search distances that would reasonably be expected to impact the Property.

Based on the findings of this assessment, no Recognized Environmental Conditions (RECs), no historical RECs, and no controlled RECs were identified for the Property.

Based on the review of regulatory databases and site reconnaissance, we present information on features of potential environmental concern that were either contained in the databases or observed on the Property. These features were not considered to be RECs. We briefly discuss each feature below.

Former Oil/Gas Wells

Four abandoned oil/gas wells are located within the Property boundaries. The following is recommended to address the past oil/gas production activities:

- Based on anecdotal information, we understand the oil/gas pipelines have been removed; however, if remnant pipelines are encountered during site development work, they should be removed in accordance with applicable regulations.
- If indicators of apparent soil contamination (soil staining, odors, debris fill material, etc.) are encountered at the Property, specifically in the vicinity of abandoned oil/gas wells, or during removal of abandoned oil pipelines, the impacted area(s) should be isolated from surrounding, non-impacted areas. The project environmental professional shall obtain samples of the potentially impacted soil for analysis of the contaminants of concern and comparison with applicable regulatory residential screening levels. If soil contaminant concentrations exceed

the applicable regulatory residential screening levels, the impacted soil shall be excavated and disposed of offsite at a licensed landfill facility.

- Prior to final map approval, the project applicant shall submit to the City of Antioch Engineering Department, for review and approval, plans which show that future inhabited structures will not be located over the four abandoned oil/gas wells. The plans shall be completed in compliance with the Division Of Oil, Gas And Geothermal Resources (DOGGR) Construction Site Review Program, which includes guidelines and recommendations for setbacks and mitigation measures for venting systems.
- If grading is proposed proximate to the four abandoned well locations, DOGGR should be consulted to determine if the wells will require modification in casing height. In addition, DOGGR should be consulted to determine if the well abandonment procedures are consistent with current requirements.
- The specific location of the wells should be determined and surveyed in the field.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527-13 and the standards and practices of the All Appropriate Inquiry – Final Rule (40 Code of Federal Regulations Part 312).

ENGEO recommends no further environmental studies at this time.

1.0 INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

ENGEO conducted a phase I environmental site assessment for the Property located southwest of the intersection of Heidorn Ranch Road and Old Sand Creek Road in Antioch, California (Figures 1 and 2). The approximately 158-acre Property is identified as APN 057-050-024 (Figure 3) and is primarily undeveloped land.

1.2 CURRENT USE OF PROPERTY AND ADJOINING PROPERTIES

The Property is currently undeveloped, except for an unpaved access road within the northern portion of the Property, generally trending west to east. Historically, the Property has been used for dry land farming, cattle grazing, and oil production, the latter of which has since been abandoned. Four abandoned oil/gas wells are located within the Property boundaries. An electrical transmission line extends through the southwestern portion of the Property, trending northwest to southeast.

Adjoining properties land use includes an electric substation along the northwest perimeter and dryland farming/cattle grazing to the north, east, south, and west.

1.3 SITE AND VICINITY CHARACTERISTICS

According to published topographic maps, the Property consists of varied topography and ranges in elevation from approximately 150 feet above mean sea level (msl) to approximately 320 feet above msl. Review of the Dibblee Geologic Map (2006) found that the Property is underlain by surficial sediments and the Kreyenhagen Formation. Specifically, the Property is underlain by alluvial pebble gravel, sand and clay of valley areas (Qa) and Markley Sandstone Member, and light gray to tan, semi-friable, bedded fine- to medium-grained arkosic (Tkm).

In 2001, ENGEO conducted a geotechnical exploration on the Property. The exploration included drilling two exploratory borings and excavating four test pits at various locations on the Property. Soil samples were collected at frequent intervals for visual classification and laboratory testing. Near-surface site soils generally consisted of moderately expansive lean clays. The soils encountered in our previous borings along the northern portion of the Property generally consisted of clay with varying amounts of sand to a maximum depth of approximately 21 feet below ground surface, underlain by silty sand, clayey sand, and clayey silt to the maximum depth explored of 38½ feet. Soils encountered in our test pits located on the topographically elevated portions of the Property generally consisted of sandy lean clay underlain by clayey sand underlain by claystone/siltstone/sandstone bedrock to the maximum depth explored of 16 feet.

Geocheck – Physical Setting Source Summary of the Environmental Resources Data report (Appendix A) indicated no Federal United States Geological Survey (USGS) wells, Federal FRDS Public Water Supply System information, or State Database wells are located within 1 mile of the Property.

We reviewed the Department of Water Resources On-line Water Data Library for depth to water in the vicinity of the Property. The website did not identify any wells within 1 mile of the Property.

During ENGEO's 2001 exploration, static groundwater was observed in the two borings. The groundwater observations from our exploration on the Property is presented in Table 1.3-1 below.

TABLE 1.3-1: Local Groundwater Conditions

EXPLORATION LOCATION	APPROX. DEPTH TO GROUNDWATER (FEET)
B-7	25
B-8	29

The site-specific depth to groundwater and direction of groundwater flow was not determined as part of this assessment. Fluctuations in groundwater levels may occur seasonally and over a period of years due to variations in precipitation, temperature, irrigation and other factors.

We reviewed the Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) website and map database to determine if any historic oil and/or gas wells were located within the Property. 80 wells were mapped within 1 mile of the Property, including the four onsite plugged oil production wells. Further information regarding the abandoned wells is provided in Section 3.5.

1.4 PURPOSE OF PHASE I ENVIRONMENTAL SITE ASSESSMENT

This assessment was performed at the request of GBN Partners LLC for the purpose of environmental due diligence during property acquisition. The objective of this phase I environmental site assessment is to identify Recognized Environmental Conditions (RECs) associated with the Property. As defined in the ASTM Standard Practice E1527-13, an REC is “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.”

1.5 DETAILED SCOPE OF SERVICES

The scope of services performed included the following:

- A review of previous environmental reports prepared for the Property.
- A review of publicly available and practically reviewable standard local, state, tribal, and federal environmental record sources.
- A review of publicly available and practically reviewable standard historical sources, aerial photographs, fire insurance maps and physical setting sources.
- A reconnaissance of the Property to review site use and current conditions. The reconnaissance was conducted to check for the storage, use, production or disposal of hazardous or potentially hazardous materials.
- Interviews with owners/occupants and public sector officials.
- Preparation of this report with our findings, opinions, and conclusions.

1.6 LIMITATIONS AND EXCEPTIONS OF ASSESSMENT

The professional staff at ENGEO strives to perform its services in a proper and professional manner with reasonable care and competence but is not infallible. The recommendations and conclusions presented in this report were based on the findings of our study, which were developed solely from the contracted services. The findings of the report are based in part on contracted database research, out-of-house reports and personal communications. The opinions formed by ENGEO are based on the assumed accuracy of the relied upon data in conjunction with our relevant professional experience related to such data interpretation. ENGEO assumes no liability for the validity of the materials relied upon in the preparation of this report.

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. The findings from a phase I environmental site assessment are valid for one year after completion of the report. Updates of portions of the assessment may be necessary after a period of 180 days after completion.

This phase I environmental site assessment is not intended to represent a complete soil or groundwater characterization, nor define the depth or extent of soil or groundwater contamination. It is intended to provide an evaluation of potential environmental concerns associated with the use of the Property. A more extensive assessment that would include a subsurface exploration with laboratory testing of soil and groundwater samples could provide more definitive information concerning site-specific conditions. If additional assessment activities are considered for the Property and if other entities are retained to provide such services, ENGEO cannot be held responsible for any and all claims arising from or resulting from the performance of such services by other persons or entities. ENGEO can also not be held responsible from any and all claims arising or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

1.7 SPECIAL TERMS AND CONDITIONS

ENGEO has prepared this report for the exclusive use of our client, GBN Partners LLC. It is recognized and agreed that ENGEO has assumed responsibility only for undertaking the study for the client. The responsibility for disclosures or reports to a third party and for remedial or mitigative action shall be solely that of the Client.

Laboratory testing of soil or groundwater samples was not within the scope of the contracted services. The assessment did not include an asbestos survey, an evaluation of lead-based paint, an inspection of light ballasts for polychlorinated biphenyls (PCBs), a radon evaluation, or a mold survey.

This report is based upon field and other conditions discovered at the time of preparation of ENGEO's assessment. Visual observations referenced in this report are intended only to represent conditions at the time of the reconnaissance. ENGEO would not be aware of site contamination, such as dumping and/or accidental spillage, that occurred subsequent to the reconnaissance conducted by ENGEO personnel.

2.0 USER-PROVIDED INFORMATION

2.1 PROPERTY RECORDS

2.1.1 Title Report/Ownership

The Title Report lists recorded land title detail, ownership fees, leases, land contracts, easements, liens, deficiencies, and other encumbrances attached to or recorded against a subject property. Laws and regulations pertaining to land trusts vary from state to state and the detail of information presented in a Title Report can vary greatly by jurisdiction. As a result, ENGEO utilizes a Title Report, when provided to us, as a supplement to other historical record sources.

A Preliminary Title Report for the Property, prepared by First American Title Company and dated December 18, 2018, and updated December 28, 2018, was provided for our review. The Property title is vested in Peter Eugene Ginochio, Joanne M. Baker, John R. Ginochio, III, Ronald S. Ginochio, Sally N. Ginochio, Anna M. Ginochio, Edward M. Ginochio, Paul L. Ginochio, Angelina Ginochio, Stephen M. Ginochio, Antionette Ginochio, Patty Ginochio, Gina Ginochio-Robichaud, James Martin Ginochio, John R. Ginochio, IV, Shanon W. Ginochio, Gina L. Ginochio, and Louis E. Ginochio.

Notifications of easement/right-of-ways for PG&E, Shell Oil, and Chevron Pipe Line Company are listed in the report. In addition, there are several notifications of oil/gas and mineral right deeds in this report.

No references to environmental liens, deed restrictions or other potential environmental issues were noted. This report is included in Appendix D.

2.1.2 Environmental Liens and Activity Use Limitations

The referenced Preliminary Title Report did not include references to environmental liens, or any activity use restrictions.

2.2 USER KNOWLEDGE OF PROPERTY

Ms. Lisa Borba of GBN Partners LLC completed two environmental site assessment questionnaires pertaining to applicable past and present uses and physical characteristics of the Property and surrounding properties. In the questionnaire, Ms. Borba identified that the Property is located within historic Brentwood Oil Fields. Ms. Borba indicated that the Property has been used for oil and gas exploration, dryland farming, and grazing. Due to the Property's historic use for oil and gas explorations, Ms. Borba noted that vent pipes may exist on the Property. The questionnaires are presented in their entirety in Appendix G.

Mr. Bob Nunn, President of Sunset Exploration, Inc., completed a key site manager based environmental site assessment questionnaire pertaining to applicable past and present uses and physical characteristics of the Property and surrounding properties. In the questionnaire, Mr. Nunn identified that the Property has historically been used for oil and gas production, as well as for agricultural purposes. Mr. Nunn stated that four former oil/gas wells exist on the Property and that these wells are all listed as abandoned. Prior surveys of the Property indicated that in addition to oil and gas production wells, the Property also had several oil and gas pipeline easements within the boundaries. Mr. Nunn was not able to provide any documentation regarding the removal of

pipelines within the Property. However, based on his knowledge of the adjacent properties and prior practices, it is to the best of his knowledge that all oil and gas related facilities have been removed from the Property. The questionnaire is presented in its entirety in Appendix G.

Ms. Borba also provided for our review a Land Title Survey prepared by Carlson, Barbee, and Gibson, Inc. (CBG), dated April 2006 (Figure 4). The survey indicates several pipeline easements cross the Property. As shown in Figure 4, a Pacific Gas and Electric Company (PG&E) pipeline easement crosses the northeast corner of the Property and Shell Oil pipeline easements cross the north, east, and south portions of the Property.

3.0 RECORDS REVIEW

3.1 PREVIOUS ENVIRONMENTAL REPORTS

ENGEO, Phase One Environmental Site Assessment, Ginochio Property, Brentwood, California, Project No. 4894.3.001.01, August 11, 2000.

ENGEO performed a phase I environmental site assessment for the Property and adjacent parcels north, south, and west of the Property. The site reconnaissance and records research did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the properties. A review of regulatory databases maintained by county, state, and federal agencies found no record of hazardous materials violations or discharge on the properties. A review of aerial photographs and available historical records found the parcels have consisted primarily of open space, with some gas well production since at least 1957.

ENGEO documented three pipelines that share an easement that traverses an adjacent parcel south of the Property. The easement is located from Balfour Road to Deer Valley Road, generally trending southeast to northwest. The easement contains three pipelines maintained by Chevron (crude oil), Kinder Morgan (multi-purpose/refined product), and Pacific Gas and Electric (natural gas). In addition, one Shell petroleum pipeline conveying crude oil is located on the parcel north of the Property. Although there is no record of release, ENGEO indicated it was conceivable that subsurface impacts may have occurred associated with the Kinder Morgan (multi-purpose) pipeline. Based on the distances and regional topographic gradient, it is unlikely that the aforementioned pipelines pose an environmental risk to the Property.

The Conservation Department, Division of Oil and Gas (DOGGR), identified oil/gas wells located within the vicinity of the site. The identified wells included four wells on the Property, as shown in Figure 2, and an additional 13 wells located on adjacent parcels to the north, south, and west. The wells identified on the Property and adjacent parcels were drilled from 1962 through 1987 and have since been plugged and abandoned. ENGEO indicated there could be a potential for subsurface impacts associated with well improvements from condensate tanks, compressor units and drilling sumps.

Based on the findings of the assessment, ENGEO provided the following recommendations for the Property.

- *ENGEO recommends the exact location of the individual wells and their associated improvements be determined. A limited subsurface assessment can be undertaken to determine if the former gas well operations have impacted site soil and/or groundwater. ENGEO also recommends the depth of grout seal for each well be determined.*

3.2 HISTORICAL RECORD SOURCES

The purpose of the historical record review is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions on the Property.

3.2.1 Historical Topographic Maps

Historical USGS topographic maps were reviewed to determine if discernible changes in topography or improvements pertaining to the Property had been recorded. The following maps were provided to us through an EDR Historical Topographic Map Report, presented in Appendix C.

TABLE 3.2.1-1: Historical Topographic Maps

QUAD	YEAR	DESCRIPTION
Mt. Diablo	1896, 1898	<p><u>Property:</u> The Property ranges in elevation from approximately 200 to 340 feet above msl. There is an unimproved road crossing the center of the Property, generally trending southwest to northeast. The unimproved road connects to a light duty road in the northeast corner of the Property. Intermittent streams are visible trending west-to-east and north-to-south across the Property.</p> <p><u>Adjoining:</u> There are some structures, unimproved and light duty roads, and streams visible on adjacent properties. Deer Creek is shown south of the Property.</p>
Mt. Diablo, Byron, Lone Tree Valley, Brentwood	1912, 1914, 1916, 1940, 1943	<p><u>Property:</u> An electric transmission line is shown extending southeast-to-northwest through the western portion of the Property. The intermittent stream shown on the Property is now identified as Sand Creek. The elevation of the Property varies from approximately 150 to 325 feet above msl.</p> <p><u>Adjoining:</u> A structure is visible in the adjacent parcel to the north of the Property. Several major roads are shown in adjacent parcels.</p>
Antioch South, Brentwood	1953, 1954	<p><u>Property:</u> The unimproved road on the Property is now shown extending to the peak on the eastern portion of the Property. Two oil or gas wells are shown on the Property, one in the northern portion and the other near the eastern peak.</p> <p><u>Adjoining:</u> The names of major roads in adjacent parcels are now visible. Intermittent ponds and oil and gas wells are also shown in adjacent parcels to the south.</p>
Antioch South, Brentwood	1968, 1973	<p><u>Property:</u> The well on the eastern portion of the Property is no longer visible.</p> <p><u>Adjoining:</u> Adjoining properties appear unchanged from previous maps.</p>

QUAD	YEAR	DESCRIPTION
Antioch South, Brentwood	1978, 1980	<u>Property:</u> The well on the eastern portion of the Property is visible again. Topographic contours are not shown on the Property or surrounding properties.
		<u>Adjoining:</u> The area in the vicinity of the Property is labeled as Brentwood Gas Field. A pump station is shown southeast of the Property.
Antioch South, Brentwood	2012	<u>Property:</u> Topographic contours are visible again. Individual structures and wells are no longer shown. The Property appears unchanged from previous maps.
		<u>Adjoining:</u> Residential developments are shown to the north, east, and southeast of the Property.

3.2.2 Aerial Photographs

The following aerial photographs, provided by EDR, were reviewed for information regarding past conditions and land use at the Property and in the immediate vicinity. These photographs are presented in Appendix E.

TABLE 3.2.2-1: Aerial Photographs

YEAR	DESCRIPTION
1939, 1949, 1950, 1958	<u>Property:</u> The Property is primarily undeveloped land. An electric transmission line is shown crossing the southwestern portion of the Property, trending northwest-to-southeast. A creek is shown along the northern border of the Property. A drainage channel is observed crossing the eastern portion of the Property, generally trending northeast-to-southwest.
	<u>Adjoining:</u> The surrounding land is mostly undeveloped, with some small structures visible on the parcel to the north of the Property. An orchard is visible northeast of the Property.
1963	<u>Property:</u> Unpaved access roads are visible in the northern, central, and southern portions of the Property. The roads appear to be leading to the historic onsite oil and gas well locations.
	<u>Adjoining:</u> The adjoining properties appear unchanged from previous years.
1966, 1979, 1982, 1984, 1993, 1998	<u>Property:</u> The Property appears unchanged from previous years.
	<u>Adjoining:</u> Two ponds are visible along the southern perimeter of the Property.
2006, 2009, 2012, 2016	<u>Property:</u> An access road connecting the substation to the intersection of Heidorn Ranch Road is shown crossing the northern portion of the Property.
	<u>Adjoining:</u> A residential development is visible southeast of the Property. In 2009, the substation along the northwest perimeter of the Property is visible.

3.2.3 Fire Insurance Maps

EDR prepared a Sanborn Fire insurance map search for the Property and surrounding properties. EDR reported that no maps were available for the Property and surrounding properties.

3.2.4 City Directory

City Directories, published since the 18th century for major towns and cities, list the name of the resident or business associated with each address. A city directory search conducted by EDR is located in Appendix F. The city directory search found residences and businesses that are located within 1 mile of the Property. No listings were identified for the Property.

3.3 ENVIRONMENTAL RECORD SOURCES

EDR performed a search of federal, tribal, state, and local databases regarding the Property and nearby properties. Details regarding the databases searched by EDR are provided in Appendix A. A list of the facilities documented by EDR within the approximate minimum search distance of the Property is provided below.

3.3.1 Standard Environmental Records

3.3.1.1 [Subject Property](#)

The Property is not listed on the Standard Environmental Record source databases.

3.3.1.2 [Other Properties](#)

The following databases include facilities listed within the appropriate ASTM search distances of the Property on Standard Environmental Records sources.

TABLE 3.3.1.2-1

FACILITY	STREET	DATABASES
Shell Yard	3052 Heidorn Ranch Road	SLIC
Loma Vista Elementary Classroom Addition	2210 San Jose Avenue	ENVIROSTOR

3.3.2 Additional Environmental Records

3.3.2.1 [Subject Property](#)

The Property is not listed on the Additional Environmental Record source databases.

3.3.2.2 [Other Properties](#)

The following databases include facilities listed within the appropriate ASTM search distances of the Property on the Additional Environmental Record sources.

TABLE 3.3.2.2-1

FACILITY	STREET	DATABASES
Shell Yard	3052 Heidorn Ranch Rd	FINDS
Area Energy	3052 Heidorn Ranch Rd	HAZNET
Shell Yard	3052 Heidorn Ranch Rd	CDL, CERS
Sand Creek Station	Heidorn Ranch Rd and Sand Creek	CONTRA COSTA COUNTY SITE LIST
Loma Vista Elementary Classroom Addition	2210 San Jose Avenue	SCH

Shell Yard (S106230274)

The Shell Yard site is a 10-acre lot located approximately 500 feet northeast of the Property that was formerly used as an office and maintenance yard for pipeline operations, with secondary use as a support area for oil and gas production operations. Between 1997 and 2009, OXY USA identified petroleum hydrocarbon contamination at the site. Contaminated soil was removed using excavation and biotreatment. After remedial action, a No Further Action letter was issued on February 27, 2011. The site would not be expected to pose an environmental risk to the Property.

Based on the distances to the identified database sites, regional topographic gradient, and the EDR findings, it is unlikely that the above-stated database sites pose an environmental risk to the Property. Properties that are on the “Orphan Summary” list appear to be located beyond the ASTM recommended radius search criteria.

3.4 REGULATORY AGENCY FILES AND RECORDS

The following agencies were contacted pertaining to possible past development and/or activity at the Property.

TABLE 3.4-1: Regulatory Agency Records

NAME OF AGENCY	RECORDS REVIEWED
Contra Costa County Health Services and Hazardous Materials Program	No pertinent environmental records were found.
Contra Costa County Environmental Health Department	No pertinent environmental records were found.
East Contra Costa County Fire Protection District	No pertinent environmental records were found.
Contra Costa County Fire Protection District	No pertinent environmental records were found.
Contra Costa County Assessor’s Office	No pertinent environmental records were found.
City of Antioch City Clerk	No pertinent environmental records were found.
California State Water Resources Control Board	The Geotracker website listed the Shell Yard site, which is located just northeast of the Property. Additional information regarding the facility is presented in Section 3.3.
Department of Toxic Substances Control	The Envirostor website listed the Loma Vista Elementary Classroom Addition site. The school investigation required no action.

3.5 DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES (DOGGR)

Records reviewed on the DOGGR web site provided the following information regarding the four abandoned oil/gas wells:

TABLE 3.5-1 DOGGR Records

WELL ID#	STATUS/TYPE	DEPTH (FT)	DATE DRILLED	DATE ABANDONED	PLUG SEAL (DEPTH BGS FT)
4-9	Abandoned Oil/Gas	4307	1962	1986	3275
43-9	Abandoned Injection	4108	1963	1985	3362
41-9	Abandoned Dry Hole	4939	1963	1991	3233
42-9	Abandoned Oil/Gas	4100	1963	1991	3233

4.0 SITE RECONNAISSANCE

4.1 METHODOLOGY

ENGEO conducted a reconnaissance of the Property on February 22, 2019. The reconnaissance was performed by Connor Dunn, a Staff Engineer of ENGEO. The Property was viewed for hazardous materials storage, superficial staining or discoloration, debris, stressed vegetation, or other conditions that may be indicative of potential sources of soil or groundwater contamination. The Property was also checked for evidence of fill/ventilation pipes, ground subsidence, or other evidence of existing or preexisting underground storage tanks. Photographs taken during the site reconnaissance are presented in Figure 5.

4.2 GENERAL SITE SETTING

The Property is currently undeveloped, except for an unpaved access road within the northern portion of the Property, generally trending west to east. Historically, the Property has been used for dry land farming, cattle grazing, and oil production, the latter of which has since been abandoned. Four abandoned oil/gas wells are located within the Property boundaries. An electric transmission line extends through the southwestern portion of the Property, trending northwest-to-southeast. An access road was observed crossing the northern portion of the Property, trending west to east. The access road connected the electric substation to the west to Heidorn Ranch Road to the northeast.

Adjoining properties consisted of an electric substation along the northwest perimeter and dryland farming/cattle grazing to the north, east, south, and west.

4.3 SITE OBSERVATIONS

The following table summarizes our observations during the reconnaissance:

TABLE 4.3-1: Site Observations

FEATURE TYPE	OBSERVATIONS
Structures	None observed at the time of the site reconnaissance.
Hazardous Substances and Petroleum Products/Containers	None observed at the time of the site reconnaissance.
Storage Tanks (underground and above-ground)	None observed at the time of the site reconnaissance.
Odors	None noted at the time of the site reconnaissance.
Pools of Potentially Hazardous Liquid	None observed at the time of the site reconnaissance.
Drums	None observed at the time of the site reconnaissance.
Polychlorinated Biphenyls (PCBs)	None observed at the time of the site reconnaissance.
Pits, Ponds, and Lagoons	None observed at the time of the site reconnaissance.
Stained Soil/Pavement	None observed at the time of the site reconnaissance.
Stressed Vegetation	None observed at the time of the site reconnaissance.
Solid Waste/Debris	Small piles of debris and rubbish were observed throughout the Property.
Stockpiles/Fill Material	None observed at the time of the site reconnaissance.

FEATURE TYPE	OBSERVATIONS
Wastewater	No evidence of wastewater systems were observed on the Property at the time of the site reconnaissance.
Wells	Four abandoned oil and gas production wells exist within the Property. The approximate locations of the former wells are shown in Figure 2. Details regarding the wells are provided in Section 3.5.
Septic Systems	No evidence of any septic systems were observed on the Property at the time of the site reconnaissance.

4.4 ASBESTOS-CONTAINING MATERIALS AND LEAD-BASED PAINT

No structures are currently located on the Property.

4.5 INDOOR AIR QUALITY

An evaluation of indoor air quality, mold, or radon was not included as part of the contracted scope of services. The California Department of Health Services has conducted studies of radon risks throughout the state, sorted by zip code. Results of the studies indicate that two tests were conducted within the Property zip code, with no tests exceeding the current EPA action level of 4 picocuries per liter (pCi/L)¹.

In accordance with ASTM E2600-15 (Tier 1) (*Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*); there are no potential petroleum hydrocarbon sources for vapor intrusion within 1/10 mile of the Property or volatile organic compound (VOCs) sources within 1/3 mile of the Property.

5.0 EVALUATION

5.1 OPINIONS AND DATA GAPS

It is our opinion that the findings of this study are based on a sufficient level of information obtained during our contracted scope of services to render a conclusion as to whether additional appropriate investigation is required to identify the presence or likely presence of a REC. No data gaps were encountered during our assessment.

5.2 FINDINGS AND CONCLUSIONS

The study included a review of local, state and federal environmental record sources, standard historical sources, aerial photographs, fire insurance maps and physical setting sources; a reconnaissance of the Property to review site use and current conditions to check for the storage, use, production or disposal of hazardous or potentially hazardous materials; and interview with persons knowledgeable about current and past site use.

The site reconnaissance and records review did not find documentation or physical evidence of soil or groundwater impairments associated with the use of the Property. A review of regulatory

¹ California Department of Public Health – Radon Program–
(<https://www.cdph.ca.gov/Programs/CEH/DRSEM/CDPH%20Document%20Library/EMB/Radon/Radon%20Test%20Results.pdf>).

databases maintained by county, state, and federal agencies found no documentation of hazardous materials violations or discharge on the Property. A review of regulatory agency records and available databases did not identify contaminated facilities within the appropriate ASTM search distances that would be expected to impact the Property.

Based on the findings of this assessment, no Recognized Environmental Conditions (RECs), no historical RECs, and no controlled RECs were identified for the Property.

Based on the review of regulatory databases and site reconnaissance, we present information on features of potential environmental concern that were either contained in the databases or observed on the Property. These features were not considered to be RECs. We briefly discuss each feature below.

Former Oil/Gas Wells

Four abandoned oil/gas wells are located within the Property boundaries. The following is recommended to address the past oil/gas production activities:

- Based on anecdotal information, we understand the oil/gas pipelines have been removed; however, if remnant pipelines are encountered during site development work, they should be removed in accordance with applicable regulations.
- If indicators of apparent soil contamination (soil staining, odors, debris fill material, etc.) are encountered at the Property, specifically in the vicinity of abandoned oil/gas wells, or during removal of abandoned oil pipelines, the impacted area(s) should be isolated from surrounding, non-impacted areas. The project environmental professional shall obtain samples of the potentially impacted soil for analysis of the contaminants of concern and comparison with applicable regulatory residential screening levels. If soil contaminant concentrations exceed the applicable regulatory residential screening levels, the impacted soil shall be excavated and disposed of offsite at a licensed landfill facility.
- Prior to final map approval, the project applicant shall submit to the City of Antioch Engineering Department, for review and approval, plans which show that future inhabited structures will not be located over the four abandoned oil/gas wells. The plans shall be completed in compliance with the DOGGR Construction Site Review Program, which includes guidelines and recommendations for setbacks and mitigation measures for venting systems.
- If grading is proposed proximate to the four abandoned well locations, DOGGR should be consulted to determine if the wells will require modification in casing height. In addition, DOGGR should be consulted to determine if the well abandonment procedures are consistent with current requirements.
- The specific location of the wells should be determined and surveyed in the field.

ENGEO has performed a phase I environmental site assessment in general conformance with the scope and limitations of ASTM E1527-13 and the standards and practices of the All Appropriate Inquiry – Final Rule (40 Code of Federal Regulations Part 312). This assessment has revealed no evidence of Recognized Environmental Conditions in connection with the Property.

ENGEO recommends no further environmental studies at this time.

SELECTED REFERENCES

California Department of Conservation (DOGGR) (<http://maps.conservation.ca.gov/doms/doms-app.html>)

California Department of Public Health – Radon Program–
(<https://www.cdph.ca.gov/Programs/CEH/DRSEM/CDPH%20Document%20Library/EMB/Radon/Radon%20Test%20Results.pdf>).

California Department of Water Resources (<http://www.water.ca.gov/waterdatalibrary/>)

Carlson, Barbee, & Gibson, Inc. (CBG), ALTA/ACSM Land Title Survey, Ginochio Property, City of Antioch, Contra Costa County, California, April 2006.

Dibblee, T.W.; 2006, Geologic Map of the Antioch South and Brentwood Quadrangles, Contra Costa County, California; Dibblee Geology Center Map #DF-193.

ENGEO, Phase One Environmental Site Assessment, Ginochio Property, Brentwood, California, Project No. 4894.3.001.01, August 11, 2000.

First American Title Company, Preliminary Title Report, APN 057-050-024, Antioch, CA, December 18, 2018, Updated December 28, 2018.

Google Maps (<http://maps.google.com>)



FIGURES

FIGURE 1: Vicinity Map

FIGURE 2: Site Plan

FIGURE 3: Assessor's Parcel Map

FIGURE 4: Land Title Survey

FIGURE 5: Site Photographs

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BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



VICINITY MAP
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001

SCALE: AS SHOWN

DRAWN BY: JV

CHECKED BY: SPM

FIGURE NO.

1

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- TP-15** TEST PIT (ENGEO, 2001)
- B-8** BORING (ENGEO, 2001)
- 43-9** PLUGGED OIL AND GAS WELL

Google earth

BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE AND CARLSON, BARBEE AND GIBSON



SITE PLAN
CREEKSIDE
ANTIOCH, CALIFORNIA

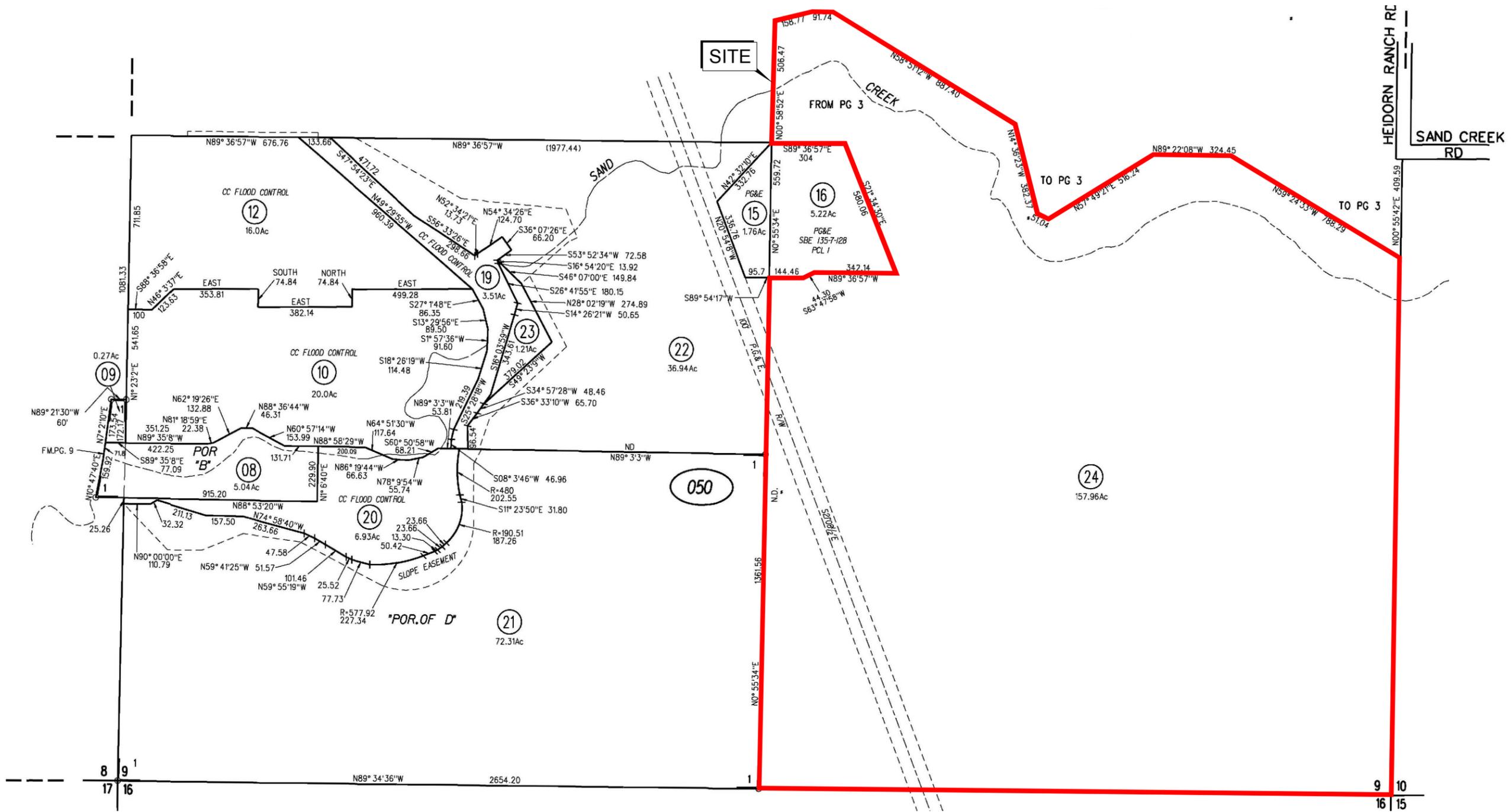
PROJECT NO.: 4894.002.001	2
SCALE: AS SHOWN	
DRAWN BY: JV	CHECKED BY: SPM

FIGURE NO.

2

ORIGINAL FIGURE PRINTED IN COLOR

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BASE MAP SOURCE: CONTRA COSTA COUNTY ASSESSOR'S OFFICE



ASSESSOR'S PARCEL MAP
 CREEKSIDE
 ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001	FIGURE NO. 3
SCALE: AS SHOWN	
DRAWN BY: JV	CHECKED BY: SPM

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PHOTO 1

VIEW FROM ACCESS ROAD ALONG NORTH PORTION OF THE PROPERTY, LOOKING SOUTHWEST



PHOTO 2

VIEW OF DRAINAGE CHANNEL ALONG EAST PORTION OF PROPERTY, LOOKING SOUTH



PHOTO 3

VIEW FROM SOUTHEAST PORTION OF PROPERTY, LOOKING NORTH



SITE PHOTOGRAPHS
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001

SCALE: NO SCALE

DRAWN BY: JV

CHECKED BY: SPM

FIGURE NO.
5A

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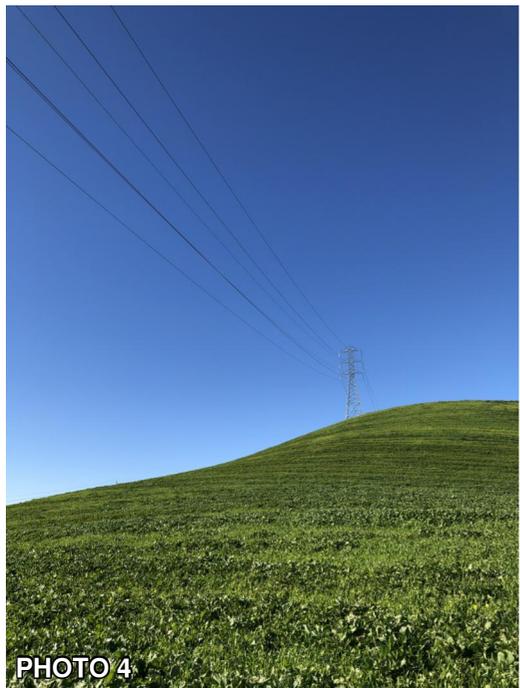


PHOTO 4
VIEW FROM SOUTHWEST PORTION OF PROPERTY,
LOOKING NORTHWEST



PHOTO 5
VIEW FROM NORTH PORTION OF PROPERTY, LOOKING
SOUTHWEST



PHOTO 6
VIEW FROM NORTHWEST PORTION OF PROPERTY, LOOKING
SOUTHEAST



SITE PHOTOGRAPHS
CREEKSIDE
ANTIOCH, CALIFORNIA

PROJECT NO.: 4894.002.001

SCALE: NO SCALE

DRAWN BY: JV

CHECKED BY: SPM

FIGURE NO.

5B



APPENDIX A

ENVIRONMENTAL DATA RESOURCES, INC.

Radius Map Report

Creekside

3052 Heidorn Ranch Rd
Antioch, CA 94531

Inquiry Number: 05569243.2r
February 21, 2019

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

3052 HEIDORN RANCH RD
ANTIOCH, CA 94531

COORDINATES

Latitude (North): 37.9434990 - 37° 56' 36.59"
Longitude (West): 121.7550600 - 121° 45' 18.21"
Universal Transverse Mercator: Zone 10
UTM X (Meters): 609391.1
UTM Y (Meters): 4200071.5
Elevation: 169 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5640044 ANTIOCH SOUTH, CA
Version Date: 2012

East Map: 5640376 BRENTWOOD, CA
Version Date: 2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from: 20140606
Source: USDA

MAPPED SITES SUMMARY

Target Property Address:
 3052 HEIDORN RANCH RD
 ANTIOCH, CA 94531

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	SHELL YARD	3052 HEIDORN RANCH R	FINDS		TP
A2	AERA ENERGY	3052 HEIDORN RANCH R	HAZNET		TP
A3	SHELL YARD	3052 HEIDORN RANCH R	CPS-SLIC, CDL, CERS		TP
4	SAND CREEK STN	HEIDORN RANCH & SAND	CONTRA COSTA CO. SITE LIST	Lower	470, 0.089, NE
5	LOMA VISTA ELEMENTAR	2110 SAN JOSE AVENUE	ENVIROSTOR, SCH	Lower	4129, 0.782, ESE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
SHELL YARD 3052 HEIDORN RANCH R ANTIOCH, CA 94531	FINDS Registry ID:: 110066336593	N/A
AERA ENERGY 3052 HEIDORN RANCH R ANTIOCH, CA 94509	HAZNET GEPaid: CAC002649034	N/A
SHELL YARD 3052 HEIDORN RANCH R ANTIOCH, CA 94531	CPS-SLIC Database: CPS-SLIC, Date of Government Version: 12/10/2018 Database: SLIC REG 5, Date of Government Version: 04/01/2005 Facility Status: Completed - Case Closed Global Id: SL0601369421 CDL Facility Id: 2000-11-134 CERS	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing
SEMS..... Superfund Enterprise Management System

EXECUTIVE SUMMARY

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators

RCRA-SQG..... RCRA - Small Quantity Generators

RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

US ENG CONTROLS..... Engineering Controls Sites List

US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing

UST..... Active UST Facilities

AST..... Aboveground Petroleum Storage Tank Facilities

INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

VCP..... Voluntary Cleanup Program Properties

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfields Sites Listing

EXECUTIVE SUMMARY

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS..... Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL..... Delisted National Clandestine Laboratory Register
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program
CERS HAZ WASTE..... CERS HAZ WASTE
Toxic Pits..... Toxic Pits Cleanup Act Sites
US CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

SWEEPS UST..... SWEEPS UST Listing
HIST UST..... Hazardous Substance Storage Container Database
CERS TANKS..... California Environmental Reporting System (CERS) Tanks
CA FID UST..... Facility Inventory Database

Local Land Records

LIENS..... Environmental Liens Listing
LIENS 2..... CERCLA Lien Information
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System
LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated
FUDS..... Formerly Used Defense Sites
DOD..... Department of Defense Sites
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR..... Financial Assurance Information

EXECUTIVE SUMMARY

EPA WATCH LIST.....	EPA WATCH LIST
2020 COR ACTION.....	2020 Corrective Action Program List
TSCA.....	Toxic Substances Control Act
TRIS.....	Toxic Chemical Release Inventory System
SSTS.....	Section 7 Tracking Systems
ROD.....	Records Of Decision
RMP.....	Risk Management Plans
RAATS.....	RCRA Administrative Action Tracking System
PRP.....	Potentially Responsible Parties
PADS.....	PCB Activity Database System
ICIS.....	Integrated Compliance Information System
FTTS.....	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
MLTS.....	Material Licensing Tracking System
COAL ASH DOE.....	Steam-Electric Plant Operation Data
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER.....	PCB Transformer Registration Database
RADINFO.....	Radiation Information Database
HIST FTTS.....	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS.....	Incident and Accident Data
CONSENT.....	Superfund (CERCLA) Consent Decrees
INDIAN RESERV.....	Indian Reservations
FUSRAP.....	Formerly Utilized Sites Remedial Action Program
UMTRA.....	Uranium Mill Tailings Sites
LEAD SMELTERS.....	Lead Smelter Sites
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
US MINES.....	Mines Master Index File
ABANDONED MINES.....	Abandoned Mines
ECHO.....	Enforcement & Compliance History Information
DOCKET HWC.....	Hazardous Waste Compliance Docket Listing
UXO.....	Unexploded Ordnance Sites
FUELS PROGRAM.....	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN.....	Bond Expenditure Plan
Cortese.....	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings.....	CUPA Resources List
DRYCLEANERS.....	Cleaner Facilities
EML.....	Emissions Inventory Data
ENF.....	Enforcement Action Listing
Financial Assurance.....	Financial Assurance Information Listing
ICE.....	ICE
HIST CORTESE.....	Hazardous Waste & Substance Site List
HWP.....	EnviroStor Permitted Facilities Listing
HWT.....	Registered Hazardous Waste Transporter Database
MINES.....	Mines Site Location Listing
MWMP.....	Medical Waste Management Program Listing
NPDES.....	NPDES Permits Listing
PEST LIC.....	Pesticide Regulation Licenses Listing
PROC.....	Certified Processors Database
Notify 65.....	Proposition 65 Records
UIC.....	UIC Listing
UIC GEO.....	UIC GEO (GEOTRACKER)
WASTEWATER PITS.....	Oil Wastewater Pits Listing
WDS.....	Waste Discharge System
MILITARY PRIV SITES.....	MILITARY PRIV SITES (GEOTRACKER)
PROJECT.....	PROJECT (GEOTRACKER)

EXECUTIVE SUMMARY

WDR.....	Waste Discharge Requirements Listing
CIWQS.....	California Integrated Water Quality System
WIP.....	Well Investigation Program Case List
NON-CASE INFO.....	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS.....	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS.....	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT.....	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ.....	Well Stimulation Project (GEOTRACKER)

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR Hist Auto.....	EDR Exclusive Historical Auto Stations
EDR Hist Cleaner.....	EDR Exclusive Historical Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF.....	Recovered Government Archive Solid Waste Facilities List
RGA LUST.....	Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 10/29/2018 has revealed that there is

EXECUTIVE SUMMARY

1 ENVIROSTOR site within approximately 1 mile of the target property.

<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
LOMA VISTA ELEMENTAR Facility Id: 7820007 Status: No Action Required	2110 SAN JOSE AVENUE	ESE 1/2 - 1 (0.782 mi.)	5	10

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

CONTRA COSTA CO. SITE LIST: Lists includes sites from the Underground Tank Program, Hazardous Waste Generator Program & Business Plan 12185 Program

A review of the CONTRA COSTA CO. SITE LIST list, as provided by EDR, and dated 11/26/2018 has revealed that there is 1 CONTRA COSTA CO. SITE LIST site within approximately 0.25 miles of the target property.

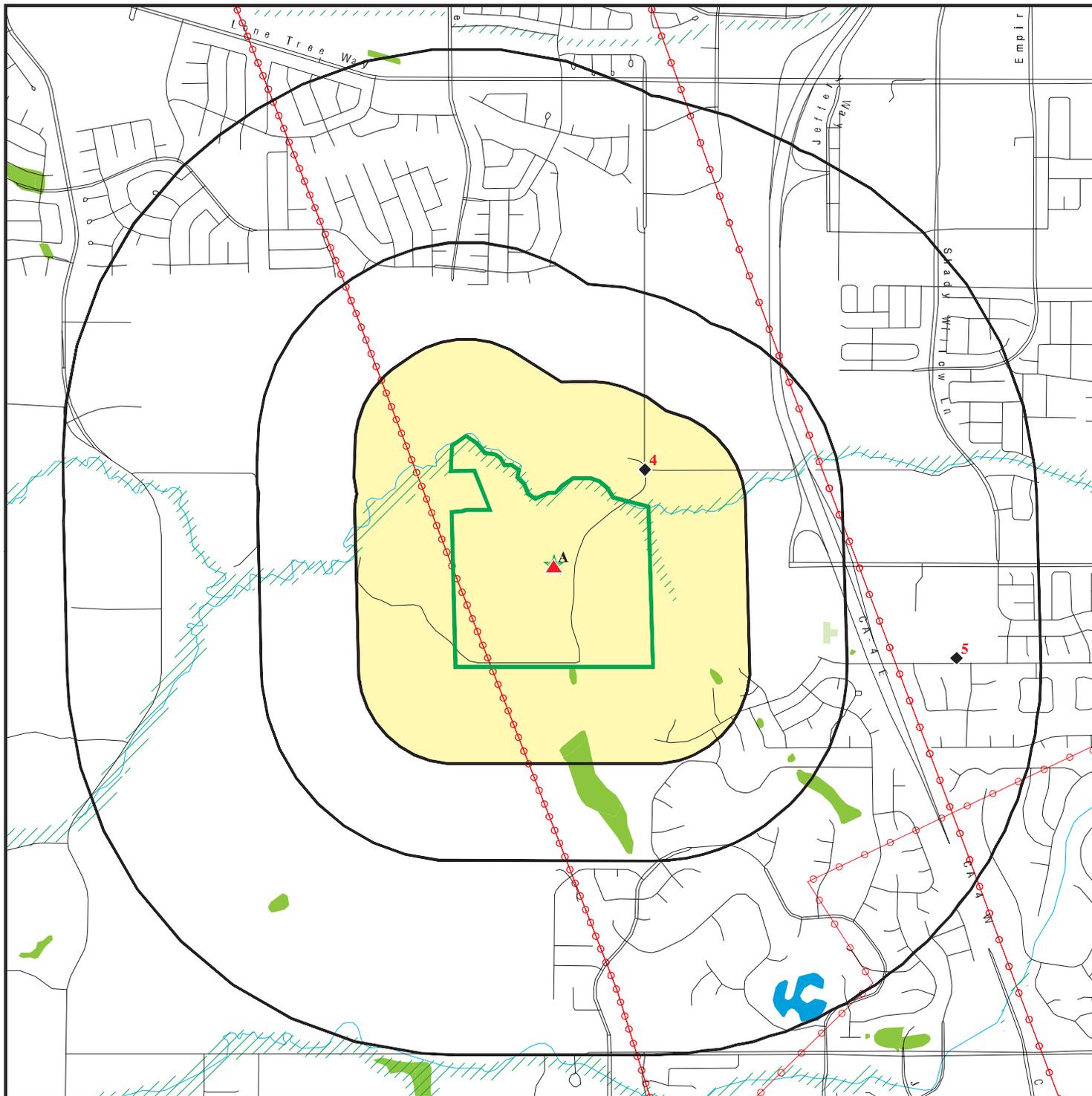
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
SAND CREEK STN Facility Id: FA0030922	HEIDORN RANCH & SAND	NE 0 - 1/8 (0.089 mi.)	4	10

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records.

<u>Site Name</u>	<u>Database(s)</u>
KMEP HILLCREST RELEASE	CPS-SLIC
THE TERMO COMPANY	CPS-SLIC
SHEA HOMES PROPERTY (FORMERLY GERM	CPS-SLIC

OVERVIEW MAP - 05569243.2R

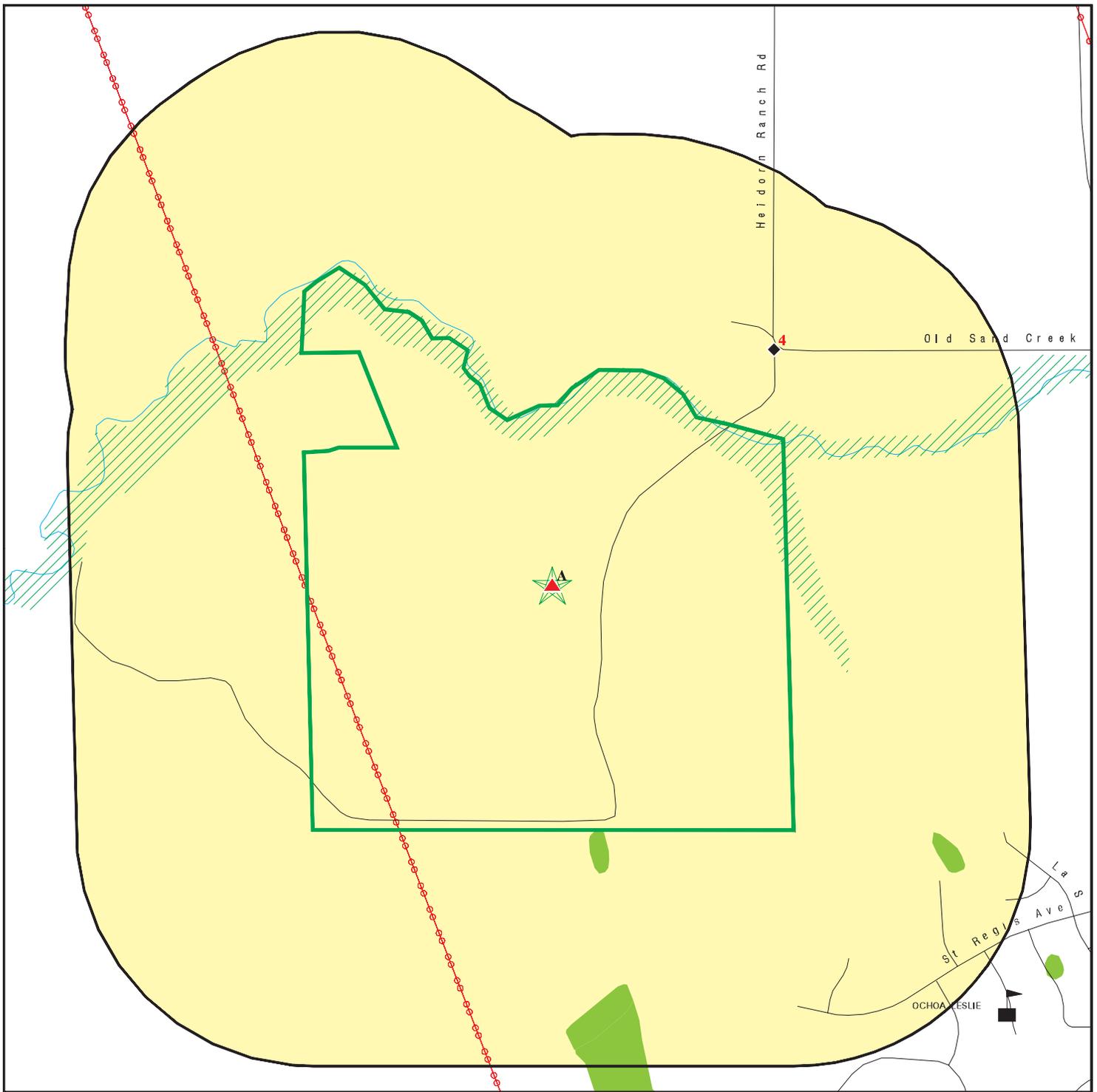


-  Target Property
-  Sites at elevations higher than or equal to the target property
-  Sites at elevations lower than the target property
-  Manufactured Gas Plants
-  National Priority List Sites
-  Dept. Defense Sites
-  Indian Reservations BIA
-  Power transmission lines
-  100-year flood zone
-  500-year flood zone
-  National Wetland Inventory
-  State Wetlands
-  Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

<p>SITE NAME: Creekside ADDRESS: 3052 Heidorn Ranch Rd Antioch CA 94531 LAT/LONG: 37.943499 / 121.75506</p>	<p>CLIENT: Engeo Inc. CONTACT: Victoria Drake INQUIRY #: 05569243.2r DATE: February 21, 2019 3:30 pm</p>
---	---

DETAIL MAP - 05569243.2R



- | | | |
|---|--|--|
|  Target Property |  Indian Reservations BIA |  Areas of Concern |
|  Sites at elevations higher than or equal to the target property |  Power transmission lines | |
|  Sites at elevations lower than the target property |  100-year flood zone | |
|  Manufactured Gas Plants |  500-year flood zone | |
|  Sensitive Receptors |  National Wetland Inventory | |
|  National Priority List Sites |  State Wetlands | |
|  Dept. Defense Sites | | |

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Creekside
 ADDRESS: 3052 Heidorn Ranch Rd
 Antioch CA 94531
 LAT/LONG: 37.943499 / 121.75506

CLIENT: Engeo Inc.
 CONTACT: Victoria Drake
 INQUIRY #: 05569243.2r
 DATE: February 21, 2019 3:31 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	0.001		0	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	0.001		0	NR	NR	NR	NR	0
<i>State- and tribal - equivalent NPL RESPONSE</i>								
RESPONSE	1.000		0	0	0	0	NR	0
<i>State- and tribal - equivalent CERCLIS ENVIROSTOR</i>								
ENVIROSTOR	1.000		0	0	0	1	NR	1
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500	1	0	0	0	NR	NR	1
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001	1	0	NR	NR	NR	NR	1
CERS HAZ WASTE	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0
LIENS 2	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	0.001		0	NR	NR	NR	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.001		0	NR	NR	NR	NR	0
FINDS	0.001	1	0	NR	NR	NR	NR	1
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0

MAP FINDINGS

Map ID
Direction
Distance
Elevation

Site

Database(s)

EDR ID Number
EPA ID Number

A1 **SHELL YARD**
Target **3052 HEIDORN RANCH RD**
Property **ANTIOCH, CA 94531**

FINDS **1023338370**
 N/A

Site 1 of 3 in cluster A

Actual:
169 ft.

FINDS:

Registry ID: 110066336593

Environmental Interest/Information System
STATE MASTER

[Click this hyperlink](#) while viewing on your computer to access additional FINDS: detail in the EDR Site Report.

A2 **AERA ENERGY**
Target **3052 HEIDORN RANCH RD**
Property **ANTIOCH, CA 94509**

HAZNET **S112981713**
 N/A

Site 2 of 3 in cluster A

Actual:
169 ft.

HAZNET:
 envid: S112981713
 Year: 2009
 GEPAID: CAC002649034
 Contact: RON CHAMBERS
 Telephone: 6616655641
 Mailing Name: Not reported
 Mailing Address: PO BOX 11164
 Mailing City,St,Zip: BAKERSFIELD, CA 933891164
 Gen County: Not reported
 TSD EPA ID: CAD044429835
 TSD County: Not reported
 Waste Category: Other organic solids
 Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)

 Tons: 0.03
 Cat Decode: Not reported
 Method Decode: Not reported
 Facility County: Contra Costa

A3 **SHELL YARD**
Target **3052 HEIDORN RANCH RD**
Property **ANTIOCH, CA 94531**

CPS-SLIC **S106230276**
 CDL **N/A**
 CERS

Site 3 of 3 in cluster A

Actual:
169 ft.

CPS-SLIC:
 Region: STATE
 Facility Status: **Completed - Case Closed**
 Status Date: 02/17/2011
 Global Id: SL0601369421
 Lead Agency: CENTRAL VALLEY RWQCB (REGION 5S)
 Lead Agency Case Number: Not reported
 Latitude: 37.94806
 Longitude: -121.751851

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SHELL YARD (Continued)

S106230276

Case Type: Cleanup Program Site
Case Worker: KAS
Local Agency: Not reported
RB Case Number: SL0601369421
File Location: Regional Board
Potential Media Affected: Aquifer used for drinking water supply
Potential Contaminants of Concern: * Petroleum - Automotive gasolines, * Petroleum - Diesel fuels, * Petroleum - Waste oil
Site History: The Site is at the intersection of Heidorn Ranch Road and Sand Creek Road in Antioch. The 10-acre lot was formerly used as an office and maintenance yard for pipeline operations, with secondary use as a support area for oil and gas production operations. The Site is bounded on all sides by agricultural fields.

[Click here to access the California GeoTracker records for this facility:](#)

SLIC REG 5:

Region: 5
Facility Status: Preliminary Assessment
Unit: Facility is a Spill or site
Pollutant: TPH g,d, BTEX
Lead Agency: MES
Date Filed: / /
Report Date: / /
Date Added: Not reported
Date Closed: Not reported

CDL:

Facility ID: 2000-11-134
Date: 11/26/2000
Labtype: Abandoned Drug Lab
Lab Type: Abandoned Drug Lab Waste (A) - location away from an actual illegal drug lab where drug lab waste and/or equipment were abandoned.

CERS TANKS:

Site ID: 206713
CERS ID: SL0601369421
CERS Description: Cleanup Program Site

Affiliation:

Affiliation Type Desc: Regional Board Caseworker
Entity Name: KRISTIN SHELTON - CENTRAL VALLEY RWQCB (REGION 5S)
Entity Title: Not reported
Affiliation Address: 11020 SUN CENTER DRIVE #200
Affiliation City: RANCHO CORDOVA
Affiliation State: CA
Affiliation Country: Not reported
Affiliation Zip: Not reported
Affiliation Phone: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

4
NE
< 1/8
0.089 mi.
470 ft.

**SAND CREEK STN
HEIDORN RANCH & SAND CREE
BRENTWOOD, CA 94513**

**CONTRA COSTA CO. SITE LIST S105850335
N/A**

**Relative:
Lower
Actual:
152 ft.**

CONTRA COSTA CO. SITE LIST:
Facility ID: FA0030922
Billing Status: INACTIVE, NON-BILLABLE
Program Status: CONTRA COSTA CO. SITE LIST
Program/Elements: HMBP GENERAL
Region: CONTRA COSTA
Cupa Number: 707518

Facility ID: FA0030922
Billing Status: INACTIVE, NON-BILLABLE
Program Status: CONTRA COSTA CO. SITE LIST
Program/Elements: HWG GENERAL
Region: CONTRA COSTA
Cupa Number: 707518

5
ESE
1/2-1
0.782 mi.
4129 ft.

**LOMA VISTA ELEMENTARY CLASSROOM ADDITION
2110 SAN JOSE AVENUE
BRENTWOOD, CA 94513**

**ENVIROSTOR S118757485
SCH N/A**

**Relative:
Lower
Actual:
124 ft.**

ENVIROSTOR:
Facility ID: 7820007
Status: No Action Required
Status Date: 05/31/2001
Site Code: 204078
Site Type: School Investigation
Site Type Detailed: School
Acres: 54
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Kamili Siglowide
Supervisor: Charles Ridenour
Division Branch: Northern California Schools & Santa Susana
Assembly: 11
Senate: 07
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: School District
Latitude: 37.94052
Longitude: -121.7355
APN: 019110043
Past Use: SCHOOL - ELEMENTARY
Potential COC: NONE SPECIFIED No Contaminants found
Confirmed COC: NONE SPECIFIED
Potential Description: NMA
Alias Name: Not reported
Alias Type: Not reported

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

LOMA VISTA ELEMENTARY CLASSROOM ADDITION (Continued)

S118757485

Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

SCH:

Facility ID: 7820007
Site Type: School Investigation
Site Type Detail: School
Site Mgmt. Req.: NONE SPECIFIED
Acres: 54
National Priorities List: NO
Cleanup Oversight Agencies: SMBRP
Lead Agency: SMBRP
Lead Agency Description: DTSC - Site Cleanup Program
Project Manager: Kamili Siglowide
Supervisor: Charles Ridenour
Division Branch: Northern California Schools & Santa Susana
Site Code: 204078
Assembly: 11
Senate: 07
Special Program Status: Not reported
Status: No Action Required
Status Date: 05/31/2001
Restricted Use: NO
Funding: School District
Latitude: 37.94052
Longitude: -121.7355
APN: 019110043
Past Use: SCHOOL - ELEMENTARY
Potential COC: NONE SPECIFIED, No Contaminants found
Confirmed COC: NONE SPECIFIED
Potential Description: NMA
Alias Name: Not reported
Alias Type: Not reported

Completed Info:

Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

LOMA VISTA ELEMENTARY CLASSROOM ADDITION (Continued)

S118757485

Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 3 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ANTIOCH	S123185288	KMEP HILLCREST RELEASE	HILLCREST AVENUE AND SUNSET DR		CPS-SLIC
BRENTWOOD	S105982781	THE TERMO COMPANY	SAN JOSE AVE., SW END		CPS-SLIC
BRENTWOOD	S106707856	SHEA HOMES PROPERTY (FORMERLY GERM	SAN JOSE AVE AND SAN JOSE RD		CPS-SLIC

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/12/2018	Source: EPA
Date Data Arrived at EDR: 12/28/2018	Telephone: N/A
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 02/15/2019
Number of Days to Update: 14	Next Scheduled EDR Contact: 04/15/2019
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/12/2018	Source: EPA
Date Data Arrived at EDR: 12/28/2018	Telephone: N/A
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 02/15/2019
Number of Days to Update: 14	Next Scheduled EDR Contact: 04/15/2019
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: N/A
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 11/07/2016
Date Data Arrived at EDR: 01/05/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 12/13/2018	Source: EPA
Date Data Arrived at EDR: 12/28/2018	Telephone: 800-424-9346
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 02/15/2019
Number of Days to Update: 14	Next Scheduled EDR Contact: 04/29/2019
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/01/2018	Source: EPA
Date Data Arrived at EDR: 03/28/2018	Telephone: 800-424-9346
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 10/17/2018	Source: Department of the Navy
Date Data Arrived at EDR: 10/25/2018	Telephone: 843-820-7326
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 02/07/2019
Number of Days to Update: 43	Next Scheduled EDR Contact: 05/27/2019
	Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 07/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/28/2018	Telephone: 703-603-0695
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 02/04/2019
Number of Days to Update: 17	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 07/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/28/2018	Telephone: 703-603-0695
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 02/04/2019
Number of Days to Update: 17	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/24/2018

Date Data Arrived at EDR: 09/25/2018

Date Made Active in Reports: 11/09/2018

Number of Days to Update: 45

Source: National Response Center, United States Coast Guard

Telephone: 202-267-2180

Last EDR Contact: 02/08/2019

Next Scheduled EDR Contact: 04/08/2019

Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/29/2018

Date Data Arrived at EDR: 10/30/2018

Date Made Active in Reports: 12/13/2018

Number of Days to Update: 44

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 01/29/2019

Next Scheduled EDR Contact: 05/11/2019

Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/29/2018

Date Data Arrived at EDR: 10/30/2018

Date Made Active in Reports: 12/13/2018

Number of Days to Update: 44

Source: Department of Toxic Substances Control

Telephone: 916-323-3400

Last EDR Contact: 01/29/2019

Next Scheduled EDR Contact: 05/11/2019

Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/12/2018

Date Data Arrived at EDR: 11/14/2018

Date Made Active in Reports: 12/13/2018

Number of Days to Update: 29

Source: Department of Resources Recycling and Recovery

Telephone: 916-341-6320

Last EDR Contact: 02/12/2019

Next Scheduled EDR Contact: 05/27/2019

Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 9: Leaking Underground Storage Tank Report

Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)

Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/11/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 2: Fuel Leak List

Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 04/10/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/25/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/24/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/13/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 05/08/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/01/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/12/2018
Date Data Arrived at EDR: 05/18/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 63

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)

Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003	Source: California Regional Water Quality Control Board, North Coast Region (1)
Date Data Arrived at EDR: 04/07/2003	Telephone: 707-576-2220
Date Made Active in Reports: 04/25/2003	Last EDR Contact: 08/01/2011
Number of Days to Update: 18	Next Scheduled EDR Contact: 11/14/2011
	Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004	Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Date Data Arrived at EDR: 10/20/2004	Telephone: 510-286-0457
Date Made Active in Reports: 11/19/2004	Last EDR Contact: 09/19/2011
Number of Days to Update: 30	Next Scheduled EDR Contact: 01/02/2012
	Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006	Source: California Regional Water Quality Control Board Central Coast Region (3)
Date Data Arrived at EDR: 05/18/2006	Telephone: 805-549-3147
Date Made Active in Reports: 06/15/2006	Last EDR Contact: 07/18/2011
Number of Days to Update: 28	Next Scheduled EDR Contact: 10/31/2011
	Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004	Source: Region Water Quality Control Board Los Angeles Region (4)
Date Data Arrived at EDR: 11/18/2004	Telephone: 213-576-6600
Date Made Active in Reports: 01/04/2005	Last EDR Contact: 07/01/2011
Number of Days to Update: 47	Next Scheduled EDR Contact: 10/17/2011
	Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005	Source: Regional Water Quality Control Board Central Valley Region (5)
Date Data Arrived at EDR: 04/05/2005	Telephone: 916-464-3291
Date Made Active in Reports: 04/21/2005	Last EDR Contact: 09/12/2011
Number of Days to Update: 16	Next Scheduled EDR Contact: 12/26/2011
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 05/15/2017
Date Data Arrived at EDR: 05/30/2017
Date Made Active in Reports: 10/13/2017
Number of Days to Update: 136

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MILITARY UST SITES: Military UST Sites (GEOTRACKER)

Military ust sites

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases

UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/12/2018	Telephone: 916-327-7844
Date Made Active in Reports: 01/16/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

UST: Active UST Facilities

Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/10/2018	Source: SWRCB
Date Data Arrived at EDR: 12/11/2018	Telephone: 916-341-5851
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/11/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities

A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016	Source: California Environmental Protection Agency
Date Data Arrived at EDR: 07/12/2016	Telephone: 916-327-5092
Date Made Active in Reports: 09/19/2016	Last EDR Contact: 12/12/2018
Number of Days to Update: 69	Next Scheduled EDR Contact: 04/01/2019
	Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/25/2018	Source: EPA Region 8
Date Data Arrived at EDR: 05/18/2018	Telephone: 303-312-6137
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/13/2018	Source: EPA, Region 1
Date Data Arrived at EDR: 05/18/2018	Telephone: 617-918-1313
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/10/2018	Source: EPA Region 9
Date Data Arrived at EDR: 05/18/2018	Telephone: 415-972-3368
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/24/2018	Source: EPA Region 7
Date Data Arrived at EDR: 05/18/2018	Telephone: 913-551-7003
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/12/2018	Source: EPA Region 10
Date Data Arrived at EDR: 05/18/2018	Telephone: 206-553-2857
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/12/2018	Source: EPA Region 5
Date Data Arrived at EDR: 05/18/2018	Telephone: 312-886-6136
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 05/08/2018	Source: EPA Region 4
Date Data Arrived at EDR: 05/18/2018	Telephone: 404-562-9424
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/01/2018	Source: EPA Region 6
Date Data Arrived at EDR: 05/18/2018	Telephone: 214-665-7591
Date Made Active in Reports: 07/20/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Program Properties

Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/29/2018	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 10/30/2018	Telephone: 916-323-3400
Date Made Active in Reports: 12/13/2018	Last EDR Contact: 01/29/2019
Number of Days to Update: 44	Next Scheduled EDR Contact: 05/11/2019
	Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 12/19/2018
Number of Days to Update: 142	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfields Sites Listing

A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/24/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/25/2018	Telephone: 916-323-7905
Date Made Active in Reports: 10/15/2018	Last EDR Contact: 12/21/2018
Number of Days to Update: 20	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/17/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/18/2018	Telephone: 202-566-2777
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 12/18/2018
Number of Days to Update: 24	Next Scheduled EDR Contact: 04/01/2019
	Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database

Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000	Source: State Water Resources Control Board
Date Data Arrived at EDR: 04/10/2000	Telephone: 916-227-4448
Date Made Active in Reports: 05/10/2000	Last EDR Contact: 01/28/2019
Number of Days to Update: 30	Next Scheduled EDR Contact: 05/11/2019
	Data Release Frequency: No Update Planned

SWRCY: Recycler Database

A listing of recycling facilities in California.

Date of Government Version: 12/10/2018	Source: Department of Conservation
Date Data Arrived at EDR: 12/12/2018	Telephone: 916-323-3836
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 34	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing

A listing of registered waste tire haulers.

Date of Government Version: 09/26/2018	Source: Integrated Waste Management Board
Date Data Arrived at EDR: 09/28/2018	Telephone: 916-341-6422
Date Made Active in Reports: 11/01/2018	Last EDR Contact: 02/12/2019
Number of Days to Update: 34	Next Scheduled EDR Contact: 05/27/2019
	Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/03/2007	Telephone: 703-308-8245
Date Made Active in Reports: 01/24/2008	Last EDR Contact: 01/29/2019
Number of Days to Update: 52	Next Scheduled EDR Contact: 05/13/2019
	Data Release Frequency: Varies

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009	Source: EPA, Region 9
Date Data Arrived at EDR: 05/07/2009	Telephone: 415-947-4219
Date Made Active in Reports: 09/21/2009	Last EDR Contact: 01/17/2019
Number of Days to Update: 137	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2004
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

IHS OPEN DUMPS: Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014	Source: Department of Health & Human Services, Indian Health Service
Date Data Arrived at EDR: 08/06/2014	Telephone: 301-443-1452
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 02/01/2019
Number of Days to Update: 176	Next Scheduled EDR Contact: 05/13/2019
	Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 09/21/2018	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 09/21/2018	Telephone: 202-307-1000
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 11/26/2018
Number of Days to Update: 49	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005	Source: Department of Toxic Substance Control
Date Data Arrived at EDR: 08/03/2006	Telephone: 916-323-3400
Date Made Active in Reports: 08/24/2006	Last EDR Contact: 02/23/2009
Number of Days to Update: 21	Next Scheduled EDR Contact: 05/25/2009
	Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/29/2018	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 10/30/2018	Telephone: 916-323-3400
Date Made Active in Reports: 12/13/2018	Last EDR Contact: 01/29/2019
Number of Days to Update: 44	Next Scheduled EDR Contact: 05/11/2019
	Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2017	Source: Department of Toxic Substances Control
Date Data Arrived at EDR: 06/12/2018	Telephone: 916-255-6504
Date Made Active in Reports: 08/06/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 55	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Varies

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995	Source: State Water Resources Control Board
Date Data Arrived at EDR: 08/30/1995	Telephone: 916-227-4364
Date Made Active in Reports: 09/26/1995	Last EDR Contact: 01/26/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 04/27/2009
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/22/2018	Source: CalEPA
Date Data Arrived at EDR: 10/23/2018	Telephone: 916-323-2514
Date Made Active in Reports: 11/30/2018	Last EDR Contact: 01/24/2019
Number of Days to Update: 38	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Quarterly

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/21/2018	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 09/21/2018	Telephone: 202-307-1000
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 11/26/2018
Number of Days to Update: 49	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Quarterly

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/07/2005	Telephone: N/A
Date Made Active in Reports: 08/11/2005	Last EDR Contact: 06/03/2005
Number of Days to Update: 35	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 12/04/2018	Source: Department of Public Health
Date Data Arrived at EDR: 12/06/2018	Telephone: 707-463-4466
Date Made Active in Reports: 12/14/2018	Last EDR Contact: 11/26/2018
Number of Days to Update: 8	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990	Source: State Water Resources Control Board
Date Data Arrived at EDR: 01/25/1991	Telephone: 916-341-5851
Date Made Active in Reports: 02/12/1991	Last EDR Contact: 07/26/2001
Number of Days to Update: 18	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing

Aboveground storage tank sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 09/11/2018
Date Data Arrived at EDR: 09/12/2018
Date Made Active in Reports: 10/11/2018
Number of Days to Update: 29

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/03/2018	Source: DTSC and SWRCB
Date Data Arrived at EDR: 12/05/2018	Telephone: 916-323-3400
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 12/05/2018
Number of Days to Update: 37	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/26/2018	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 03/27/2018	Telephone: 202-366-4555
Date Made Active in Reports: 06/08/2018	Last EDR Contact: 02/08/2019
Number of Days to Update: 73	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/06/2018	Source: Office of Emergency Services
Date Data Arrived at EDR: 04/24/2018	Telephone: 916-845-8400
Date Made Active in Reports: 06/14/2018	Last EDR Contact: 01/24/2019
Number of Days to Update: 51	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018	Source: State Water Quality Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/22/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 50	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/01/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/28/2018	Telephone: (415) 495-8895
Date Made Active in Reports: 06/22/2018	Last EDR Contact: 12/03/2018
Number of Days to Update: 86	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/31/2015	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 07/08/2015	Telephone: 202-528-4285
Date Made Active in Reports: 10/13/2015	Last EDR Contact: 11/19/2018
Number of Days to Update: 97	Next Scheduled EDR Contact: 03/04/2019
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/11/2019
Number of Days to Update: 62	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 01/11/2019
Number of Days to Update: 339	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 08/31/2018
Date Data Arrived at EDR: 09/25/2018
Date Made Active in Reports: 11/09/2018
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/04/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/08/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/21/2017
Date Made Active in Reports: 01/05/2018
Number of Days to Update: 198

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 01/10/2018
Date Made Active in Reports: 01/12/2018
Number of Days to Update: 2

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/25/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 10/26/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 08/13/2018	Source: EPA
Date Data Arrived at EDR: 10/04/2018	Telephone: 202-564-6023
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 02/15/2019
Number of Days to Update: 36	Next Scheduled EDR Contact: 05/20/2019
	Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 09/14/2018	Source: EPA
Date Data Arrived at EDR: 10/11/2018	Telephone: 202-566-0500
Date Made Active in Reports: 12/07/2018	Last EDR Contact: 01/11/2019
Number of Days to Update: 57	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/23/2016	Telephone: 202-564-2501
Date Made Active in Reports: 02/10/2017	Last EDR Contact: 01/07/2019
Number of Days to Update: 79	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009	Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009	Source: EPA
Date Data Arrived at EDR: 04/16/2009	Telephone: 202-566-1667
Date Made Active in Reports: 05/11/2009	Last EDR Contact: 08/18/2017
Number of Days to Update: 25	Next Scheduled EDR Contact: 12/04/2017
	Data Release Frequency: Quarterly

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/30/2016	Source: Nuclear Regulatory Commission
Date Data Arrived at EDR: 09/08/2016	Telephone: 301-415-7169
Date Made Active in Reports: 10/21/2016	Last EDR Contact: 01/22/2019
Number of Days to Update: 43	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 12/05/2018
Number of Days to Update: 76	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/10/2014	Telephone: N/A
Date Made Active in Reports: 10/20/2014	Last EDR Contact: 12/03/2018
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 05/24/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 11/30/2017	Telephone: 202-566-0517
Date Made Active in Reports: 12/15/2017	Last EDR Contact: 01/25/2019
Number of Days to Update: 15	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 10/02/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/03/2018	Telephone: 202-343-9775
Date Made Active in Reports: 11/09/2018	Last EDR Contact: 01/03/2019
Number of Days to Update: 37	Next Scheduled EDR Contact: 04/15/2019
	Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2007	Telephone: 202-564-2501
Date Made Active in Reports: 04/10/2007	Last EDR Contact: 12/17/2007
Number of Days to Update: 40	Next Scheduled EDR Contact: 03/17/2008
	Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 10/01/2018
Date Data Arrived at EDR: 10/30/2018
Date Made Active in Reports: 01/18/2019
Number of Days to Update: 80

Source: Department of Transportation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/29/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 12/07/2018
Number of Days to Update: 56

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 09/28/2017
Number of Days to Update: 218

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 06/23/2017
Date Data Arrived at EDR: 10/11/2017
Date Made Active in Reports: 11/03/2017
Number of Days to Update: 23

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 12/14/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 12/12/2018
Date Data Arrived at EDR: 12/28/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 02/15/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2018
Date Data Arrived at EDR: 08/29/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 37

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/30/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Semi-Annually

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/05/2005	Source: USGS
Date Data Arrived at EDR: 02/29/2008	Telephone: 703-648-7709
Date Made Active in Reports: 04/18/2008	Last EDR Contact: 11/30/2018
Number of Days to Update: 49	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 11/30/2018
Number of Days to Update: 97	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/10/2018	Source: Department of Interior
Date Data Arrived at EDR: 09/11/2018	Telephone: 202-208-2609
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 12/19/2018
Number of Days to Update: 3	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/15/2018	Source: EPA
Date Data Arrived at EDR: 12/05/2018	Telephone: (415) 947-8000
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 01/31/2019
Number of Days to Update: 37	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Quarterly

ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 09/02/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 09/05/2018	Telephone: 202-564-2280
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 01/07/2019
Number of Days to Update: 9	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Quarterly

DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/26/2018	Telephone: 202-564-0527
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 11/30/2018
Number of Days to Update: 71	Next Scheduled EDR Contact: 03/11/2019
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 09/30/2017	Source: Department of Defense
Date Data Arrived at EDR: 06/19/2018	Telephone: 703-704-1564
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 01/14/2019
Number of Days to Update: 87	Next Scheduled EDR Contact: 04/29/2019
	Data Release Frequency: Varies

FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 08/22/2018	Source: EPA
Date Data Arrived at EDR: 08/22/2018	Telephone: 800-385-6164
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 11/19/2018
Number of Days to Update: 44	Next Scheduled EDR Contact: 03/04/2019
	Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989	Source: Department of Health Services
Date Data Arrived at EDR: 07/27/1994	Telephone: 916-255-2118
Date Made Active in Reports: 08/02/1994	Last EDR Contact: 05/31/1994
Number of Days to Update: 6	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List

The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 09/24/2018	Source: CAL EPA/Office of Emergency Information
Date Data Arrived at EDR: 09/25/2018	Telephone: 916-323-3400
Date Made Active in Reports: 10/16/2018	Last EDR Contact: 12/21/2018
Number of Days to Update: 21	Next Scheduled EDR Contact: 04/08/2019
	Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing

list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 08/28/2018	Source: Livermore-Pleasanton Fire Department
Date Data Arrived at EDR: 08/30/2018	Telephone: 925-454-2361
Date Made Active in Reports: 11/01/2018	Last EDR Contact: 02/11/2019
Number of Days to Update: 63	Next Scheduled EDR Contact: 05/27/2019
	Data Release Frequency: Varies

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 09/11/2018	Source: San Francisco County Department of Environmental Health
Date Data Arrived at EDR: 09/12/2018	Telephone: 415-252-3896
Date Made Active in Reports: 09/19/2018	Last EDR Contact: 01/31/2019
Number of Days to Update: 7	Next Scheduled EDR Contact: 05/20/2019
	Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing

A listing of dry cleaners in the Antelope Valley Air Quality Management District.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/13/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 42

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 10/04/2018
Date Data Arrived at EDR: 10/05/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 27

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities

A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/30/2018
Date Data Arrived at EDR: 09/27/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 35

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/20/2018
Date Made Active in Reports: 08/06/2018
Number of Days to Update: 47

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Varies

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/02/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 41

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing

Financial Assurance information

Date of Government Version: 10/19/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing

A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/18/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/11/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 11/19/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 877-786-9427
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 11/19/2018
Date Data Arrived at EDR: 11/19/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 53

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/20/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/09/2018
Date Data Arrived at EDR: 10/10/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 37

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/08/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

MINES: Mines Site Location Listing

A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 12/10/2018	Source: Department of Conservation
Date Data Arrived at EDR: 12/12/2018	Telephone: 916-322-1080
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 34	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 11/09/2018	Source: Department of Public Health
Date Data Arrived at EDR: 12/05/2018	Telephone: 916-558-1784
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 12/05/2018
Number of Days to Update: 37	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Varies

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/12/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 11/14/2018	Telephone: 916-445-9379
Date Made Active in Reports: 12/13/2018	Last EDR Contact: 02/12/2019
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/27/2019
	Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing

A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 12/03/2018	Source: Department of Pesticide Regulation
Date Data Arrived at EDR: 12/05/2018	Telephone: 916-445-4038
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 12/05/2018
Number of Days to Update: 37	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Quarterly

PROC: Certified Processors Database

A listing of certified processors.

Date of Government Version: 12/10/2018	Source: Department of Conservation
Date Data Arrived at EDR: 12/12/2018	Telephone: 916-323-3836
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 34	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records

Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 09/19/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 09/20/2018	Telephone: 916-445-3846
Date Made Active in Reports: 10/19/2018	Last EDR Contact: 12/12/2018
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/01/2019
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 04/27/2018	Source: Department of Conservation
Date Data Arrived at EDR: 06/13/2018	Telephone: 916-445-2408
Date Made Active in Reports: 07/17/2018	Last EDR Contact: 01/25/2019
Number of Days to Update: 34	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)

Underground control injection sites

Date of Government Version: 12/10/2018	Source: State Water Resource Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing

Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 05/08/2018	Source: RWQCB, Central Valley Region
Date Data Arrived at EDR: 07/11/2018	Telephone: 559-445-5577
Date Made Active in Reports: 09/13/2018	Last EDR Contact: 01/11/2019
Number of Days to Update: 64	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007	Source: State Water Resources Control Board
Date Data Arrived at EDR: 06/20/2007	Telephone: 916-341-5227
Date Made Active in Reports: 06/29/2007	Last EDR Contact: 02/13/2019
Number of Days to Update: 9	Next Scheduled EDR Contact: 06/03/2019
	Data Release Frequency: Quarterly

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)

Military privatized sites

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)

Projects sites

Date of Government Version: 12/10/2018	Source: State Water Resources Control Board
Date Data Arrived at EDR: 12/11/2018	Telephone: 866-480-1028
Date Made Active in Reports: 01/15/2019	Last EDR Contact: 12/12/2018
Number of Days to Update: 35	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/18/2019
Number of Days to Update: 37

Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 12/04/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/24/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

WIP: Well Investigation Program Case List

Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)

Produced water ponds sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)

Sampling point - public sites

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)

Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 12/10/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A	Source: Department of Resources Recycling and Recovery
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 01/13/2014	Last EDR Contact: 06/01/2012
Number of Days to Update: 196	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A	Source: State Water Resources Control Board
Date Data Arrived at EDR: 07/01/2013	Telephone: N/A
Date Made Active in Reports: 12/30/2013	Last EDR Contact: 06/01/2012
Number of Days to Update: 182	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 10/05/2018	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 10/10/2018	Telephone: 510-567-6700
Date Made Active in Reports: 11/01/2018	Last EDR Contact: 01/07/2019
Number of Days to Update: 22	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/05/2018	Source: Alameda County Environmental Health Services
Date Data Arrived at EDR: 10/10/2018	Telephone: 510-567-6700
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 01/07/2019
Number of Days to Update: 23	Next Scheduled EDR Contact: 04/24/2047
	Data Release Frequency: Semi-Annually

AMADOR COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA AMADOR: CUPA Facility List Cupa Facility List

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 07/24/2018
Date Made Active in Reports: 08/20/2018
Number of Days to Update: 27

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing Cupa Facility Listing

Date of Government Version: 10/31/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/21/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List Cupa facility list.

Date of Government Version: 05/23/2018
Date Data Arrived at EDR: 05/24/2018
Date Made Active in Reports: 07/13/2018
Number of Days to Update: 50

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List

List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 11/26/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 46

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA DEL NORTE: CUPA Facility List Cupa Facility list

Date of Government Version: 08/16/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 8

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List CUPA facility list.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 28

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/16/2018
Date Data Arrived at EDR: 10/18/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 27

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List CUPA facility list.

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/19/2018
Next Scheduled EDR Contact: 03/04/2019
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA IMPERIAL: CUPA Facility List Cupa facility list.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 32

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

KERN COUNTY:

UST KERN: Underground Storage Tank Sites & Tank Listing Kern County Sites and Tanks Listing.

Date of Government Version: 11/02/2018
Date Data Arrived at EDR: 11/07/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/21/2018
Date Data Arrived at EDR: 11/27/2018
Date Made Active in Reports: 12/12/2018
Number of Days to Update: 15

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List Cupa facility list

Date of Government Version: 11/07/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/14/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

LASSEN COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA LASSEN: CUPA Facility List Cupa facility list

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 22

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County

San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List

Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/20/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 35

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/22/2019
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities

Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/15/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/15/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 01/01/2018
Date Data Arrived at EDR: 05/01/2018
Date Made Active in Reports: 05/14/2018
Number of Days to Update: 13

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/15/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/01/2018
Date Data Arrived at EDR: 10/16/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 31

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 02/01/2019
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017	Source: City of El Segundo Fire Department
Date Data Arrived at EDR: 04/19/2017	Telephone: 310-524-2236
Date Made Active in Reports: 05/10/2017	Last EDR Contact: 01/14/2019
Number of Days to Update: 21	Next Scheduled EDR Contact: 04/29/2019
	Data Release Frequency: Semi-Annually

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/09/2017	Source: City of Long Beach Fire Department
Date Data Arrived at EDR: 03/10/2017	Telephone: 562-570-2563
Date Made Active in Reports: 05/03/2017	Last EDR Contact: 01/17/2019
Number of Days to Update: 54	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Annually

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 10/02/2018	Source: City of Torrance Fire Department
Date Data Arrived at EDR: 10/05/2018	Telephone: 310-618-2973
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 01/17/2019
Number of Days to Update: 28	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 11/26/2018	Source: Madera County Environmental Health
Date Data Arrived at EDR: 11/27/2018	Telephone: 559-675-7823
Date Made Active in Reports: 12/12/2018	Last EDR Contact: 02/15/2019
Number of Days to Update: 15	Next Scheduled EDR Contact: 06/03/2019
	Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018	Source: Public Works Department Waste Management
Date Data Arrived at EDR: 10/04/2018	Telephone: 415-473-6647
Date Made Active in Reports: 11/02/2018	Last EDR Contact: 01/14/2019
Number of Days to Update: 29	Next Scheduled EDR Contact: 04/15/2019
	Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 08/29/2018
Date Data Arrived at EDR: 08/31/2018
Date Made Active in Reports: 09/19/2018
Number of Days to Update: 19

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 12/07/2018
Date Data Arrived at EDR: 12/11/2018
Date Made Active in Reports: 01/24/2019
Number of Days to Update: 44

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 12/06/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 10/29/2018
Date Data Arrived at EDR: 11/01/2018
Date Made Active in Reports: 11/16/2018
Number of Days to Update: 15

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/27/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 11/28/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 14

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/26/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 11/06/2018
Date Data Arrived at EDR: 11/08/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 6

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

ORANGE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 10/04/2018	Source: Health Care Agency
Date Data Arrived at EDR: 11/14/2018	Telephone: 714-834-3446
Date Made Active in Reports: 12/13/2018	Last EDR Contact: 02/04/2019
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/20/2019
	Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 10/04/2018	Source: Health Care Agency
Date Data Arrived at EDR: 11/14/2018	Telephone: 714-834-3446
Date Made Active in Reports: 12/13/2018	Last EDR Contact: 02/04/2019
Number of Days to Update: 29	Next Scheduled EDR Contact: 05/20/2019
	Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 10/04/2018	Source: Health Care Agency
Date Data Arrived at EDR: 11/06/2018	Telephone: 714-834-3446
Date Made Active in Reports: 12/14/2018	Last EDR Contact: 02/05/2019
Number of Days to Update: 38	Next Scheduled EDR Contact: 05/20/2019
	Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 11/29/2018	Source: Placer County Health and Human Services
Date Data Arrived at EDR: 12/04/2018	Telephone: 530-745-2363
Date Made Active in Reports: 01/11/2019	Last EDR Contact: 11/29/2018
Number of Days to Update: 38	Next Scheduled EDR Contact: 03/18/2019
	Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 07/19/2018	Source: Plumas County Environmental Health
Date Data Arrived at EDR: 07/25/2018	Telephone: 530-283-6355
Date Made Active in Reports: 09/05/2018	Last EDR Contact: 01/17/2019
Number of Days to Update: 42	Next Scheduled EDR Contact: 05/06/2019
	Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/10/2018	Source: Department of Environmental Health
Date Data Arrived at EDR: 10/12/2018	Telephone: 951-358-5055
Date Made Active in Reports: 10/16/2018	Last EDR Contact: 12/17/2018
Number of Days to Update: 4	Next Scheduled EDR Contact: 04/01/2019
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST RIVERSIDE: Underground Storage Tank Tank List

Underground storage tank sites located in Riverside county.

Date of Government Version: 10/10/2018
Date Data Arrived at EDR: 10/12/2018
Date Made Active in Reports: 11/05/2018
Number of Days to Update: 24

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/17/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List

List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 08/03/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/01/2018
Number of Days to Update: 30

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/04/2019
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List

Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 08/23/2018
Date Data Arrived at EDR: 10/02/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 31

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/28/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List

Cupa facility list

Date of Government Version: 11/15/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 27

Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits

This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/28/2018
Date Data Arrived at EDR: 11/30/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 42

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/19/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/05/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 37

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/05/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/23/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 38

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

SAN DIEGO CO. SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

LUST SAN FRANCISCO: Local Oversight Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

UST SAN FRANCISCO: Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST

A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 04/01/2019
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List Cupa Facility List.

Date of Government Version: 11/14/2018
Date Data Arrived at EDR: 11/15/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 28

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory

List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 12/03/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 34

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/23/2019
Number of Days to Update: 36

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/10/2018
Next Scheduled EDR Contact: 12/24/2018
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SANTA CLARA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA SANTA CLARA: Cupa Facility List Cupa facility list

Date of Government Version: 11/16/2018
Date Data Arrived at EDR: 11/16/2018
Date Made Active in Reports: 12/13/2018
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/21/2018
Next Scheduled EDR Contact: 03/11/2019
Data Release Frequency: Annually

SAN JOSE HAZMAT: Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/01/2018
Date Data Arrived at EDR: 11/06/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 38

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 30

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 06/03/2019
Data Release Frequency: Varies

SOLANO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST SOLANO: Leaking Underground Storage Tanks

A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 01/11/2019
Number of Days to Update: 38

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks

Underground storage tank sites located in Solano county.

Date of Government Version: 11/29/2018
Date Data Arrived at EDR: 12/04/2018
Date Made Active in Reports: 12/14/2018
Number of Days to Update: 10

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List

Cupa Facility list

Date of Government Version: 12/21/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 19

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/19/2018
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites

A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 10/02/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 21

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 01/07/2019
Next Scheduled EDR Contact: 04/08/2019
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List

Cupa facility list

Date of Government Version: 12/11/2018
Date Data Arrived at EDR: 12/13/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 33

Source: Stanislaus County Department of Environmental Protection
Telephone: 209-525-6751
Last EDR Contact: 12/13/2018
Next Scheduled EDR Contact: 04/29/2019
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks

Underground storage tank sites located in Sutter county.

Date of Government Version: 09/18/2018
Date Data Arrived at EDR: 09/20/2018
Date Made Active in Reports: 10/25/2018
Number of Days to Update: 35

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/29/2018
Next Scheduled EDR Contact: 03/18/2019
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA TEHAMA: CUPA Facility List Cupa facilities

Date of Government Version: 12/13/2018
Date Data Arrived at EDR: 12/18/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 28

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List Cupa facility list

Date of Government Version: 10/22/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/17/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List Cupa program facilities

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 12/27/2018
Date Made Active in Reports: 01/15/2019
Number of Days to Update: 19

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 01/31/2019
Next Scheduled EDR Contact: 05/20/2019
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 02/13/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 36

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Annually

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/07/2019
Next Scheduled EDR Contact: 05/27/2019
Data Release Frequency: Quarterly

MED WASTE VENTURA: Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/25/2018
Date Data Arrived at EDR: 10/25/2018
Date Made Active in Reports: 11/30/2018
Number of Days to Update: 36

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/22/2019
Next Scheduled EDR Contact: 05/06/2019
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/26/2018
Date Data Arrived at EDR: 12/12/2018
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 35

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/12/2018
Next Scheduled EDR Contact: 03/25/2019
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/26/2018
Date Data Arrived at EDR: 01/03/2019
Date Made Active in Reports: 01/16/2019
Number of Days to Update: 13

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/26/2018
Next Scheduled EDR Contact: 04/15/2019
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 11/05/2018
Date Data Arrived at EDR: 11/07/2018
Date Made Active in Reports: 11/14/2018
Number of Days to Update: 7

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/28/2019
Next Scheduled EDR Contact: 05/11/2019
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 11/12/2018	Source: Department of Energy & Environmental Protection
Date Data Arrived at EDR: 11/14/2018	Telephone: 860-424-3375
Date Made Active in Reports: 12/04/2018	Last EDR Contact: 02/12/2019
Number of Days to Update: 20	Next Scheduled EDR Contact: 05/27/2019
	Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017	Source: Department of Environmental Protection
Date Data Arrived at EDR: 07/13/2018	Telephone: N/A
Date Made Active in Reports: 08/01/2018	Last EDR Contact: 01/07/2019
Number of Days to Update: 19	Next Scheduled EDR Contact: 04/22/2019
	Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019	Source: Department of Environmental Conservation
Date Data Arrived at EDR: 01/30/2019	Telephone: 518-402-8651
Date Made Active in Reports: 02/14/2019	Last EDR Contact: 01/30/2019
Number of Days to Update: 15	Next Scheduled EDR Contact: 05/11/2019
	Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017	Source: Department of Environmental Protection
Date Data Arrived at EDR: 10/23/2018	Telephone: 717-783-8990
Date Made Active in Reports: 11/27/2018	Last EDR Contact: 01/11/2019
Number of Days to Update: 35	Next Scheduled EDR Contact: 04/29/2019
	Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2017	Source: Department of Environmental Management
Date Data Arrived at EDR: 02/23/2018	Telephone: 401-222-2797
Date Made Active in Reports: 04/09/2018	Last EDR Contact: 02/19/2019
Number of Days to Update: 45	Next Scheduled EDR Contact: 06/03/2019
	Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2017	Source: Department of Natural Resources
Date Data Arrived at EDR: 06/15/2018	Telephone: N/A
Date Made Active in Reports: 07/09/2018	Last EDR Contact: 12/07/2018
Number of Days to Update: 24	Next Scheduled EDR Contact: 03/25/2019
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines

Source: PennWell Corporation
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data

Source: PennWell Corporation
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health
Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics
Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities

Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish and Wildlife
Telephone: 916-445-0411

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CREEKSIDE
3052 HEIDORN RANCH RD
ANTIOCH, CA 94531

TARGET PROPERTY COORDINATES

Latitude (North):	37.943499 - 37° 56' 36.60"
Longitude (West):	121.75506 - 121° 45' 18.22"
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	609391.1
UTM Y (Meters):	4200071.5
Elevation:	169 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640044 ANTIOCH SOUTH, CA
Version Date:	2012
East Map:	5640376 BRENTWOOD, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

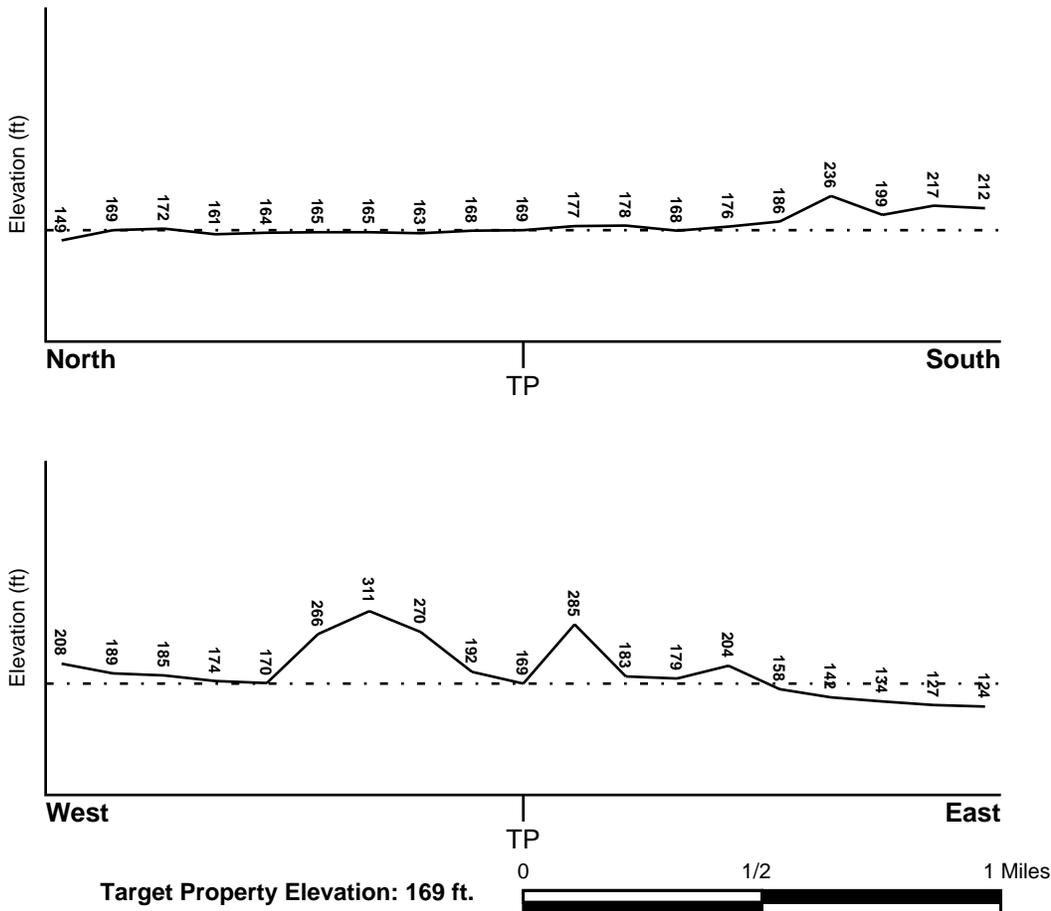
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General East

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Flood Plain Panel at Target Property</u>	<u>FEMA Source Type</u>
06013C0335F	FEMA FIRM Flood data
<u>Additional Panels in search area:</u>	<u>FEMA Source Type</u>
06013C0353F	FEMA FIRM Flood data
06013C0345F	FEMA FIRM Flood data
06013C0361F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u>	<u>NWI Electronic Data Coverage</u>
ANTIOCH SOUTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

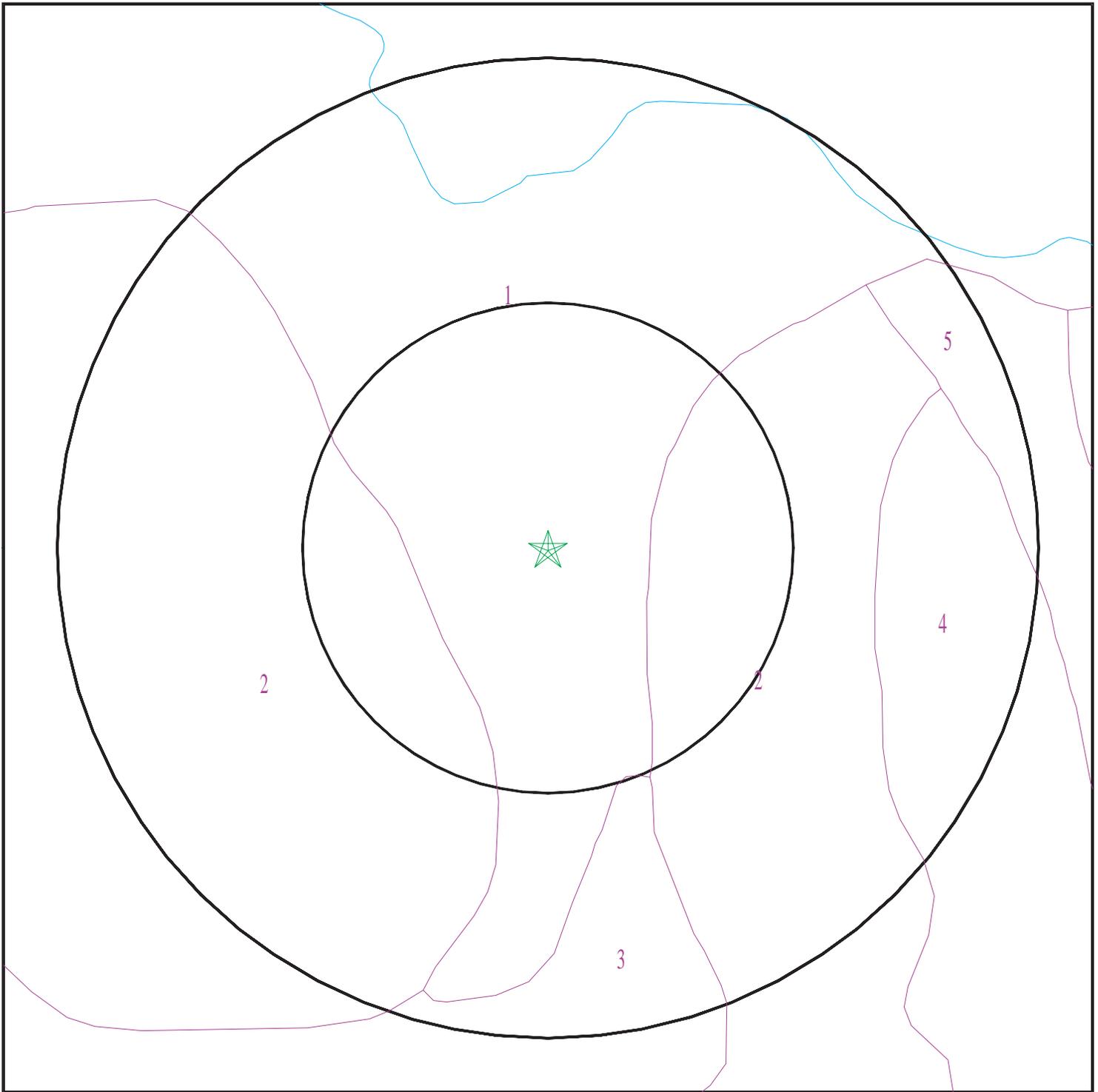
Era:	Cenozoic
System:	Tertiary
Series:	Eocene
Code:	Te (<i>decoded above as Era, System & Series</i>)

GEOLOGIC AGE IDENTIFICATION

Category: Stratified Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 05569243.2r



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch CA 94531
LAT/LONG: 37.943499 / 121.75506

CLIENT: Engeo Inc.
CONTACT: Victoria Drake
INQUIRY #: 05569243.2r
DATE: February 21, 2019 3:31 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: RINCON

Soil Surface Texture: clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
2	11 inches	29 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9
3	29 inches	59 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 8.4 Min: 7.9

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
2	25 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
3	48 inches	51 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 3

Soil Component Name: PESCADERO

Soil Surface Texture: clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Poorly drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: All hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 168 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	5 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 9 Min: 7.9
2	5 inches	42 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 9 Min: 7.9
3	42 inches	66 inches	stratified silt loam to silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 4 Min: 1.4	Max: 9 Min: 7.9

Soil Map ID: 4

Soil Component Name: ALTAMONT

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	25 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
2	25 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:
3	48 inches	51 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 1.4 Min: 0	Max: Min:

Soil Map ID: 5

Soil Component Name: CAPAY

Soil Surface Texture: clay

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	35 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
2	35 inches	51 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6
3	51 inches	72 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay Soils.	Max: 1.4 Min: 0.42	Max: 8.4 Min: 6.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 0.001 miles
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No Wells Found		

OTHER STATE DATABASE INFORMATION

STATE OIL/GAS WELL INFORMATION

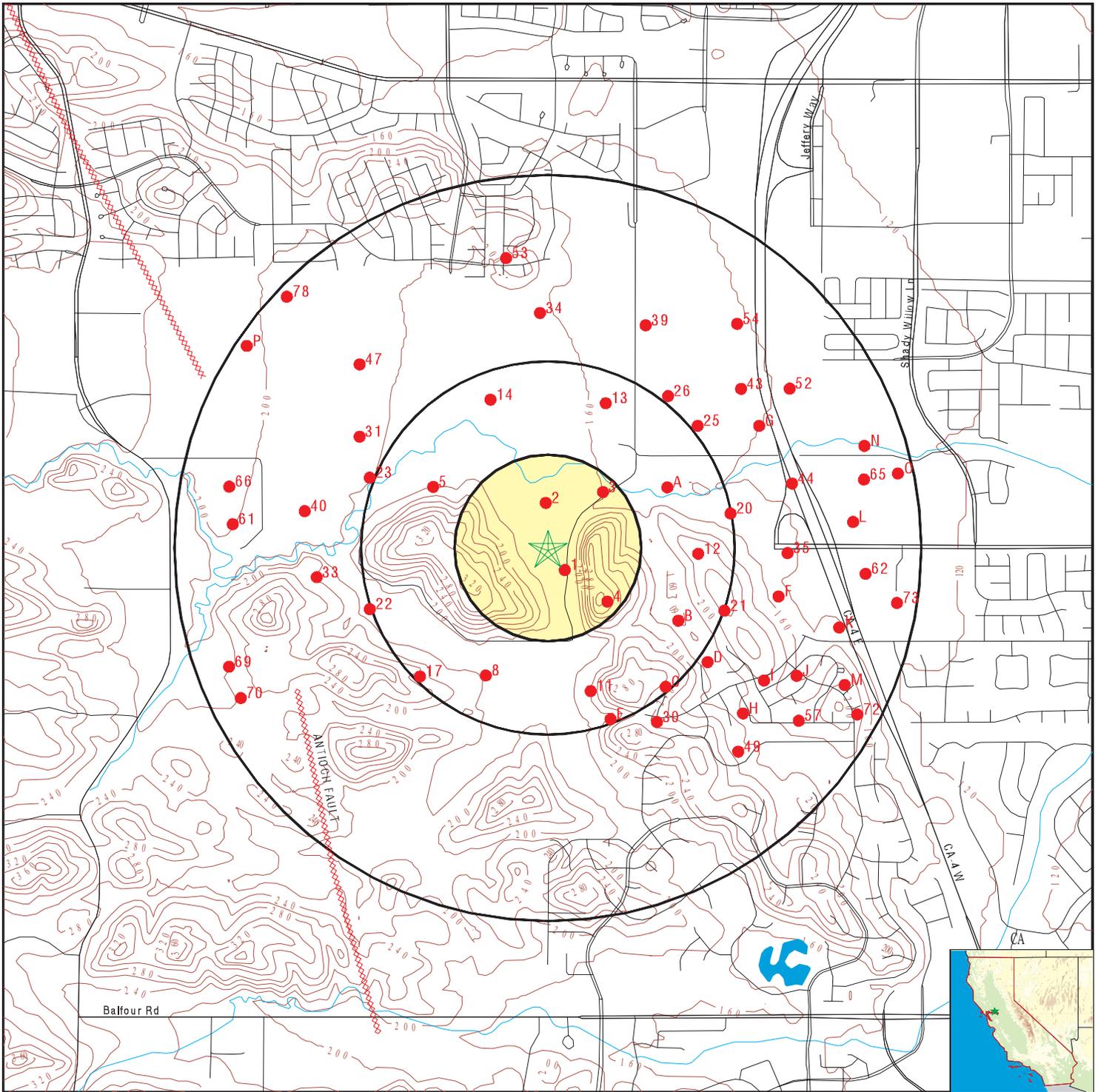
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	CAOG11000232390	0 - 1/8 Mile SE
2	CAOG11000232386	0 - 1/8 Mile North
3	CAOG11000232391	1/8 - 1/4 Mile NE
4	CAOG11000232087	1/8 - 1/4 Mile SE
5	CAOG11000232644	1/4 - 1/2 Mile WNW
A7	CAOG11000232419	1/4 - 1/2 Mile ENE
A6	CAOG11000232418	1/4 - 1/2 Mile ENE
8	CAOG11000232387	1/4 - 1/2 Mile SSW
B9	CAOG11000232416	1/4 - 1/2 Mile ESE
B10	CAOG11000232417	1/4 - 1/2 Mile ESE
11	CAOG11000232385	1/4 - 1/2 Mile SSE
12	CAOG11000232436	1/4 - 1/2 Mile East
13	CAOG11000232384	1/4 - 1/2 Mile NNE
14	CAOG11000232356	1/4 - 1/2 Mile NNW
C15	CAOG11000232432	1/4 - 1/2 Mile SE
D16	CAOG11000232592	1/4 - 1/2 Mile SE
17	CAOG11000232382	1/4 - 1/2 Mile SW
E18	CAOG11000232388	1/4 - 1/2 Mile SSE
E19	CAOG11000232389	1/4 - 1/2 Mile SSE
20	CAOG11000232412	1/4 - 1/2 Mile East
21	CAOG11000232437	1/2 - 1 Mile ESE
22	CAOG11000232410	1/2 - 1 Mile WSW
23	CAOG11000232797	1/2 - 1 Mile WNW
C24	CAOG11000232091	1/2 - 1 Mile SE
25	CAOG11000232380	1/2 - 1 Mile NE
26	CAOG11000232381	1/2 - 1 Mile NE
D29	CAOG11000232428	1/2 - 1 Mile SE
D28	CAOG11000232427	1/2 - 1 Mile SE
D27	CAOG11000232426	1/2 - 1 Mile SE
30	CAOG11000232434	1/2 - 1 Mile SSE
31	CAOG11000232414	1/2 - 1 Mile WNW
F32	CAOG11000232690	1/2 - 1 Mile East
33	CAOG11000232409	1/2 - 1 Mile West
34	CAOG11000232383	1/2 - 1 Mile North
35	CAOG11000232089	1/2 - 1 Mile East
G36	CAOG11000232398	1/2 - 1 Mile ENE
G37	CAOG11000232399	1/2 - 1 Mile ENE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
F38	CAOG11000232415	1/2 - 1 Mile ESE
39	CAOG11000232061	1/2 - 1 Mile NNE
40	CAOG11000232421	1/2 - 1 Mile West
G41	CAOG11000232397	1/2 - 1 Mile ENE
H42	CAOG11000232423	1/2 - 1 Mile SE
43	CAOG11000232400	1/2 - 1 Mile NE
44	CAOG11000232420	1/2 - 1 Mile ENE
I45	CAOG11000232694	1/2 - 1 Mile ESE
I46	CAOG11000232695	1/2 - 1 Mile ESE
47	CAOG11000232413	1/2 - 1 Mile NW
H48	CAOG11000232675	1/2 - 1 Mile SE
49	CAOG11000232435	1/2 - 1 Mile SE
J50	CAOG11000232085	1/2 - 1 Mile ESE
J51	CAOG11000232430	1/2 - 1 Mile ESE
52	CAOG11000232401	1/2 - 1 Mile ENE
53	CAOG11000232394	1/2 - 1 Mile North
54	CAOG11000232375	1/2 - 1 Mile NE
K55	CAOG11000232422	1/2 - 1 Mile ESE
L56	CAOG11000232714	1/2 - 1 Mile East
57	CAOG11000232590	1/2 - 1 Mile SE
L58	CAOG11000232364	1/2 - 1 Mile East
K59	CAOG11000232080	1/2 - 1 Mile ESE
L60	CAOG11000232371	1/2 - 1 Mile East
61	CAOG11000232408	1/2 - 1 Mile West
62	CAOG11000232086	1/2 - 1 Mile East
M64	CAOG11000232425	1/2 - 1 Mile ESE
M63	CAOG11000232424	1/2 - 1 Mile ESE
65	CAOG11000232372	1/2 - 1 Mile ENE
66	CAOG11000232642	1/2 - 1 Mile West
N67	CAOG11000232359	1/2 - 1 Mile ENE
N68	CAOG11000232591	1/2 - 1 Mile ENE
69	CAOG11000232861	1/2 - 1 Mile WSW
70	CAOG11000232600	1/2 - 1 Mile WSW
M71	CAOG11000232433	1/2 - 1 Mile ESE
72	CAOG11000232429	1/2 - 1 Mile ESE
73	CAOG11000232407	1/2 - 1 Mile East
O74	CAOG11000232350	1/2 - 1 Mile ENE
O75	CAOG11000232636	1/2 - 1 Mile East
O76	CAOG11000232363	1/2 - 1 Mile ENE
O77	CAOG11000232623	1/2 - 1 Mile ENE
78	CAOG11000232810	1/2 - 1 Mile NW
P79	CAOG11000232858	1/2 - 1 Mile NW
P80	CAOG11000232859	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 05569243.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells



SITE NAME: Creekside
 ADDRESS: 3052 Heidorn Ranch Rd
 Antioch CA 94531
 LAT/LONG: 37.943499 / 121.75506

CLIENT: Engeo Inc.
 CONTACT: Victoria Drake
 INQUIRY #: 05569243.2r
 DATE: February 21, 2019 3:31 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

1
SE
0 - 1/8 Mile

OIL_GAS CAOG11000232390

Districtnu:	6	Apinumber:	01300044
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 025
Leasename:	Ginochio-Shellenberger	Wellnumber:	41-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-MAR-63
Welldeptha:	4939	Redrillfoo:	0
Abandonedd:	28-SEP-91	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232390		

2
North
0 - 1/8 Mile

OIL_GAS CAOG11000232386

Districtnu:	6	Apinumber:	01300041
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio-Shellenberger	Wellnumber:	4-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	06-JUL-62
Welldeptha:	4300	Redrillfoo:	0
Abandonedd:	12-AUG-85	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232386		

3
NE
1/8 - 1/4 Mile

OIL_GAS CAOG11000232391

Districtnu:	6	Apinumber:	01300045
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio-Shellenberger	Wellnumber:	43-9

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	08-DEC-63
Welldeptha:	4188	Redrillfoo:	0
Abandonedd:	31-JUL-85	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232391		

4

SE
1/8 - 1/4 Mile

OIL_GAS CAOG11000232087

Districtnu:	6	Apinumber:	01300016
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio-Shellenberger	Wellnumber:	42-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-AUG-63
Welldeptha:	4100	Redrillfoo:	0
Abandonedd:	17-OCT-91	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232087		

5

WNW
1/4 - 1/2 Mile

OIL_GAS CAOG11000232644

Districtnu:	6	Apinumber:	01320053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sinco Oil Corp.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 007
Leasename:	Williamson	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	23-JUL-69
Welldeptha:	4504	Redrillfoo:	0
Abandonedd:	02-AUG-69	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDH
Site id:	CAOG11000232644		

A7
ENE

1/4 - 1/2 Mile

OIL_GAS CAOG11000232419

Districtnu:	6	Apinumber:	01300071
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	34-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-NOV-63
Welldeptha:	4200	Redrillfoo:	0
Abandonedd:	29-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232419		

**A6
ENE
1/4 - 1/2 Mile**

OIL_GAS CAOG11000232418

Districtnu:	6	Apinumber:	01300071
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	34-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-NOV-63
Welldeptha:	4200	Redrillfoo:	0
Abandonedd:	29-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232418		

**8
SSW
1/4 - 1/2 Mile**

OIL_GAS CAOG11000232387

Districtnu:	6	Apinumber:	01300042
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Section:	16
Areaname:	Any Area	Range:	02E
Township:	01N	Elevation:	Not Reported
Basemeridi:	MD	Gissourcec:	hud
Locationde:	Not Reported	Leasename:	Ginochio-Shellenberger
Comments:	Status Code 006	Epawell:	N
Wellnumber:	21-16	Confidenti:	N
Hydraulica:	N	Welldeptha:	4780
Spuddate:	17-JUL-63	Abandonedd:	29-JUL-63
Redrillfoo:	0	Directiona:	Unknown
Completion:	Not Reported	Site id:	CAOG11000232387
Gissymbol:	PDH		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

B9
ESE
1/4 - 1/2 Mile

OIL_GAS CAOG11000232416

Districtnu:	6	Apinumber:	01300070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	32-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-MAY-63
Welldeptha:	4700	Redrillfoo:	0
Abandonedd:	07-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232416		

B10
ESE
1/4 - 1/2 Mile

OIL_GAS CAOG11000232417

Districtnu:	6	Apinumber:	01300070
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	32-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-MAY-63
Welldeptha:	4700	Redrillfoo:	0
Abandonedd:	07-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232417		

11
SSE
1/4 - 1/2 Mile

OIL_GAS CAOG11000232385

Districtnu:	6	Apinumber:	01300040
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	16	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 116
Leasename:	Ginochio-Shellenberger	Wellnumber:	2-16

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-DEC-62
Welldeptha:	4746	Redrillfoo:	0
Abandonedd:	17-DEC-93	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWD
Site id:	CAOG11000232385		

12

East

1/4 - 1/2 Mile

OIL_GAS

CAOG11000232436

Districtnu:	6	Apinumber:	01300085
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	38-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	04-JUL-64
Welldeptha:	4100	Redrillfoo:	0
Abandonedd:	20-DEC-93	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232436		

13

NNE

1/4 - 1/2 Mile

OIL_GAS

CAOG11000232384

Districtnu:	6	Apinumber:	01300039
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio	Wellnumber:	21-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	14-APR-64
Welldeptha:	4500	Redrillfoo:	0
Abandonedd:	13-JUL-81	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232384		

14

NNW

1/4 - 1/2 Mile

OIL_GAS

CAOG11000232356

Districtnu:	6	Apinumber:	01320005
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 024
Leasename:	Ginochio	Wellnumber:	22-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	07-JUL-67
Welldeptha:	4239	Redrillfoo:	0
Abandonedd:	26-SEP-91	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232356		

**C15
SE
1/4 - 1/2 Mile**

OIL_GAS CAOG11000232432

Districtnu:	6	Apinumber:	01300081
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	31-JAN-64
Welldeptha:	4425	Redrillfoo:	0
Abandonedd:	28-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232432		

**D16
SE
1/4 - 1/2 Mile**

OIL_GAS CAOG11000232592

Districtnu:	6	Apinumber:	01320021
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 014
Leasename:	Ginochio	Wellnumber:	14
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	02-APR-68
Welldeptha:	4407	Redrillfoo:	0
Abandonedd:	26-AUG-87	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232592		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

17
SW
1/4 - 1/2 Mile

OIL_GAS CAOG11000232382

Districtnu:	6	Apinumber:	01300037
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	16	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 006
Leasename:	Ginochio	Wellnumber:	1-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-MAY-63
Welldeptha:	4535	Redrillfoo:	0
Abandonedd:	14-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232382		

E18
SSE
1/4 - 1/2 Mile

OIL_GAS CAOG11000232388

Districtnu:	6	Apinumber:	01300043
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	16	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 116
Leasename:	Ginochio-Shellenberger	Wellnumber:	22-16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-SEP-63
Welldeptha:	4500	Redrillfoo:	0
Abandonedd:	01-OCT-91	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWD
Site id:	CAOG11000232388		

E19
SSE
1/4 - 1/2 Mile

OIL_GAS CAOG11000232389

Districtnu:	6	Apinumber:	01300043
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	16	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 116
Leasename:	Ginochio-Shellenberger	Wellnumber:	22-16

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-SEP-63
Welldeptha:	4500	Redrillfoo:	0
Abandonedd:	01-OCT-91	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PWD
Site id:	CAOG11000232389		

20
East
1/4 - 1/2 Mile

OIL_GAS CAOG11000232412

Districtnu:	6	Apinumber:	01300066
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 024
Leasename:	Ward	Wellnumber:	3-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	09-SEP-62
Welldeptha:	4688	Redrillfoo:	0
Abandonedd:	04-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232412		

21
ESE
1/2 - 1 Mile

OIL_GAS CAOG11000232437

Districtnu:	6	Apinumber:	01300086
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 015
Leasename:	Ward	Wellnumber:	36-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-JUN-64
Welldeptha:	4541	Redrillfoo:	0
Abandonedd:	13-AUG-85	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232437		

22
WSW
1/2 - 1 Mile

OIL_GAS CAOG11000232410

Districtnu:	6	Apinumber:	01300064
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatona:	Shell Western Exploration & Production Inc.	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Section:	9
Areaname:	Any Area	Range:	02E
Township:	01N	Elevation:	Not Reported
Basemeridi:	MD	Gissourcec:	hud
Locationde:	Not Reported	Leasename:	Sullenger
Comments:	Status Code 006	Epawell:	N
Wellnumber:	33-9	Confidenti:	N
Hydraulica:	N	Welldeptha:	4351
Spuddate:	03-APR-64	Abandonedd:	12-APR-64
Redrillfoo:	0	Directiona:	Unknown
Completion:	Not Reported	Site id:	CAOG11000232410
Gissymbol:	PDH		

23
WNW
1/2 - 1 Mile

OIL_GAS CAOG11000232797

Districtnu:	6	Apinumber:	01320212
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatona:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 007
Leasename:	Williamson	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	27-AUG-83
Welldeptha:	4502	Redrillfoo:	0
Abandonedd:	05-SEP-83	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDH
Site id:	CAOG11000232797		

C24
SE
1/2 - 1 Mile

OIL_GAS CAOG11000232091

Districtnu:	6	Apinumber:	01300020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatona:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	04-JAN-63
Welldeptha:	4134	Redrillfoo:	0
Abandonedd:	14-MAR-68	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232091		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

25
NE
1/2 - 1 Mile

OIL_GAS CAOG11000232380

Districtnu:	6	Apinumber:	01300035
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Garaventa	Wellnumber:	12-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-OCT-63
Welldeptha:	4500	Redrillfoo:	0
Abandonedd:	10-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232380		

26
NE
1/2 - 1 Mile

OIL_GAS CAOG11000232381

Districtnu:	6	Apinumber:	01300036
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 024
Leasename:	Garaventa	Wellnumber:	14-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	06-NOV-63
Welldeptha:	4439	Redrillfoo:	0
Abandonedd:	16-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232381		

D29
SE
1/2 - 1 Mile

OIL_GAS CAOG11000232428

Districtnu:	6	Apinumber:	01300077
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	4

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-JUL-63
Welldeptha:	4358	Redrillfoo:	0
Abandonedd:	25-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232428		

D28

SE

1/2 - 1 Mile

OIL_GAS

CAOG11000232427

Districtnu:	6	Apinumber:	01300077
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-JUL-63
Welldeptha:	4358	Redrillfoo:	0
Abandonedd:	25-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232427		

D27

SE

1/2 - 1 Mile

OIL_GAS

CAOG11000232426

Districtnu:	6	Apinumber:	01300077
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	03-JUL-63
Welldeptha:	4358	Redrillfoo:	0
Abandonedd:	25-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232426		

30

SSE

1/2 - 1 Mile

OIL_GAS

CAOG11000232434

Districtnu:	6	Apinumber:	01300083
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	09-MAR-65
Welldeptha:	4403	Redrillfoo:	0
Abandonedd:	24-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232434		

**31
WNW
1/2 - 1 Mile**

OIL_GAS CAOG11000232414

Districtnu:	6	Apinumber:	01300068
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Section:	9
Areaname:	Any Area	Range:	02E
Township:	01N	Elevation:	Not Reported
Basemeridi:	MD	Gissourcec:	hud
Locationde:	Not Reported	Leasename:	Williamson
Comments:	Status Code 006	Epawell:	N
Wellnumber:	11-9	Confidenti:	N
Hydraulica:	N	Welldeptha:	5390
Spuddate:	22-DEC-62	Abandonedd:	01-JAN-63
Redrillfoo:	0	Directiona:	Unknown
Completion:	Not Reported	Site id:	CAOG11000232414
Gissymbol:	PDH		

**F32
East
1/2 - 1 Mile**

OIL_GAS CAOG11000232690

Districtnu:	6	Apinumber:	01320100
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.	Fieldname:	Brentwood (ABD)
Countyname:	Contra Costa	Section:	10
Areaname:	Any Area	Range:	02E
Township:	01N	Elevation:	Not Reported
Basemeridi:	MD	Gissourcec:	hud
Locationde:	Not Reported	Leasename:	Dow-Termo Ward
Comments:	Status Code 007	Epawell:	N
Wellnumber:	39	Confidenti:	N
Hydraulica:	N	Welldeptha:	4807
Spuddate:	31-MAY-75	Abandonedd:	04-JUL-75
Redrillfoo:	0	Directiona:	Directionally drilled
Completion:	Not Reported	Site id:	CAOG11000232690
Gissymbol:	PDH		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

33
West
1/2 - 1 Mile

OIL_GAS CAOG11000232409

Districtnu:	6	Apinumber:	01300062
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area	Section:	9
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported	Gissourcec:	hud
Comments:	Status Code 006	Leasename:	Sullenger
Wellnumber:	31-9	Epawell:	N
Hydraulica:	N	Confidenti:	N
Spuddate:	16-AUG-63	Welldeptha:	5000
Redrillfoo:	0	Abandonedd:	28-AUG-63
Completion:	Not Reported	Directiona:	Unknown
Gissymbol:	PDH	Site id:	CAOG11000232409

34
North
1/2 - 1 Mile

OIL_GAS CAOG11000232383

Districtnu:	6	Apinumber:	01300038
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 024
Leasename:	Ginochio	Wellnumber:	2-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-JUN-62
Welldeptha:	4037	Redrillfoo:	0
Abandonedd:	17-OCT-91	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232383		

35
East
1/2 - 1 Mile

OIL_GAS CAOG11000232089

Districtnu:	6	Apinumber:	01300018
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 024
Leasename:	Ward	Wellnumber:	37-10

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	23-JUN-64
Welldeptha:	4000	Redrillfoo:	0
Abandonedd:	11-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232089		

G36

ENE

1/2 - 1 Mile

OIL_GAS CAOG11000232398

Districtnu:	6	Apinumber:	01300052
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Maggiara-Capital Co.	Wellnumber:	13-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-NOV-63
Welldeptha:	4488	Redrillfoo:	0
Abandonedd:	25-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232398		

G37

ENE

1/2 - 1 Mile

OIL_GAS CAOG11000232399

Districtnu:	6	Apinumber:	01300052
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Maggiara-Capital Co.	Wellnumber:	13-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-NOV-63
Welldeptha:	4488	Redrillfoo:	0
Abandonedd:	25-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232399		

F38

ESE

1/2 - 1 Mile

OIL_GAS CAOG11000232415

Districtnu:	6	Apinumber:	01300069
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	31-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	06-JAN-63
Welldeptha:	5108	Redrillfoo:	0
Abandonedd:	12-AUG-85	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232415		

**39
NNE
1/2 - 1 Mile**

OIL_GAS CAOG11000232061

Districtnu:	6	Apinumber:	01320340
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	EOG Resources, Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	164	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 025
Leasename:	Sunset-Graham	Wellnumber:	1-10D
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	18-MAR-97
Welldeptha:	4428	Redrillfoo:	0
Abandonedd:	20-NOV-98	Completion:	18-APR-97
Directiona:	Directionally drilled	Gissymbol:	PDG
Site id:	CAOG11000232061		

**40
West
1/2 - 1 Mile**

OIL_GAS CAOG11000232421

Districtnu:	6	Apinumber:	01300073
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Williamson	Wellnumber:	3-9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	28-JUN-63
Welldeptha:	4914	Redrillfoo:	0
Abandonedd:	02-DEC-93	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232421		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

**G41
ENE
1/2 - 1 Mile**

OIL_GAS CAOG11000232397

Districtnu:	6	Apinumber:	01300051
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Maggiora-Capital Co.	Wellnumber:	11-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	29-AUG-63
Welldeptha:	4952	Redrillfoo:	0
Abandonedd:	09-JUL-81	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232397		

**H42
SE
1/2 - 1 Mile**

OIL_GAS CAOG11000232423

Districtnu:	6	Apinumber:	01300075
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	10-JUL-62
Welldeptha:	4197	Redrillfoo:	0
Abandonedd:	14-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232423		

**43
NE
1/2 - 1 Mile**

OIL_GAS CAOG11000232400

Districtnu:	6	Apinumber:	01300053
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Maggiora-Capital Co.	Wellnumber:	33X-10

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	07-MAY-66
Welldeptha:	4000	Redrillfoo:	0
Abandonedd:	21-APR-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232400		

44

ENE

1/2 - 1 Mile

OIL_GAS

CAOG11000232420

Districtnu:	6	Apinumber:	01300072
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ward	Wellnumber:	35-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	02-MAR-64
Welldeptha:	4200	Redrillfoo:	0
Abandonedd:	13-MAY-92	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232420		

145

ESE

1/2 - 1 Mile

OIL_GAS

CAOG11000232694

Districtnu:	6	Apinumber:	01320105
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	22-JAN-76
Welldeptha:	8685	Redrillfoo:	0
Abandonedd:	15-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232694		

146

ESE

1/2 - 1 Mile

OIL_GAS

CAOG11000232695

Districtnu:	6	Apinumber:	01320105
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	16
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	22-JAN-76
Welldeptha:	8685	Redrillfoo:	0
Abandonedd:	15-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232695		

**47
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000232413

Districtnu:	6	Apinumber:	01300067
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area	Section:	9
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported	Gissourcec:	hud
Comments:	Status Code 006	Leasename:	Williamson
Wellnumber:	1-9	Epawell:	N
Hydraulica:	N	Confidenti:	N
Spuddate:	01-OCT-62	Welldeptha:	5000
Redrillfoo:	0	Abandonedd:	27-JUL-64
Completion:	Not Reported	Directiona:	Unknown
Gissymbol:	PDH	Site id:	CAOG11000232413

**H48
SE
1/2 - 1 Mile**

OIL_GAS CAOG11000232675

Districtnu:	6	Apinumber:	01320085
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 02/18/1999, Status Code 016
Leasename:	Ginochio	Wellnumber:	15
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-JUN-72
Welldeptha:	4350	Redrillfoo:	0
Abandonedd:	27-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232675		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

49
SE
1/2 - 1 Mile

OIL_GAS CAOG11000232435

Districtnu:	6	Apinumber:	01300084
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio	Wellnumber:	11
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-OCT-65
Welldeptha:	4350	Redrillfoo:	0
Abandonedd:	29-MAY-96	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232435		

J50
ESE
1/2 - 1 Mile

OIL_GAS CAOG11000232085

Districtnu:	6	Apinumber:	01300014
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 009
Leasename:	Ginochio	Wellnumber:	12
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-NOV-66
Welldeptha:	4465	Redrillfoo:	0
Abandonedd:	17-FEB-99	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232085		

J51
ESE
1/2 - 1 Mile

OIL_GAS CAOG11000232430

Districtnu:	6	Apinumber:	01300079
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	6

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	04-AUG-63
Welldeptha:	4316	Redrillfoo:	0
Abandonedd:	18-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232430		

52

ENE

1/2 - 1 Mile

OIL_GAS

CAOG11000232401

Districtnu:	6	Apinumber:	01300054
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area	Section:	10
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported	Gissourcec:	hud
Comments:	Status Code 006	Leasename:	Maggiora-Capital Co.
Wellnumber:	43X-10	Epawell:	N
Hydraulica:	N	Confidenti:	N
Spuddate:	14-DEC-65	Welldeptha:	4146
Redrillfoo:	0	Abandonedd:	31-DEC-65
Completion:	Not Reported	Directiona:	Unknown
Gissymbol:	PDH	Site id:	CAOG11000232401

53

North

1/2 - 1 Mile

OIL_GAS

CAOG11000232394

Districtnu:	6	Apinumber:	01300048
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Any Area	Section:	4
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported	Gissourcec:	gps
Comments:	GPS Date 04/02/2002, Status Code 024		
Leasename:	Heidorn	Wellnumber:	4-4
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	30-MAY-62
Welldeptha:	5200	Redrillfoo:	0
Abandonedd:	06-JUL-71	Completion:	Not Reported
Directiona:	Not Directionally drilled	Gissymbol:	PDG
Site id:	CAOG11000232394		

54

NE

1/2 - 1 Mile

OIL_GAS

CAOG11000232375

Districtnu:	6	Apinumber:	01300030
Blmwell:	N	Redrillcan:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Dryhole:	N	Wellstatus:	P
Operatorna:	Production Specialties Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 04/02/2002, Status Code 024
Leasename:	Continente	Wellnumber:	1-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-NOV-62
Welldeptha:	4127	Redrillfoo:	0
Abandonedd:	04-JUN-03	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232375		

**K55
ESE
1/2 - 1 Mile**

OIL_GAS CAOG11000232422

Districtnu:	6	Apinumber:	01300074
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	John Pestana Family Trust	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Davis-Venturini	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-DEC-65
Welldeptha:	4450	Redrillfoo:	0
Abandonedd:	28-APR-94	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232422		

**L56
East
1/2 - 1 Mile**

OIL_GAS CAOG11000232714

Districtnu:	6	Apinumber:	01320124
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Andrade	Wellnumber:	5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	01-APR-78
Welldeptha:	3900	Redrillfoo:	0
Abandonedd:	Not Reported	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232714		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

57
SE
1/2 - 1 Mile

OIL_GAS CAOG11000232590

Districtnu:	6	Apinumber:	01320019
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	13
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	15-MAR-68
Welldeptha:	4429	Redrillfoo:	0
Abandonedd:	26-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232590		

L58
East
1/2 - 1 Mile

OIL_GAS CAOG11000232364

Districtnu:	6	Apinumber:	01320013
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sinco Oil Corp.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Andrade	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	10-OCT-67
Welldeptha:	4053	Redrillfoo:	0
Abandonedd:	01-AUG-78	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232364		

K59
ESE
1/2 - 1 Mile

OIL_GAS CAOG11000232080

Districtnu:	6	Apinumber:	01300009
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	John Pestana Family Trust	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Davis-Venturini	Wellnumber:	1

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-FEB-63
Welldeptha:	3862	Redrillfoo:	0
Abandonedd:	28-APR-94	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232080		

**L60
East
1/2 - 1 Mile**

OIL_GAS CAOG11000232371

Districtnu:	6	Apinumber:	01300026
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sunset Exploration Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Arata	Wellnumber:	42-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	28-MAR-63
Welldeptha:	4872	Redrillfoo:	0
Abandonedd:	26-JUN-01	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232371		

**61
West
1/2 - 1 Mile**

OIL_GAS CAOG11000232408

Districtnu:	6	Apinumber:	01300061
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Occidental Petroleum Corporation	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	8	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Sullenger	Wellnumber:	4-8
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-OCT-63
Welldeptha:	5000	Redrillfoo:	0
Abandonedd:	06-DEC-93	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232408		

**62
East
1/2 - 1 Mile**

OIL_GAS CAOG11000232086

Districtnu:	6	Apinumber:	01300015
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Sunset Exploration Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/05/2000, Status Code 008
Leasename:	Ridell	Wellnumber:	43-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	20-FEB-63
Welldeptha:	4485	Redrillfoo:	0
Abandonedd:	01-OCT-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232086		

**M64
ESE
1/2 - 1 Mile**

OIL_GAS CAOG11000232425

Districtnu:	6	Apinumber:	01300076
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	26-JAN-63
Welldeptha:	4476	Redrillfoo:	0
Abandonedd:	18-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232425		

**M63
ESE
1/2 - 1 Mile**

OIL_GAS CAOG11000232424

Districtnu:	6	Apinumber:	01300076
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	26-JAN-63
Welldeptha:	4476	Redrillfoo:	0
Abandonedd:	18-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	PDG
Site id:	CAOG11000232424		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

65
ENE
1/2 - 1 Mile

OIL_GAS CAOG11000232372

Districtnu:	6	Apinumber:	01300027
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Sunset Exploration Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/23/2007, Status Code 014
Leasename:	Arata	Wellnumber:	44-10
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	23-OCT-63
Welldeptha:	4500	Redrillfoo:	0
Abandonedd:	11-JUL-03	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232372		

66
West
1/2 - 1 Mile

OIL_GAS CAOG11000232642

Districtnu:	6	Apinumber:	01320051
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	8	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Sullenger	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	16-JUN-69
Welldeptha:	4161	Redrillfoo:	0
Abandonedd:	06-JUN-95	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232642		

N67
ENE
1/2 - 1 Mile

OIL_GAS CAOG11000232359

Districtnu:	6	Apinumber:	01320008
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Allied Energy Corp.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	139	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 014
Leasename:	Transamerica-Maggiora	Wellnumber:	1

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	31-JUL-67
Welldeptha:	4196	Redrillfoo:	0
Abandonedd:	13-MAR-03	Completion:	09-AUG-67
Directiona:	Not Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232359		

**N68
ENE
1/2 - 1 Mile**

OIL_GAS CAOG11000232591

Districtnu:	6	Apinumber:	01320020
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Allied Energy Corp.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	139	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 014
Leasename:	Transamerica-Maggiora	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	20-MAR-68
Welldeptha:	3911	Redrillfoo:	0
Abandonedd:	13-MAR-03	Completion:	03-APR-68
Directiona:	Not Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232591		

**69
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000232861

Districtnu:	6	Apinumber:	01320271
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	17	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Ginochio	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	05-JUL-87
Welldeptha:	4300	Redrillfoo:	0
Abandonedd:	22-APR-93	Completion:	15-AUG-87
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232861		

**70
WSW
1/2 - 1 Mile**

OIL_GAS CAOG11000232600

Districtnu:	6	Apinumber:	01320364
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	Y	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Sunset Exploration Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	17	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	448	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 11/18/2005, Status Code 007
Leasename:	Ginochio	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	26-OCT-05
Welldeptha:	4553	Redrillfoo:	0
Abandonedd:	02-NOV-05	Completion:	Not Reported
Directiona:	Directionally drilled	Gissymbol:	PDH
Site id:	CAOG11000232600		

**M71
ESE
1/2 - 1 Mile**

OIL_GAS CAOG11000232433

Districtnu:	6	Apinumber:	01300082
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 06/11/1997, Status Code 016
Leasename:	Ginochio	Wellnumber:	9
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	17-NOV-64
Welldeptha:	4394	Redrillfoo:	0
Abandonedd:	20-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232433		

**72
ESE
1/2 - 1 Mile**

OIL_GAS CAOG11000232429

Districtnu:	6	Apinumber:	01300078
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	The Termo Company	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	15	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 02/18/1999, Status Code 016
Leasename:	Ginochio	Wellnumber:	5
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spupdate:	22-JUL-63
Welldeptha:	4350	Redrillfoo:	0
Abandonedd:	16-FEB-99	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232429		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance

Database EDR ID Number

73
East
1/2 - 1 Mile

OIL_GAS CAOG11000232407

Districtnu:	6	Apinumber:	01300060
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Shell Western Exploration & Production Inc.		
Countyname:	Contra Costa	Fieldname:	Brentwood (ABD)
Areaname:	Main	Section:	10
Township:	01N	Range:	02E
Basemeridi:	MD	Elevation:	Not Reported
Locationde:	Not Reported	Gissourcec:	hud
Comments:	Status Code 014	Leasename:	Ridell
Wellnumber:	4-10	Epawell:	N
Hydraulica:	N	Confidenti:	N
Spuddate:	19-DEC-62	Welldeptha:	4750
Redrillfoo:	0	Abandonedd:	16-AUG-85
Completion:	Not Reported	Directiona:	Unknown
Gissymbol:	POG	Site id:	CAOG11000232407

074
ENE
1/2 - 1 Mile

OIL_GAS CAOG11000232350

Districtnu:	6	Apinumber:	01300601
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Unknown Operator	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Any Area
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 076
Leasename:	Unknown Conductor	Wellnumber:	2007-1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	17-MAY-07
Welldeptha:	40	Redrillfoo:	0
Abandonedd:	17-MAY-07	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232350		

075
East
1/2 - 1 Mile

OIL_GAS CAOG11000232636

Districtnu:	6	Apinumber:	01320045
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Andrade	Wellnumber:	4

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	26-MAR-69
Welldeptha:	4786	Redrillfoo:	0
Abandonedd:	23-JAN-88	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232636		

O76

ENE

1/2 - 1 Mile

OIL_GAS

CAOG11000232363

Districtnu:	6	Apinumber:	01320012
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Andrade	Wellnumber:	1
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	07-DEC-67
Welldeptha:	3953	Redrillfoo:	0
Abandonedd:	14-APR-87	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232363		

O77

ENE

1/2 - 1 Mile

OIL_GAS

CAOG11000232623

Districtnu:	6	Apinumber:	01320032
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Maria L. Andrade	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	10	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	gps	Comments:	GPS Date 05/21/2007, Status Code 014
Leasename:	Andrade	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-JUL-68
Welldeptha:	3911	Redrillfoo:	0
Abandonedd:	25-JAN-04	Completion:	Not Reported
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232623		

78

NW

1/2 - 1 Mile

OIL_GAS

CAOG11000232810

Districtnu:	6	Apinumber:	01320226
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Operatorna:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	Main
Section:	9	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 015
Leasename:	Williamson	Wellnumber:	2
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	07-MAR-84
Welldeptha:	4329	Redrillfoo:	0
Abandonedd:	20-NOV-95	Completion:	26-MAR-84
Directiona:	Directionally drilled	Gissymbol:	POG
Site id:	CAOG11000232810		

**P79
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000232858

Districtnu:	6	Apinumber:	01320269
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	8	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Capital-Enea	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-APR-87
Welldeptha:	4710	Redrillfoo:	0
Abandonedd:	02-NOV-93	Completion:	03-JUN-87
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232858		

**P80
NW
1/2 - 1 Mile**

OIL_GAS CAOG11000232859

Districtnu:	6	Apinumber:	01320269
Blmwell:	N	Redrillcan:	Not Reported
Dryhole:	N	Wellstatus:	P
Operatorna:	Venturini Associates Inc.	Countyname:	Contra Costa
Fieldname:	Brentwood (ABD)	Areaname:	West
Section:	8	Township:	01N
Range:	02E	Basemeridi:	MD
Elevation:	Not Reported	Locationde:	Not Reported
Gissourcec:	hud	Comments:	Status Code 014
Leasename:	Capital-Enea	Wellnumber:	3
Epawell:	N	Hydraulica:	N
Confidenti:	N	Spuddate:	11-APR-87
Welldeptha:	4710	Redrillfoo:	0
Abandonedd:	02-NOV-93	Completion:	03-JUN-87
Directiona:	Unknown	Gissymbol:	POG
Site id:	CAOG11000232859		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94531	2	0

Federal EPA Radon Zone for CONTRA COSTA County: 2

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level \geq 2 pCi/L and \leq 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for CONTRA COSTA COUNTY, CA

Number of sites tested: 55

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.760 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.300 pCi/L	100%	0%	0%
Basement	0.525 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory

Source: Department of Fish and Wildlife

Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database

Source: Department of Water Resources

Telephone: 916-651-9648

California Drinking Water Quality Database

Source: Department of Public Health

Telephone: 916-324-2319

The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations

Source: Department of Conservation

Telephone: 916-323-1779

Oil and Gas well locations in the state.

California Earthquake Fault Lines

Source: California Division of Mines and Geology

The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon

Source: Department of Public Health

Telephone: 916-210-8558

Radon Database for California

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX B

ENVIRONMENTAL DATA RESOURCES, INC.

Sanborn Map Report



Creekside

3052 Heidorn Ranch Rd

Antioch, CA 94531

Inquiry Number: 5569243.3

February 21, 2019

Certified Sanborn® Map Report



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/21/19

Site Name:

Creekside
3052 Heidorn Ranch Rd
Antioch, CA 94531
EDR Inquiry # 5569243.3

Client Name:

Engeo Inc.
2010 Crow Canyon Place
San Ramon, CA 94583
Contact: Victoria Drake



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Engeo Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # C431-4FDE-B1B9
PO # NA
Project 4894.002.001

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results

Certification #: C431-4FDE-B1B9

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

Engeo Inc. (the client) is permitted to make up to FIVE photocopies of this Sanborn Map transmittal and each fire insurance map accompanying this report solely for the limited use of its customer. No one other than the client is authorized to make copies. Upon request made directly to an EDR Account Executive, the client may be permitted to make a limited number of additional photocopies. This permission is conditioned upon compliance by the client, its customer and their agents with EDR's copyright policy; a copy of which is available upon request.

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APPENDIX C

ENVIRONMENTAL DATA RESOURCES, INC.

Historical Topographic Map Report

Creekside

3052 Heidorn Ranch Rd

Antioch, CA 94531

Inquiry Number: 5569243.4

February 21, 2019

EDR Historical Topo Map Report

with QuadMatch™



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

02/21/19

Site Name:

Creekside
3052 Heidorn Ranch Rd
Antioch, CA 94531
EDR Inquiry # 5569243.4

Client Name:

Engeo Inc.
2010 Crow Canyon Place
San Ramon, CA 94583
Contact: Victoria Drake



EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Engeo Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDR's Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

Coordinates:

P.O.#	NA	Latitude:	37.943499 37° 56' 37" North
Project:	4894.002.001	Longitude:	-121.75506 -121° 45' 18" West
		UTM Zone:	Zone 10 North
		UTM X Meters:	609388.33
		UTM Y Meters:	4200276.95
		Elevation:	169.65' above sea level

Maps Provided:

2012	1912, 1916
1978, 1980	1898
1973	1896
1968	
1953, 1954	
1943	
1940	
1914, 1916	

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Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Antioch South
2012
7.5-minute, 24000

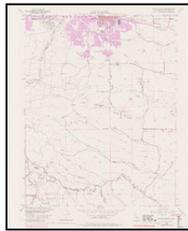


Brentwood
2012
7.5-minute, 24000

1978, 1980 Source Sheets



Brentwood
1978
7.5-minute, 24000
Aerial Photo Revised 1974



Antioch South
1980
7.5-minute, 24000
Aerial Photo Revised 1978

1973 Source Sheets

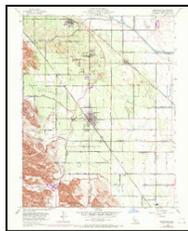


Antioch South
1973
7.5-minute, 24000
Aerial Photo Revised 1973

1968 Source Sheets



Antioch South
1968
7.5-minute, 24000
Aerial Photo Revised 1968



Brentwood
1968
7.5-minute, 24000
Aerial Photo Revised 1968

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1953, 1954 Source Sheets

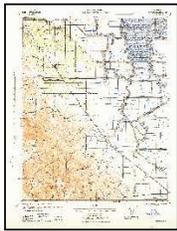


Antioch South
1953
7.5-minute, 24000
Aerial Photo Revised 1949



Brentwood
1954
7.5-minute, 24000
Aerial Photo Revised 1949

1943 Source Sheets



BYRON
1943
15-minute, 62500



Mt. Diablo
1943
15-minute, 62500
Aerial Photo Revised 1937

1940 Source Sheets



Byron
1940
15-minute, 62500
Aerial Photo Revised 1940

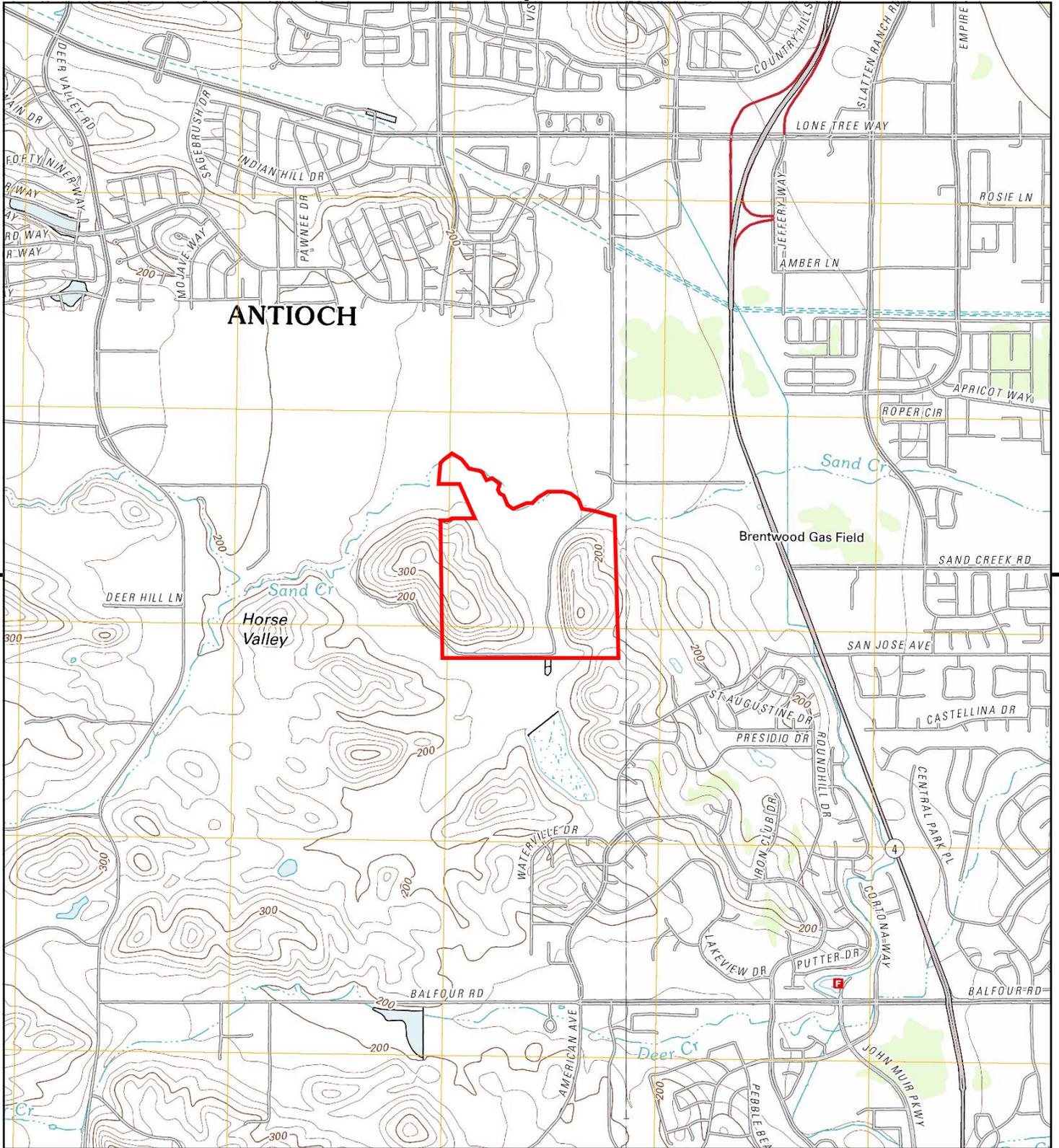
1914, 1916 Source Sheets



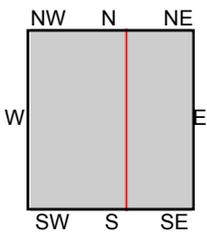
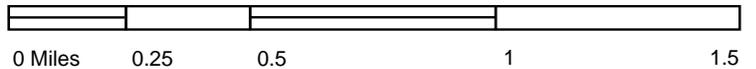
Brentwood
1914
7.5-minute, 31680



Lone Tree Valley
1916
7.5-minute, 31680



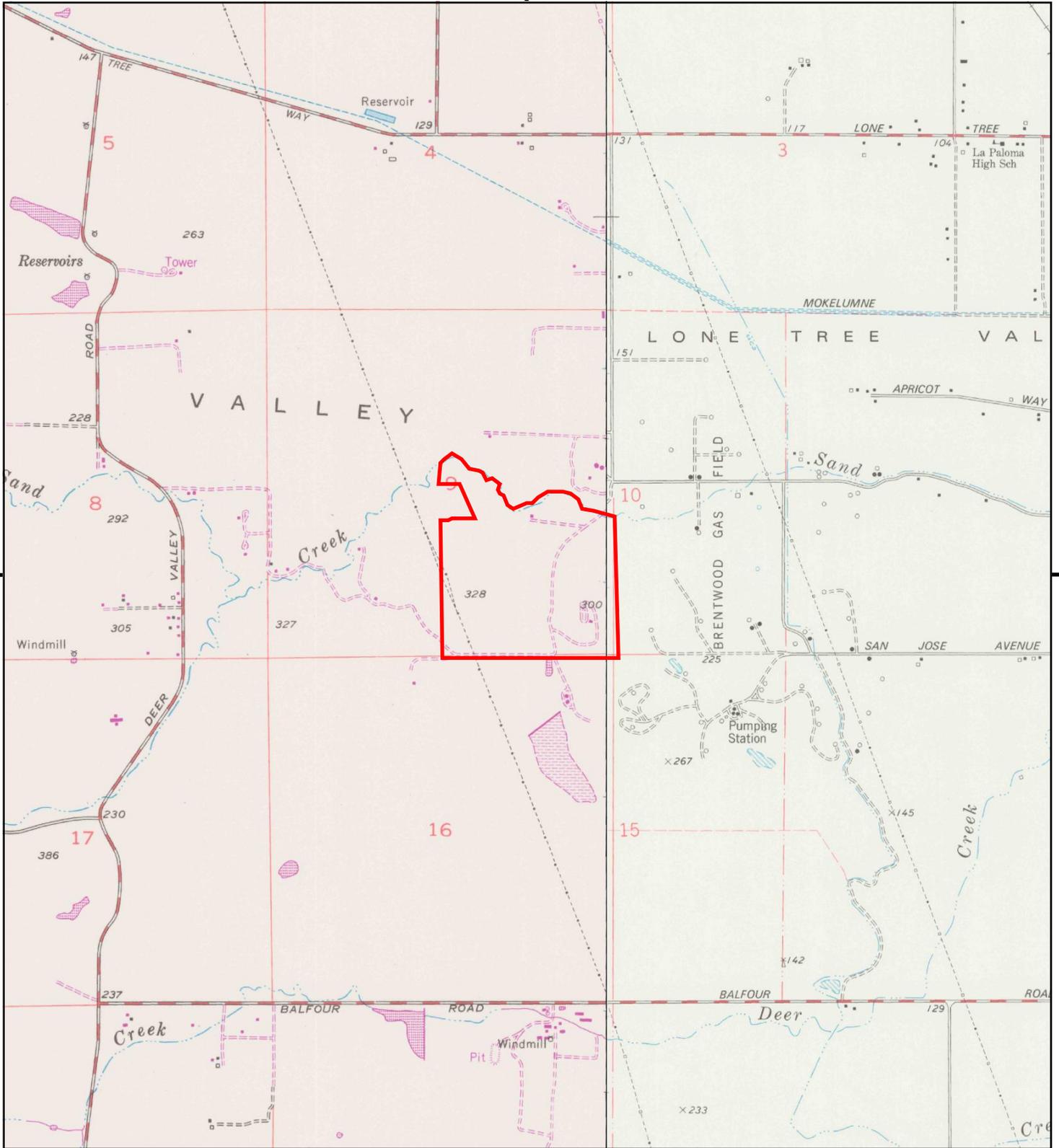
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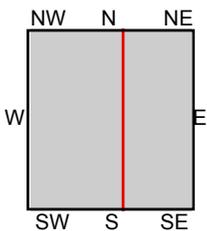
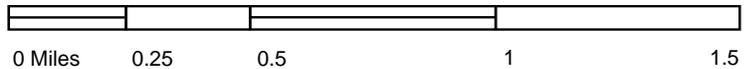
TP, Antioch South, 2012, 7.5-minute
E, Brentwood, 2012, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





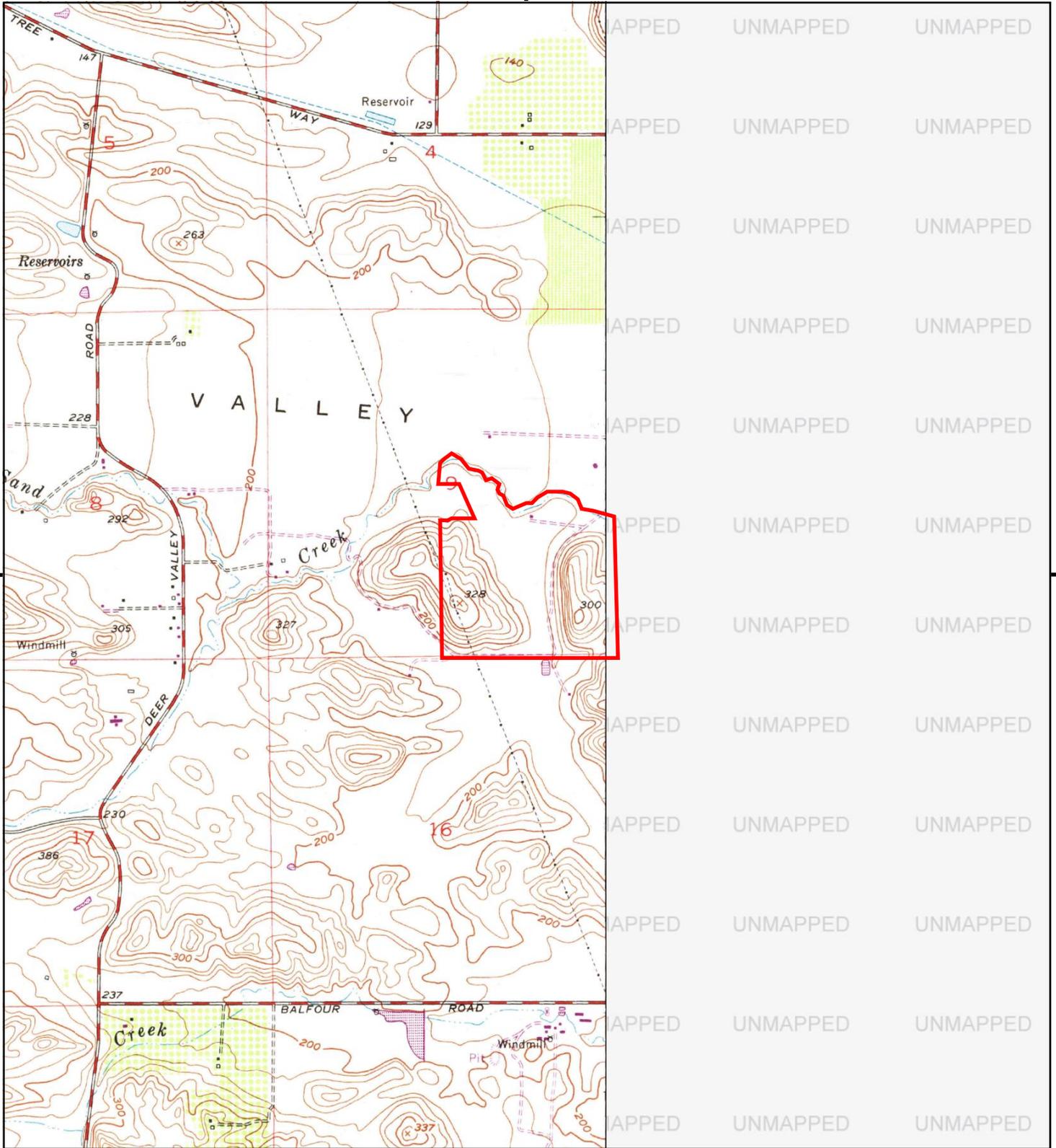
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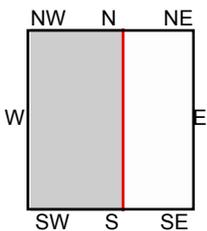
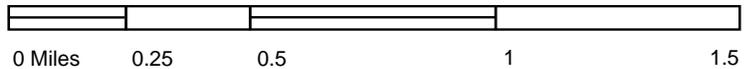
TP, Antioch South, 1980, 7.5-minute
E, Brentwood, 1978, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





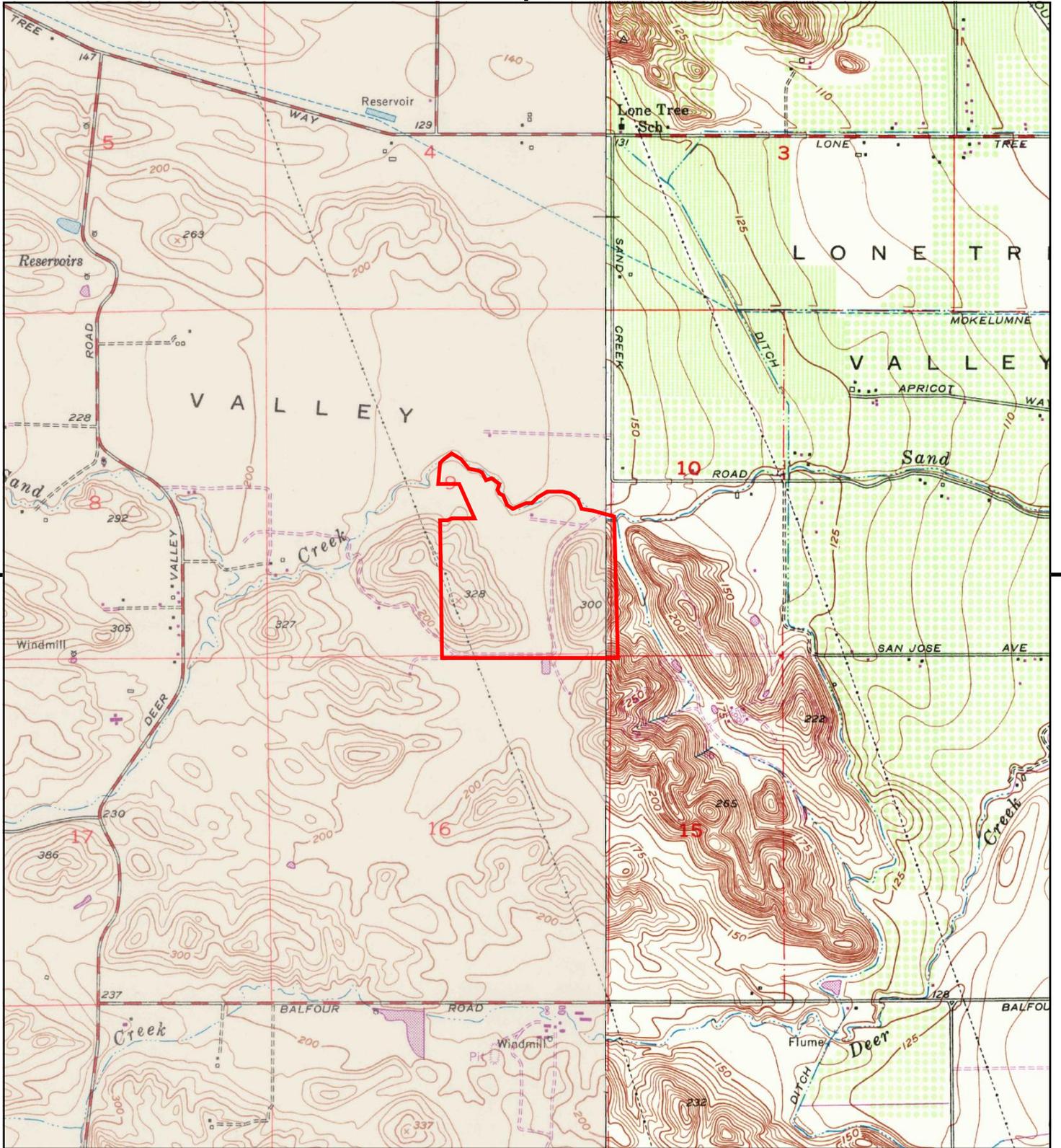
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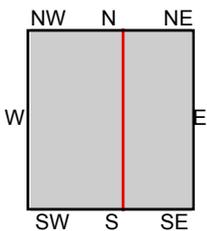
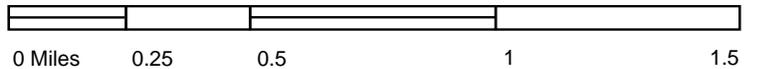
TP, Antioch South, 1973, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
 Antioch, CA 94531
CLIENT: Engeo Inc.





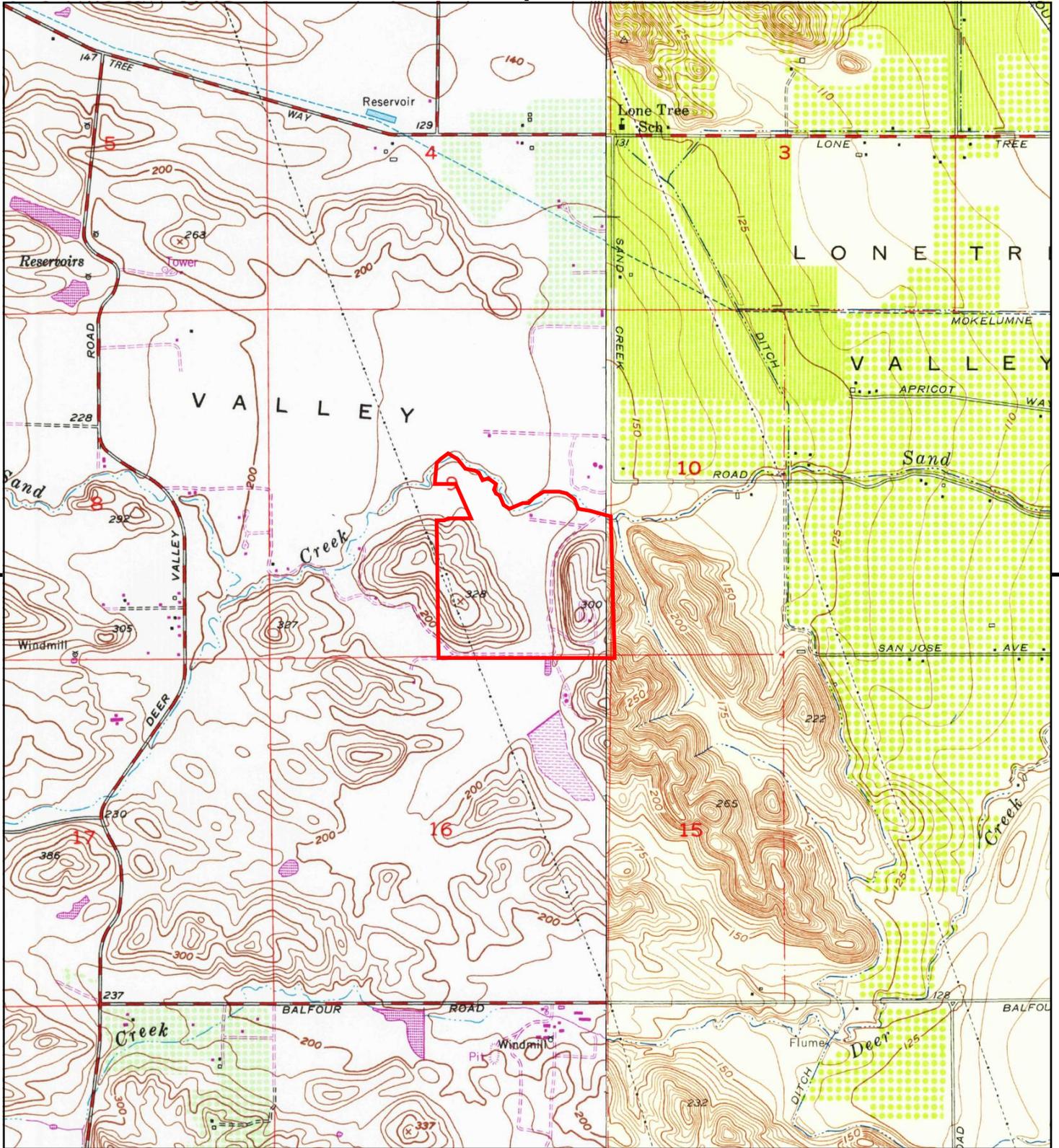
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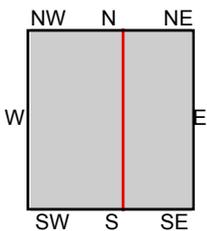
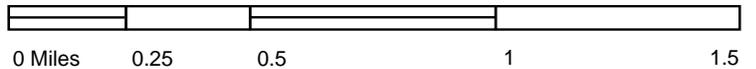
TP, Antioch South, 1968, 7.5-minute
E, Brentwood, 1968, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





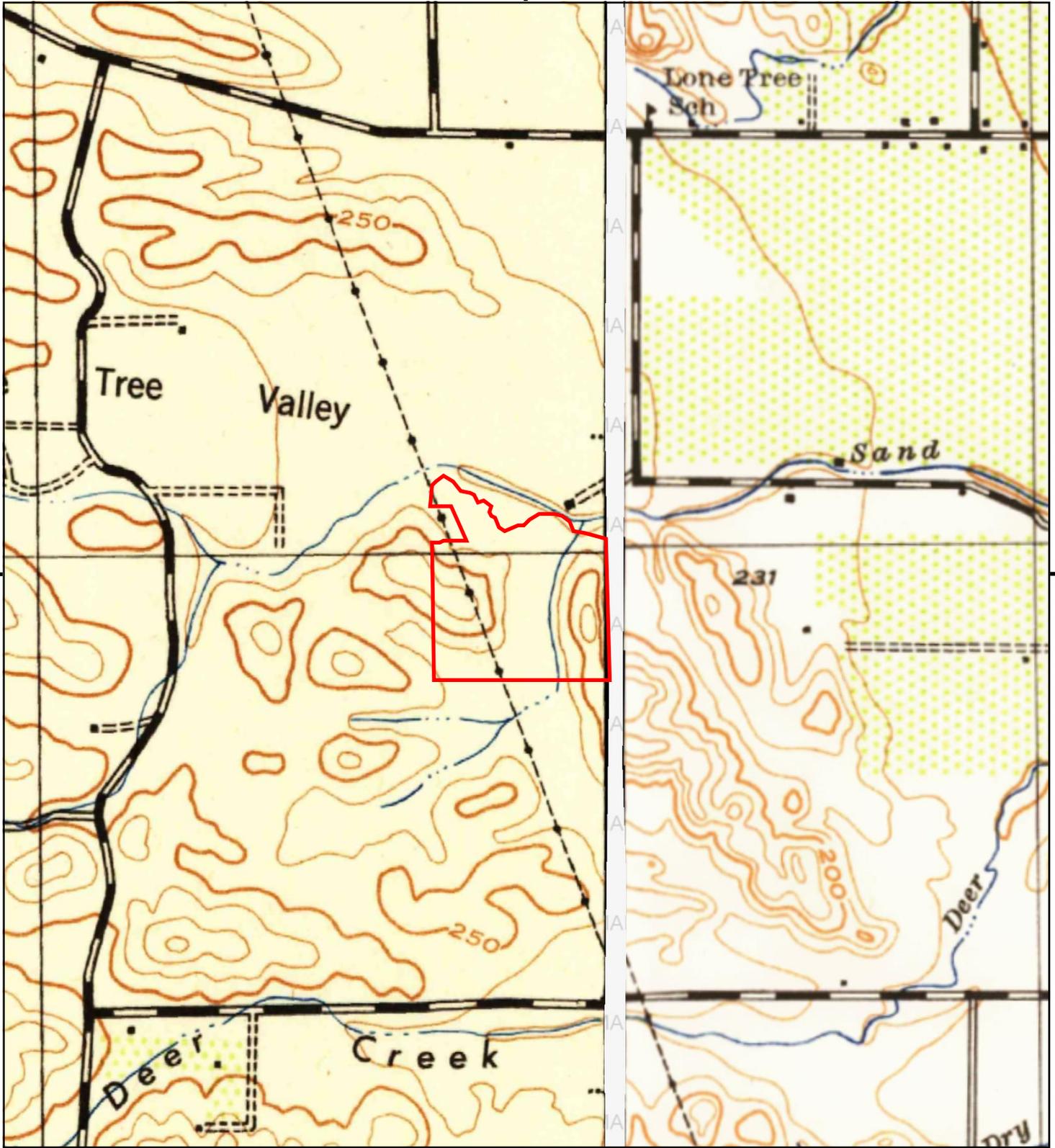
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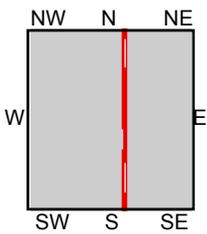
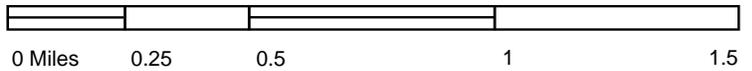
TP, Antioch South, 1953, 7.5-minute
E, Brentwood, 1954, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





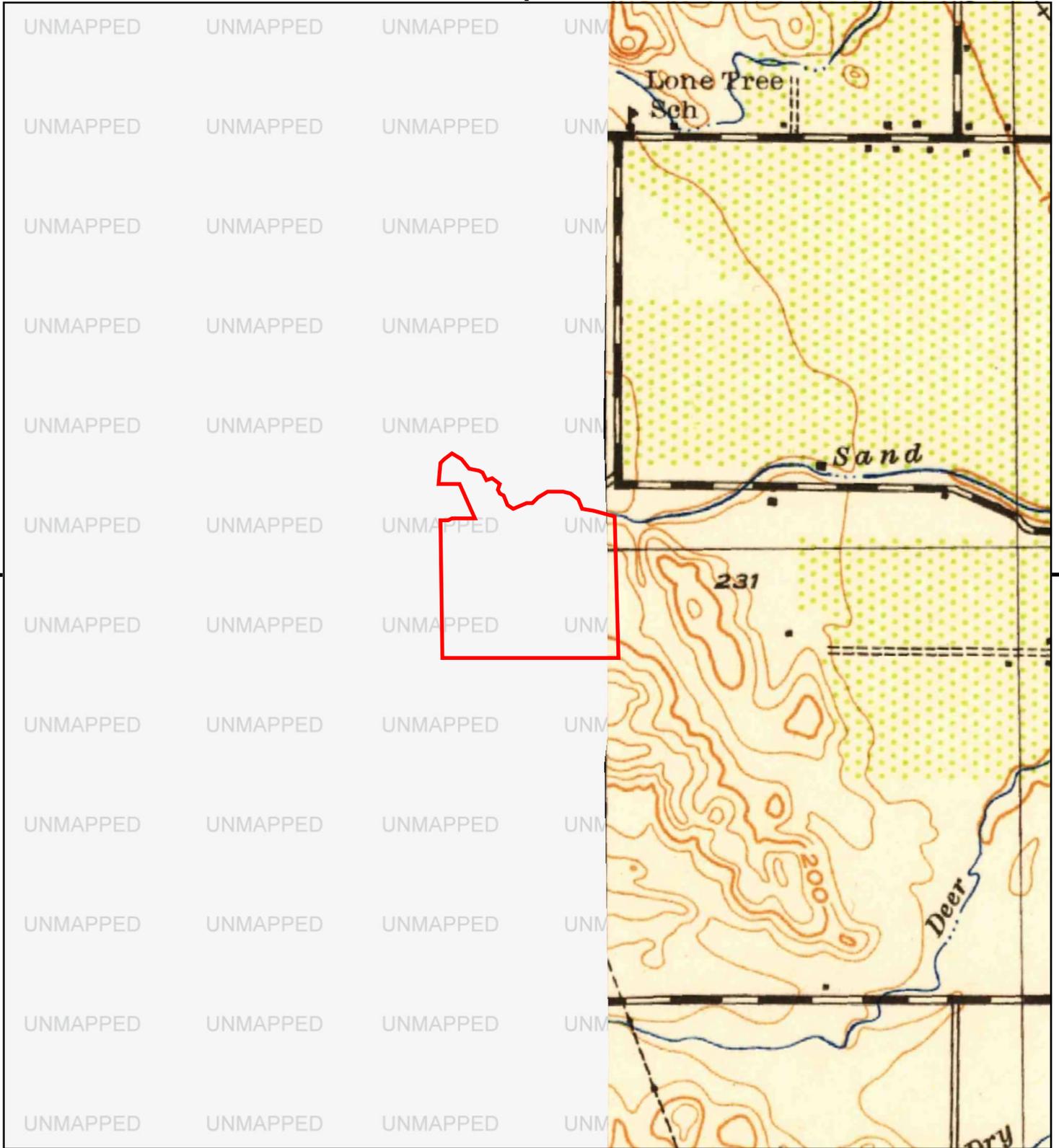
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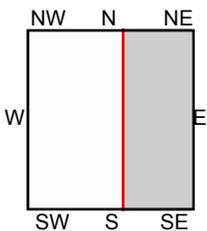
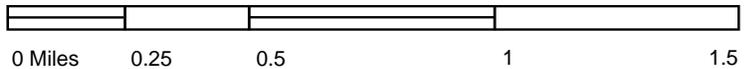
TP, Mt. Diablo, 1943, 15-minute
SE, BYRON, 1943, 15-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





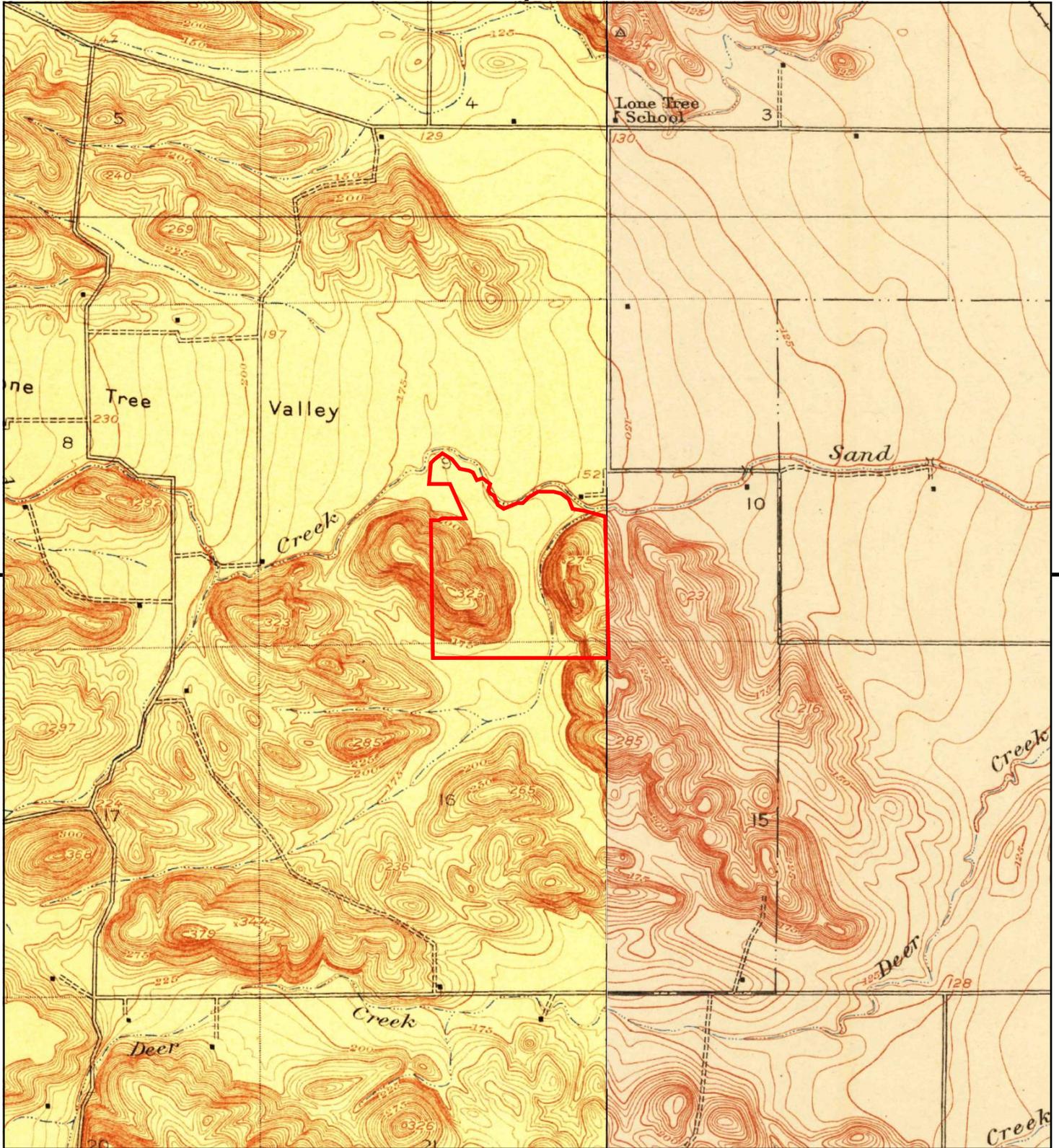
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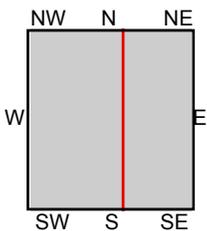
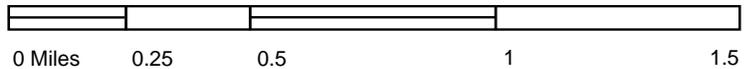
SE, Byron, 1940, 15-minute

SITE NAME: Creekside
 ADDRESS: 3052 Heidorn Ranch Rd
 Antioch, CA 94531
 CLIENT: Engeo Inc.





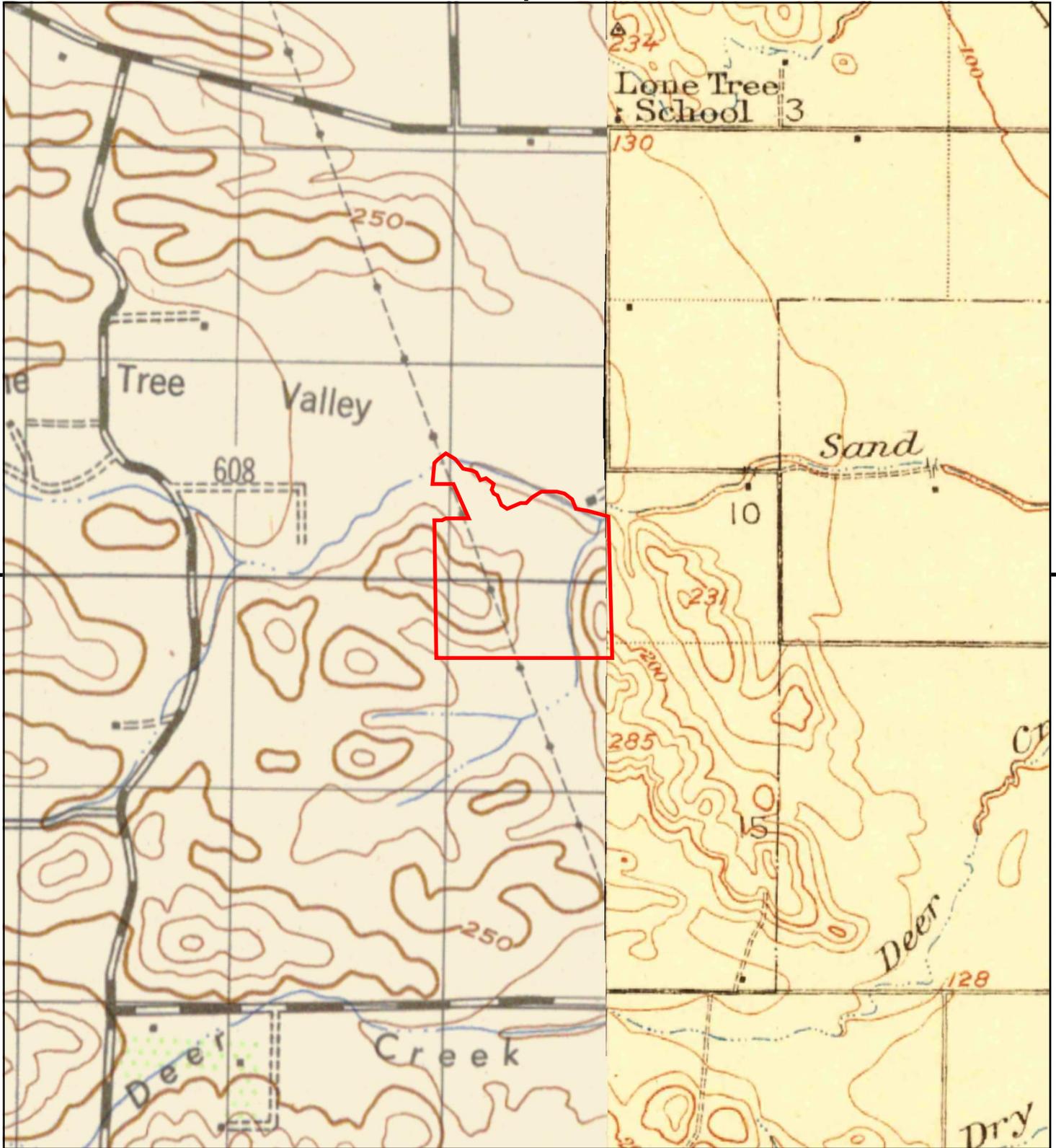
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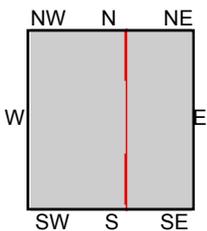
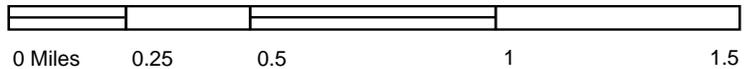
TP, Lone Tree Valley, 1916, 7.5-minute
E, Brentwood, 1914, 7.5-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





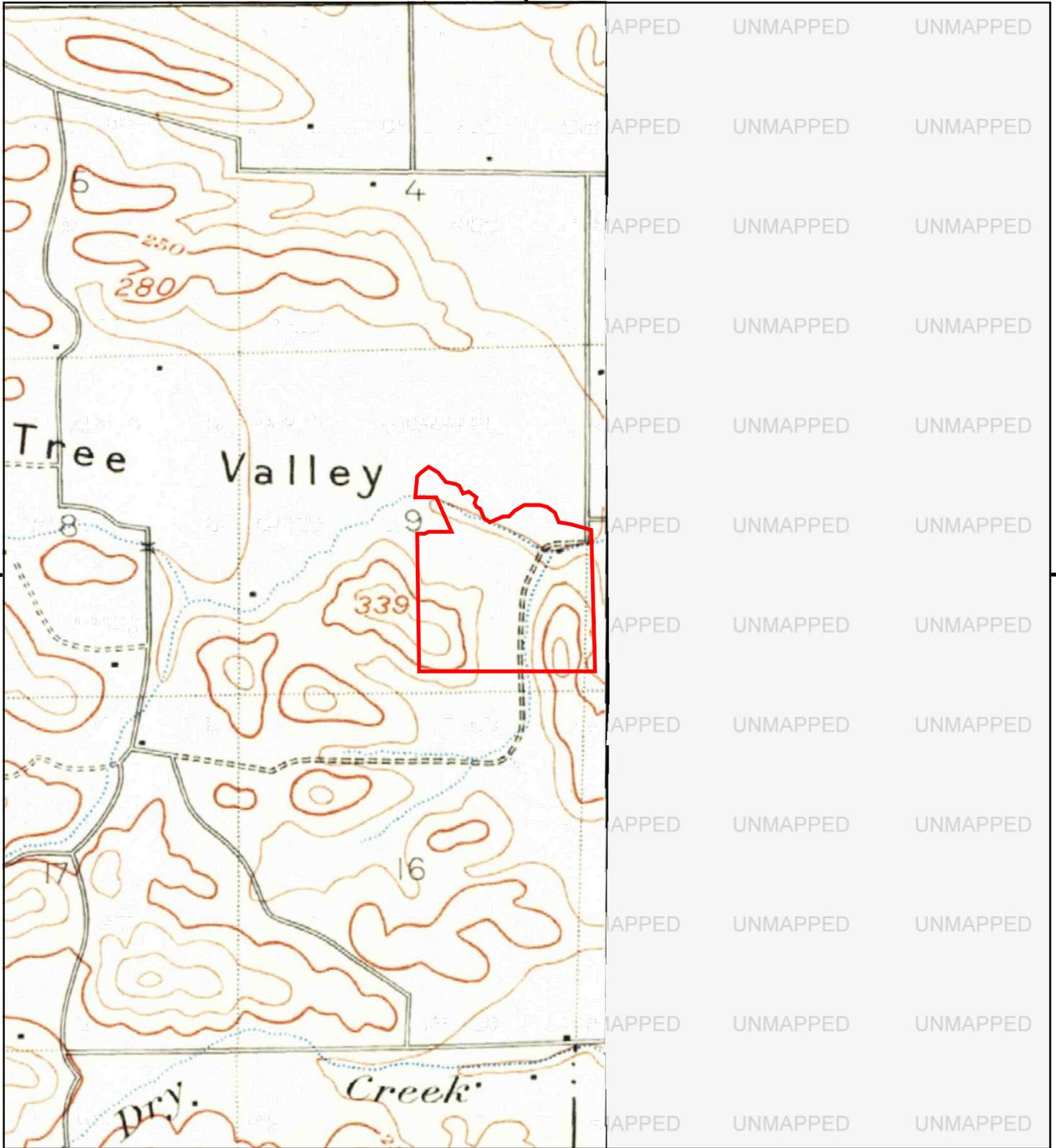
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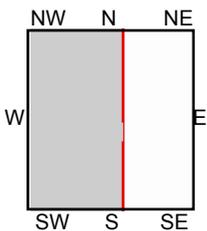
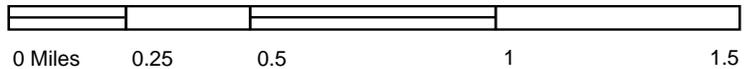
TP, MT. DIABLO, 1912, 15-minute
SE, Byron, 1916, 15-minute

SITE NAME: Creekside
ADDRESS: 3052 Heidorn Ranch Rd
Antioch, CA 94531
CLIENT: Engeo Inc.





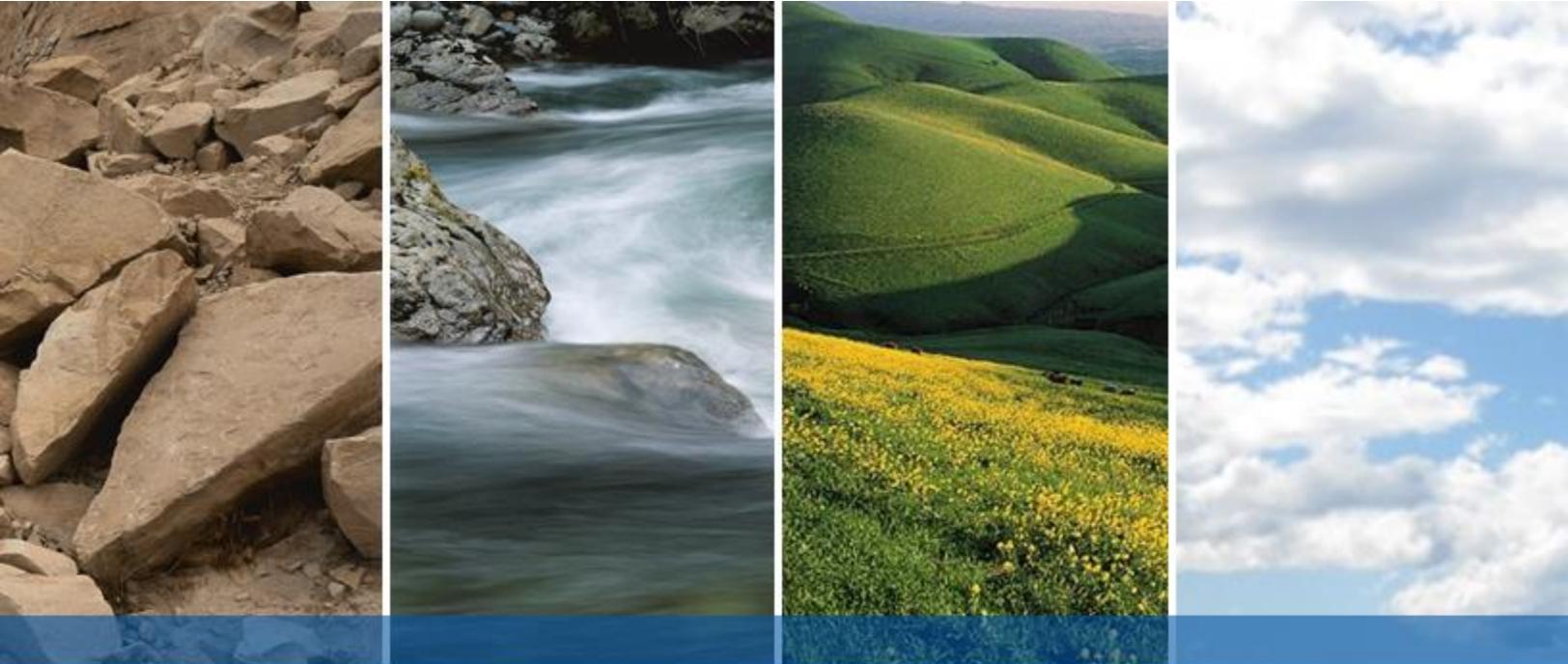
This report includes information from the following map sheet(s).



TP, Mt. Diablo, 1896, 15-minute

SITE NAME: Creekside
 ADDRESS: 3052 Heidorn Ranch Rd
 Antioch, CA 94531
 CLIENT: Engeo Inc.





APPENDIX D

FIRST AMERICAN TITLE COMPANY

Preliminary Title Report

Updated 12/28/2018



First American Title

First American Title Company

1001 Galaxy Way, Suite 101
Concord, CA 94520

Title Officer:	Brianna Seckner
Phone:	(925)738-4040
Fax No.:	(925)738-4041
E-Mail:	bseckner@firstam.com
Property:	APN 057-050-024 / 158 Acres Antioch, CA

PRELIMINARY REPORT

In response to the above referenced application for a policy of title insurance, this company hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms.

The printed Exceptions and Exclusions from the coverage and Limitations on Covered Risks of said policy or policies are set forth in Exhibit A attached. *The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.* Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth in Exhibit A. Copies of the policy forms should be read. They are available from the office which issued this report.

Please read the exceptions shown or referred to below and the exceptions and exclusions set forth in Exhibit A of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of December 18, 2018 at 7:30 A.M.

The form of Policy of title insurance contemplated by this report is:

To Be Determined

A specific request should be made if another form or additional coverage is desired.

Title to said estate or interest at the date hereof is vested in:

PETER EUGENE GINOCHIO AS TRUSTEE OF THE PETER EUGENE GINOCHIO REVOCABLE LIVING TRUST (SEPARTE PROPERTY) DATED NOVEMBER 15, 2006;

JOANNE M. BAKER, TRUSTEE OF THE JOANNE M. BAKER TRUST U/A/D 2/27/92;

PETER EUGENE GINOCHIO AND JOANNE M. BAKER, ALSO KNOWN AS JOANNE BAKER, AS COTRUSTEES OF THE JAMES GINOCHIO TRUST CREATED UNDER THE DECLARATION OF 6/11/99;

JOHN R. GINOCHIO, III, A MARRIED MAN AS HIS SEPARATE PROPERTY;

RONALD S. GINOCHIO, TRUSTEE OF THE JOHN R. GINOCHIO III CHILDREN'S 1999 IRREVOCABLE TRUST DATED 4/5/99;

RONALD S. GINOCHIO AND SALLY N. GINOCHIO, TRUSTEES OF THE RON AND SALLY GINOCHIO LIVING TRUST;

ANNA M. GINOCHIO, EDWARD M. GINOCHIO AND PAUL L. GINOCHIO, CO-TRUSTEES OF THE LOUIS E. GINOCHIO EXEMPTION TRUST CREATED FEBRUARY 23, 2002, PURSUANT TO THE PROVISIONS OF THE 8/11/93 LOUIS E. AND ANNA M. GINOCHIO TRUST;

ANGELINA GINOCHIO, A MARRIED WOMAN AS HER SEPARATE PROPERTY, STEPHEN M. GINOCHIO, A MARRIED MAN AS HIS SEPARATE PROPERTY AND ANTONETTE GINOCHIO, A SINGLE WOMAN, IN EQUAL SHARES, AS TENANTS-IN-COMMON TO EACH OTHER;

PAUL L. GINOCHIO AND PATTY GINOCHIO, TRUSTEES OF THE PAUL L. AND PATTY GINOCHIO TRUST U/A/D 6/24/02, AS A SCHEDULE 1 COMMUNITY PROPERTY ASSET;

GINA GINOCHIO-ROBICHAUD, TRUSTEE OF THE GINA L. GINOCHIO SEPARATE PROPERTY TRUST U/A/D 10/09/2012;

JAMES MARTIN GINOCHIO, AKA JAMES M. GINOCHIO, TRUSTEE OF THE JAMES M. GINOCHIO TRUST U/A/D 11/27/2012;

EDWARD M. GINOCHIO, TRUSTEE OF THE EDWARD M. GINOCHIO SEPARATE PROPERTY TRUST U/A/D 5/25/04;

JOHN R. GINOCHIO, IV, A MARRIED MAN, AS HIS SEPARATE PROPERTY;

JOHN R. GINOCHIO, III, TRUSTEE OF THE JOHN R. GINOCHIO, III AND SHANON W. GINOCHIO TRUST

U/A/D JUNE 1, 2006, SCHEDULE 2 ASSET;

RONALD S. GINOCHIO, TRUSTEE OF THE JOHN R. GINOCHIO, III 1999 IRREVOCABLE TRUST (AGREEMENT FOR SETTLORS. SIBLINGS AND BARBARA A. GINOCHIO DATED APRIL 5, 1999);

ANNA M. GINOCHIO, TRUSTEE OF THE ANNA M. GINOCHIO SURVIVOR'S TRUST CREATED FEBRUARY 23, 2002, PURSUANT TO THE PROVISIONS OF THE 8/11/93 LOUIS E. AND ANNA M. GINOCHIO TRUST;

PAUL L. GINOCHIO AND PATTY GINOCHIO, TRUSTEES OF THE PAUL L. AND PATTY GINOCHIO TRUST U/A/D JUNE 24, 2002, AS A SCHEDULE 2 ASSET;

GINA L. GINOCHIO, AND JAMES M. GINOCHIO AS THEIR SEPARATE PROPERTY, AS TENANTS IN COMMON;

JOANNE M. BAKER, TRUSTEE OF THE JOANNE M. BAKER TRUST;

PETER EUGENE GINOCHIO TRUSTEE OF THE JAMES R. GINOCHIO TRUST;

JOANNE M. BAKER, TRUSTEE OF THE JAMES R. GINOCHIO TRUST;

RONALD S. GINOCHIO, A MARRIED MAN AS HIS SEPARATE PROPERTY;

PAUL L. GINOCHIO;

LOUIS E. GINOCHIO & ANNA M. GINOCHIO, HUSBAND AND WIFE, COMMUNITY PROPERTY;

AND PAUL L. GINOCHIO AND PATTY GINOCHIO, TRUSTEES OF PAUL L. & PATTY GINOCHIO TRUST U/A/D 6/24/02;

ALL AS THEIR INTEREST MAY APPEAR OF RECORD

The estate or interest in the land hereinafter described or referred to covered by this Report is:

A fee.

The Land referred to herein is described as follows:

(See attached Legal Description)

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. General and special taxes and assessments for the fiscal year 2018-2019.

First Installment:	\$800.77, PAID
Penalty:	\$0.00
Second Installment:	\$800.77, OPEN
Penalty:	\$0.00
Tax Rate Area:	01-111
A. P. No.:	057-050-024-9
2. The lien of special tax assessed pursuant to Chapter 2.5 commencing with Section 53311 of the California Government Code for Community Facilities District 89-1, as disclosed by Notice of Special Tax Lien recorded March 20, 1990 as Instrument No. 90-56597 of Official Records.

3. The land lies within the boundaries of proposed community facilities District No. 2018-01 (Public Services), as disclosed by a map filed January 24, 2018 in Book 86, Page 34 of maps of assessment and community facilities districts recorded January 24, 2018 as Instrument No. 2018-0011203 of Official Records.
4. The lien of supplemental taxes, if any, assessed pursuant to Chapter 3.5 commencing with Section 75 of the California Revenue and Taxation Code.
5. An easement for pole line and incidental purposes in the document recorded June 7, 1913 in Book 202 of Deeds, Page 315.

The location of the easement cannot be determined from record information.

6. An easement for tower line and incidental purposes, recorded September 30, 1925 as Book 7, Page 278 of Official Records.
In Favor of: Pacific Gas and Electric Company
Affects: As described therein
7. Rights of way reserved in the deed to Albert Picard, recorded August 18, 1927, Book 108, Official Records, Page 40, as follows:

A- "A right of way for the use and maintenance of a ditch that serves for the control of storm water, a strip of land 25 feet wide and 2050 feet along whose Western boundary extends from the Northwest corner of the tract first above described, 2050 feet Southerly along the West boundary line of the said tract."

8. An easement for production, storage, transportation, exploration, testing, with the right to drill or mine, all oil, gas, and other hydrocarbons and minerals therein and incidental purposes, recorded March 12, 1946 as Book 889, Page 43 of Official Records.
In Favor of: Louisa E. Shellenberger
Affects: As described therein

The location of the easement cannot be determined from record information.

9. An easement for gas pipe lines and incidental purposes, recorded August 11, 1947 as Book 1117, Page 267 of Official Records.
In Favor of: Pacific Gas and Electric Company
Affects: As described therein
10. An easement for pipe lines and incidental purposes, recorded April 4, 1963 as Book 4337, Page 210, and amendment recorded June 19, 1964, Book 4642, Page 190 of Official Records.
In Favor of: Shell Oil Company
Affects: As described therein

The effect of a document entitled "Partial Quitclaim of Easement", recorded May 30, 2018 as Instrument No. 2018-0084921 of Official Records.

Document(s) declaring modifications thereof recorded August 13, 2018 as Instrument No. 2018-0128907 of Official Records.

11. An easement for gas transmission pipelines and incidental purposes, recorded September 11, 1963 as Book 4447, Page 789 of Official Records.
In Favor of: Pacific Gas and Electric Company
Affects: As described therein

12. An easement for the right of ingress and egress at all times for the purpose of mining, drilling, exploring, operating and developing said lands for oil, gas and other minerals, and storing, handling, transporting and marketing the same therefrom and incidental purposes in the document recorded December 24, 1964 as Book 4770, Pages 803, 806, 809, 812, 827, 830 and 833 of Official Records.

The location of the easement cannot be determined from record information.

13. An easement for the right of ingress and egress at all times for the purpose of mining, drilling, exploring, operating and developing said lands for oil, gas and other minerals, and storing, handling, transporting and marketing the same therefrom and incidental purposes in the document recorded December 24, 1964 as Book 4770, Pages 815, 818, 821, 824, 836, 839 and 842 of Official Records.

The location of the easement cannot be determined from record information.

14. An easement for pipe line and incidental purposes, recorded July 21, 1966 as Book 5166, page 428 of Official Records.
In Favor of: Shell Oil Company
Affects: As described therein

The effect of a document entitled "Quitclaim of Easement", recorded April 4, 2018 as Instrument No. 2018-0051601 of Official Records.

15. An easement for roadway and pipe line and incidental purposes, recorded July 21, 1966 as Book 5166, Page 432 of Official Records.
In Favor of: Shell Oil Company
Affects: As described therein

The effect of a document entitled "Quitclaim of Easement", recorded April 4, 2018 as Instrument No. 2018-0051601 of Official Records.

16. An easement for tower line and incidental purposes, recorded November 7, 1966 as Book 5240, Page 451 of Official Records.
In Favor of: Pacific Gas and Electric Company
Affects: As described therein

17. Terms, provisions, covenants, restrictions and conditions contained in a document executed pursuant to the California Land Conservation Act of 1965 (Williamson Act) and recorded February 27, 1969 as Book 5821, Page 451 of Official Records.

The effect of a document entitled "Notice of Nonrenewal", recorded September 27, 1993 as Book 18982, 863 and recorded December 11, 2000 as Instrument No. 2000-0277604 of Official Records.

18. An unrecorded lease dated September 16, 1978, executed by John Ginochio, Jr., et al, and Emma Le'Moin, et al, as lessor and Shell Oil Company, a corporation as lessee, as disclosed by a Memorandum of Lease for Subsurface Disposal of Waste Water recorded March 29, 1979 as Book 9283, Page 158 of Official Records.

Defects, liens, encumbrances or other matters affecting the leasehold estate, whether or not shown by the public records.

19. An easement for ingress and egress and incidental purposes, recorded December 12, 1991 as Book 17077, Page 436 of Official Records.
In Favor of: Pacific Gas and Electric Company
Affects: As described therein

The location of the easement cannot be determined from record information.

20. The terms and provisions contained in the document entitled "Limited Surface Access Agreement" recorded January 18, 2000 as Instrument No. 2000-0010657 of Official Records.
21. The terms and provisions contained in the document entitled "Easement Agreement" recorded January 9, 2009 as Instrument No. 2009-3638 of Official Records.
22. An easement for grading, landscape, planting, growing, caring for and maintaining shrubs and trees and incidental purposes, recorded January 9, 2009 as Instrument No. 2009-3639 of Official Records.
In Favor of: Pacific Gas and Electric Company, a California corporation
Affects: As described therein

23. The terms and provisions contained in the document entitled "Tenancy-In-Common Agreement" recorded January 24, 2014 as Instrument No. 2014-0012304 of Official Records.

The terms and provisions contained in the document entitled "Assignment of Tenancy-In-Common Agreement" recorded August 4, 2017 as Instrument No. 2017-0140841 of Official Records.

24. An easement for cathodic pipe protection system and incidental purposes, recorded January 24, 2014 as Instrument No. 2014-0012506 of Official Records.
In Favor of: Chevron Pipe Line Company, a Delaware corporation
Affects: As described therein

The location of the easement cannot be determined from record information.

25. An oil and gas lease executed by Ginochio, ET AL as lessor and Sunset Exploration, Inc, a California corporation as lessee, recorded January 9, 2015 as Instrument No. 2015-0004288 of Official Records.

Defects, liens, encumbrances or other matters affecting the leasehold estate, whether or not shown by the public records.

26. An option in favor of GBN Partners LLC, a Delaware limited liability company as contained in or disclosed by a document recorded September 25, 2017 as Instrument No. 2017-0174855 of Official Records.
27. The Terms, Provisions and Easement(s) contained in the document entitled "Conservation Easement Deed Restriction" recorded July 13, 2018 as Instrument No. 2018-0112020 of Official Records.
28. Any defects, liens, encumbrances or other matters which name parties with the same or similar names as Joanne Baker. The name search necessary to ascertain the existence of such matters has not been completed. In order to complete this preliminary report or commitment, we will require a statement of information.
29. Any right, title or interest of the spouse (if any) of any married person herein.
30. Any claim that the Title is subject to a trust or lien created under The Perishable Agricultural Commodities Act, 1930 (7 U.S.C. §§499a, et seq.) or the Packers and Stockyards Act (7 U.S.C. §§181 et seq.) or under similar state laws.
31. Any claim that any portion of the land is below the ordinary high water mark where it was located prior to any artificial or avulsive changes in the location of the shoreline or riverbank.
32. Any rights, interests, or easements in favor of the public, which exist or are claimed to exist over any portion of said land covered by water, including a public right of access to the water.
33. Any claim that any portion of the land is or was formerly tidelands or submerged lands.
34. Rights of the public in and to that portion of the land lying within any Road, Street, Alley or Highway.
35. Water rights, claims or title to water, whether or not shown by the public records.
36. Rights of parties in possession.

Prior to the issuance of any policy of title insurance, the Company will require:

37. With respect to the trust referred to in the vesting:
 - a. A certification pursuant to Section 18100.5 of the California Probate Code in a form satisfactory to the Company.
 - b. Copies of those excerpts from the original trust documents and amendments thereto which designate the trustee and confer upon the trustee the power to act in the pending transaction.
 - c. Other requirements which the Company may impose following its review of the material required herein and other information which the Company may require.
38. A deed from the spouse of any married person herein be recorded in the public records, or the joinder of the spouse of any married person named herein on any conveyance, encumbrance or lease to be executed by said married person.

INFORMATIONAL NOTES

Note: The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than the certain dollar amount set forth in any applicable arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. If you desire to review the terms of the policy, including any arbitration clause that may be included, contact the office that issued this Commitment or Report to obtain a sample of the policy jacket for the policy that is to be issued in connection with your transaction.

1. The property covered by this report is vacant land.
2. According to the public records, there has been no conveyance of the land within a period of twenty-four months prior to the date of this report, except as follows:

None
3. We find no outstanding voluntary liens of record affecting subject property. Disclosure should be made concerning the existence of any unrecorded lien or other indebtedness which could give rise to any possible security interest in the subject property.

The map attached, if any, may or may not be a survey of the land depicted hereon. First American expressly disclaims any liability for loss or damage which may result from reliance on this map except to the extent coverage for such loss or damage is expressly provided by the terms and provisions of the title insurance policy, if any, to which this map is attached.

LEGAL DESCRIPTION

Real property in the City of Antioch , County of Contra Costa, State of California, described as follows:

BEING ALL OF PARCEL (B) OF THAT CERTAIN TRUST TRANSFER DEED RECORDED MAY 26, 2004, IN DOCUMENT NO. 2004-0199652 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF CONTRA COSTA COUNTY, ALSO BEING A PORTION OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 1 NORTH, RANGE 2 EAST, MOUNT DIABLO BASE AND MERIDIAN.

EXCEPTING THEREFROM THE FOLLOWING DESCRIBED PARCELS OF LAND:

(A) THAT PARCEL OF LAND DESCRIBED IN THE DEED TO PACIFIC GAS AND ELECTRIC COMPANY, RECORDED DECEMBER 12, 1991 IN BOOK 17077 OR 436.

(B) THAT PARCEL OF LAND DESCRIBED IN THE DEED TO PACIFIC GAS AND ELECTRIC COMPANY, RECORDED JANUARY 9, 2009 IN INSTRUMENT NO. 2009-3639, OFFICIAL RECORDS.

(C) BEGINNING AT THE NORTHEASTERN CORNER OF SAID SOUTHEAST QUARTER;

THENCE, FROM SAID POINT OF BEGINNING, ALONG THE NORTHERN LINE OF SAID SOUTHEAST QUARTER, NORTH 89°22'08" WEST (THE BEARING OF SAID NORTHERN LINE BEING TAKEN AS NORTH 89°22'08" WEST FOR THE PURPOSE OF MAKING THIS DESCRIPTION) 1,562.40 FEET;

THENCE, LEAVING SAID NORTHERN LINE, SOUTH 14°36'23" EAST 281.45 FEET;

THENCE, SOUTH 61°13'41" EAST 51.04 FEET;

THENCE, NORTH 57°49'21" EAST 516.24 FEET;

THENCE, SOUTH 89°22'08" EAST 324.45 FEET;

THENCE, SOUTH 59°24'33" EAST 788.29 FEET TO A POINT ON THE EASTERN LINE OF SAID SOUTHEAST QUARTER;

THENCE, ALONG SAID EASTERN LINE, NORTH 00°55'42" EAST 409.59 FEET TO SAID POINT OF BEGINNING.

TOGETHER THEREWITH, THE FOLLOWING DESCRIBED PARCEL OF LAND:

BEING A PORTION OF PARCEL C, AS SAID PARCEL C IS DESCRIBED IN THAT CERTAIN GRANT DEED RECORDED SEPTEMBER 5, 2002, IN INSTRUMENT NO. 2002-0312734 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF CONTRA COSTA COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEASTERN CORNER OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 1 NORTH, RANGE 2 EAST, MOUNT DIABLO BASE AND MERIDIAN;

THENCE, FROM SAID POINT OF COMMENCEMENT, ALONG THE NORTHERN LINE OF SAID SOUTHEAST QUARTER, NORTH 89°22'08" WEST (THE BEARING OF SAID NORTHERN LINE BEING TAKEN AS NORTH 89°22'08" WEST FOR THE PURPOSE OF MAKING THIS DESCRIPTION) 1,562.40 FEET TO A POINT ON THE SOUTHERN LINE OF SAID PARCEL C, SAID POINT BEING THE POINT OF BEGINNING FOR THIS DESCRIPTION;

THENCE, FROM SAID POINT OF BEGINNING, LEAVING SAID SOUTHERN LINE OF PARCEL C, NORTH 14°36'23" WEST 100.92 FEET;

THENCE, NORTH 58°51'12" WEST 887.40 FEET;

THENCE, NORTH 89°23'27" WEST 91.74 FEET;

THENCE, SOUTH 75°29'23" WEST 158.77 FEET TO A POINT ON THE WESTERN LINE OF SAID PARCEL C;

THENCE, ALONG SAID WESTERN LINE, SOUTH 00°58'52" WEST 506.47 FEET TO THE SOUTHWESTERN CORNER OF SAID PARCEL C;

THENCE, FROM SAID SOUTHWESTERN CORNER, ALONG SAID SOUTHERN LINE OF PARCEL C, SOUTH 89°22'08" EAST 1,039.10 FEET TO SAID POINT OF BEGINNING.

EXCEPTING FROM A PORTION OF THE LAND:

AN UNDIVIDED ONE-HALF (1/2) RIGHT, TITLE AND INTEREST AND ESTATE IN AND TO ALL OIL, GAS AND OTHER HYDROCARBONS AND MINERALS, AS RESERVED IN THE DEED FROM LOUIS D. HEIDORN, ET AL, RECORDED MARCH 12, 1946, BOOK 889, PAGE 43, OFFICIAL RECORDS.

ALSO EXCEPTING FROM A PORTION OF THE LAND:

ALL OIL, GAS, CASINGHEAD GAS AND OTHER HYDROCARBONS AND MINERALS, AS GRANTED IN THE DEEDS TO LOUIS E. GINOCHIO, ET AL, IN THE DEEDS RECORDED DECEMBER 24, 1964, BOOK 4770, PAGES 815, 818, 821, 824, 836, 839 AND 842, OFFICIAL RECORDS.

EXCEPTING FROM THE REMAINING PORTION OF THE LAND:

ALL OIL, GAS, CASINGHEAD GAS AND OTHER HYDROCARBONS AND MINERALS, AS GRANTED IN THE DEEDS TO LOUIS E. GINOCHIO, ET AL, IN THE DEEDS RECORDED DECEMBER 24, 1964, BOOK 4770, PAGES 803, 806, 809, 812, 827, 830 AND 833, OFFICIAL RECORDS.

ALSO EXCEPTING FROM THE REMAINING PORTION OF THE LAND:

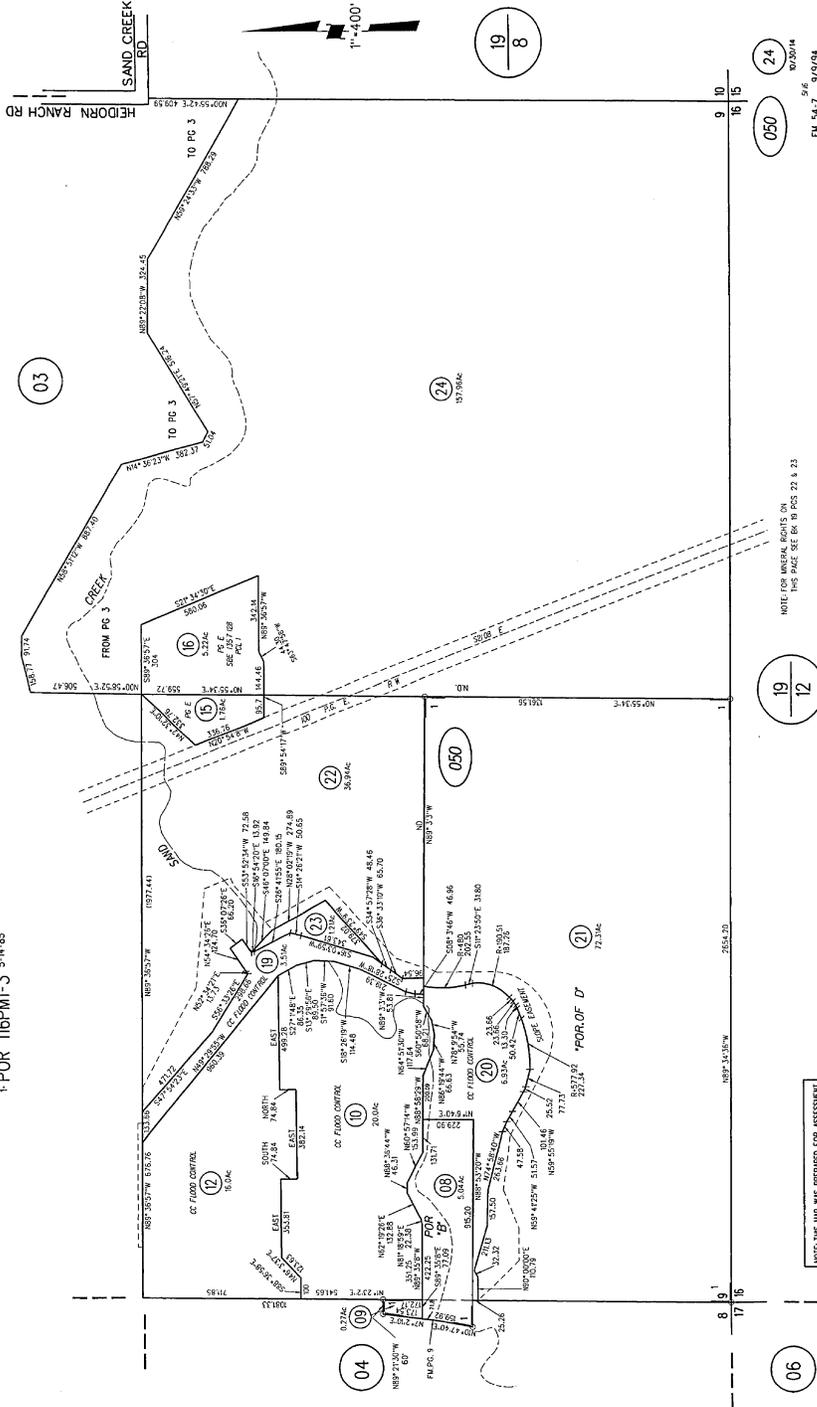
ALL RIGHTS RESERVED IN THE DEED FROM LOUIS E. GINOCHIO AND MARY BARTOLOMEI, AS THE DULY APPOINTED AND ACTING EXECUTORS UNDER WILL OF JOHN R. GINOCHIO JR., ALSO KNOWN AS JOHN GINOCHIO, JR., ALSO KNOWN AS JOHN GINOCHIO, JR., ALSO KNOWN AS JOHN R. GINOCHIO, DECEASED, RECORDED SEPTEMBER 15, 1989, BOOK 15347, PAGE 727, OFFICIAL RECORDS, DESCRIBED AS FOLLOWS:

ITS UNDIVIDED INTEREST IN ANY AND ALL OIL, GAS ANDS MINERALS OF WHATSOEVER KIND OR NATURE SITUATE THEREIN, NOW OR HEREAFTER DISCOVERED, AND THE RIGHTS TO EXPLORE FOR, DRILL AND PRODUCE ALL OR ANY THEREOF, AND THE RIGHT TO GRANT LEASES FOR THE EXPLORATION AND PRODUCTION THEREOF.

THIS LEGAL DESCRIPTION IS MADE PURSUANT TO THAT CERTAIN CERTIFICATE APPROVING A PW 443-03-14 LOT LINE ADJUSTMENT RECORDED SEPTEMBER 5, 2014 AS INSTRUMENT NO. 2014-0150641 OF OFFICIAL RECORDS.

APN: 057-050-024-9

S 1/2 SEC 9 T1N R2E MDBM
 1-POR 116PMI-3 5-14-85



NOTE: THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY AND LIABILITY IS ASSIGNED TO THE USER. THE ASSASSOR'S OFFICE AND RELATED PERSONS, ASSASSOR'S PARTIES MAY NOT BE HELD LIABLE FOR NEGLIGENCE.

NOTE FOR MINEING RIGHTS ON THIS PAGE SEE BK IN PAGES 22 & 23

050
 24
 0250/14

19
 12

06

FM 54-7 9/19/94
 ASSESSOR'S MAP
 BOOK 57 PAGE 5
 CONTRA COSTA COUNTY, CALIF.

NOTICE

Section 12413.1 of the California Insurance Code, effective January 1, 1990, requires that any title insurance company, underwritten title company, or controlled escrow company handling funds in an escrow or sub-escrow capacity, wait a specified number of days after depositing funds, before recording any documents in connection with the transaction or disbursing funds. This statute allows for funds deposited by wire transfer to be disbursed the same day as deposit. In the case of cashier's checks or certified checks, funds may be disbursed the next day after deposit. In order to avoid unnecessary delays of three to seven days, or more, please use wire transfer, cashier's checks, or certified checks whenever possible.

EXHIBIT A
LIST OF PRINTED EXCEPTIONS AND EXCLUSIONS (BY POLICY TYPE)

CLTA STANDARD COVERAGE POLICY – 1990
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
- (b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA/ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13)
EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
 - a. building;
 - b. zoning;
 - c. land use;

- d. improvements on the Land;
 - e. land division; and
 - f. environmental protection.
- This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.
2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
 3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
 4. Risks:
 - a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
 - b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
 - c. that result in no loss to You; or
 - d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
 5. Failure to pay value for Your Title.
 6. Lack of a right:
 - a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
 - b. in streets, alleys, or waterways that touch the Land.

This Exclusion does not limit the coverage described in Covered Risk 11 or 21.
 7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
 8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
 9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:
For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.
The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	<u>Your Deductible Amount</u>	<u>Our Maximum Dollar Limit of Liability</u>
Covered Risk 16:	1% of Policy Amount Shown in Schedule A or \$2,500 (whichever is less)	\$10,000
Covered Risk 18:	1% of Policy Amount Shown in Schedule A or \$5,000 (whichever is less)	\$25,000
Covered Risk 19:	1% of Policy Amount Shown in Schedule A or \$5,000 (whichever is less)	\$25,000
Covered Risk 21:	1% of Policy Amount Shown in Schedule A or \$2,500 (whichever is less)	\$5,000

2006 ALTA LOAN POLICY (06-17-06)
EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

 - (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

- (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13, or 14); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
 5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
 6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
 7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

[Except as provided in Schedule B - Part II, [t[or T]his policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

[PART I

[The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:]

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;

- (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 or 10); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
 5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of: [The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. [Variable exceptions such as taxes, easements, CC&R's, etc. shown here.]

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (07-26-10)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the

Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.

7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.



First American Title

Privacy Information

We Are Committed to Safeguarding Customer Information

In order to better serve your needs now and in the future, we may ask you to provide us with certain information. We understand that you may be concerned about what we will do with such information - particularly any personal or financial information. We agree that you have a right to know how we will utilize the personal information you provide to us. Therefore, together with our subsidiaries we have adopted this Privacy Policy to govern the use and handling of your personal information.

Applicability

This Privacy Policy governs our use of the information that you provide to us. It does not govern the manner in which we may use information we have obtained from any other source, such as information obtained from a public record or from another person or entity. First American has also adopted broader guidelines that govern our use of personal information regardless of its source. First American calls these guidelines its Fair Information Values.

Types of Information

Depending upon which of our services you are utilizing, the types of nonpublic personal information that we may collect include:

- Information we receive from you on applications, forms and in other communications to us, whether in writing, in person, by telephone or any other means;
- Information about your transactions with us, our affiliated companies, or others; and
- Information we receive from a consumer reporting agency.

Use of Information

We request information from you for our own legitimate business purposes and not for the benefit of any nonaffiliated party. Therefore, we will not release your information to nonaffiliated parties except: (1) as necessary for us to provide the product or service you have requested of us; or (2) as permitted by law. We may, however, store such information indefinitely, including the period after which any customer relationship has ceased. Such information may be used for any internal purpose, such as quality control efforts or customer analysis. We may also provide all of the types of nonpublic personal information listed above to one or more of our affiliated companies. Such affiliated companies include financial service providers, such as title insurers, property and casualty insurers, and trust and investment advisory companies, or companies involved in real estate services, such as appraisal companies, home warranty companies and escrow companies. Furthermore, we may also provide all the information we collect, as described above, to companies that perform marketing services on our behalf, on behalf of our affiliated companies or to other financial institutions with whom we or our affiliated companies have joint marketing agreements.

Former Customers

Even if you are no longer our customer, our Privacy Policy will continue to apply to you.

Confidentiality and Security

We will use our best efforts to ensure that no unauthorized parties have access to any of your information. We restrict access to nonpublic personal information about you to those individuals and entities who need to know that information to provide products or services to you. We will use our best efforts to train and oversee our employees and agents to ensure that your information will be handled responsibly and in accordance with this Privacy Policy and First American's Fair Information Values. We currently maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard your nonpublic personal information.

Information Obtained Through Our Web Site

First American Financial Corporation is sensitive to privacy issues on the Internet. We believe it is important you know how we treat the information about you we receive on the Internet. In general, you can visit First American or its affiliates' Web sites on the World Wide Web without telling us who you are or revealing any information about yourself. Our Web servers collect the domain names, not the e-mail addresses, of visitors. This information is aggregated to measure the number of visits, average time spent on the site, pages viewed and similar information. First American uses this information to measure the use of our site and to develop ideas to improve the content of our site. There are times, however, when we may need information from you, such as your name and email address. When information is needed, we will use our best efforts to let you know at the time of collection how we will use the personal information. Usually, the personal information we collect is used only by us to respond to your inquiry, process an order or allow you to access specific account/profile information. If you choose to share any personal information with us, we will only use it in accordance with the policies outlined above.

Business Relationships

First American Financial Corporation's site and its affiliates' sites may contain links to other Web sites. While we try to link only to sites that share our high standards and respect for privacy, we are not responsible for the content or the privacy practices employed by other sites.

Cookies

Some of First American's Web sites may make use of "cookie" technology to measure site activity and to customize information to your personal tastes. A cookie is an element of data that a Web site can send to your browser, which may then store the cookie on your hard drive.

FirstAm.com uses stored cookies. The goal of this technology is to better serve you when visiting our site, save you time when you are here and to provide you with a more meaningful and productive Web site experience.

Fair Information Values

Fairness We consider consumer expectations about their privacy in all our businesses. We only offer products and services that assure a favorable balance between consumer benefits and consumer privacy.

Public Record We believe that an open public record creates significant value for society, enhances consumer choice and creates consumer opportunity. We actively support an open public record and emphasize its importance and contribution to our economy.

Use We believe we should behave responsibly when we use information about a consumer in our business. We will obey the laws governing the collection, use and dissemination of data.

Accuracy We will take reasonable steps to help assure the accuracy of the data we collect, use and disseminate. Where possible, we will take reasonable steps to correct inaccurate information. When, as with the public record, we cannot correct inaccurate information, we will take all reasonable steps to assist consumers in identifying the source of the erroneous data so that the consumer can secure the required corrections.

Education We endeavor to educate the users of our products and services, our employees and others in our industry about the importance of consumer privacy. We will instruct our employees on our fair information values and on the responsible collection and use of data. We will encourage others in our industry to collect and use information in a responsible manner.

Security We will maintain appropriate facilities and systems to protect against unauthorized access to and corruption of the data we maintain.



APPENDIX E

ENVIRONMENTAL DATA RESOURCES, INC.

Aerial Photo Decade Package



Creekside

3052 Heidorn Ranch Rd

Antioch, CA 94531

Inquiry Number: 5569243.8

February 25, 2019

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

02/25/19

Site Name:

Creekside
3052 Heidorn Ranch Rd
Antioch, CA 94531
EDR Inquiry # 5569243.8

Client Name:

Engeo Inc.
2010 Crow Canyon Place
San Ramon, CA 94583
Contact: Victoria Drake



Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1998	1"=500'	Flight Date: August 22, 1998	USDA
1993	1"=500'	Acquisition Date: June 12, 1993	USGS/DOQQ
1984	1"=500'	Flight Date: June 29, 1984	USDA
1982	1"=500'	Flight Date: July 05, 1982	USDA
1979	1"=500'	Flight Date: August 16, 1979	USDA
1966	1"=500'	Flight Date: May 15, 1966	USDA
1963	1"=500'	Flight Date: July 15, 1963	EDR Proprietary Aerial Viewpoint
1958	1"=500'	Flight Date: August 09, 1958	USDA
1950	1"=500'	Flight Date: March 12, 1950	USDA
1949	1"=500'	Flight Date: October 13, 1949	USGS
1939	1"=500'	Flight Date: June 28, 1939	USDA

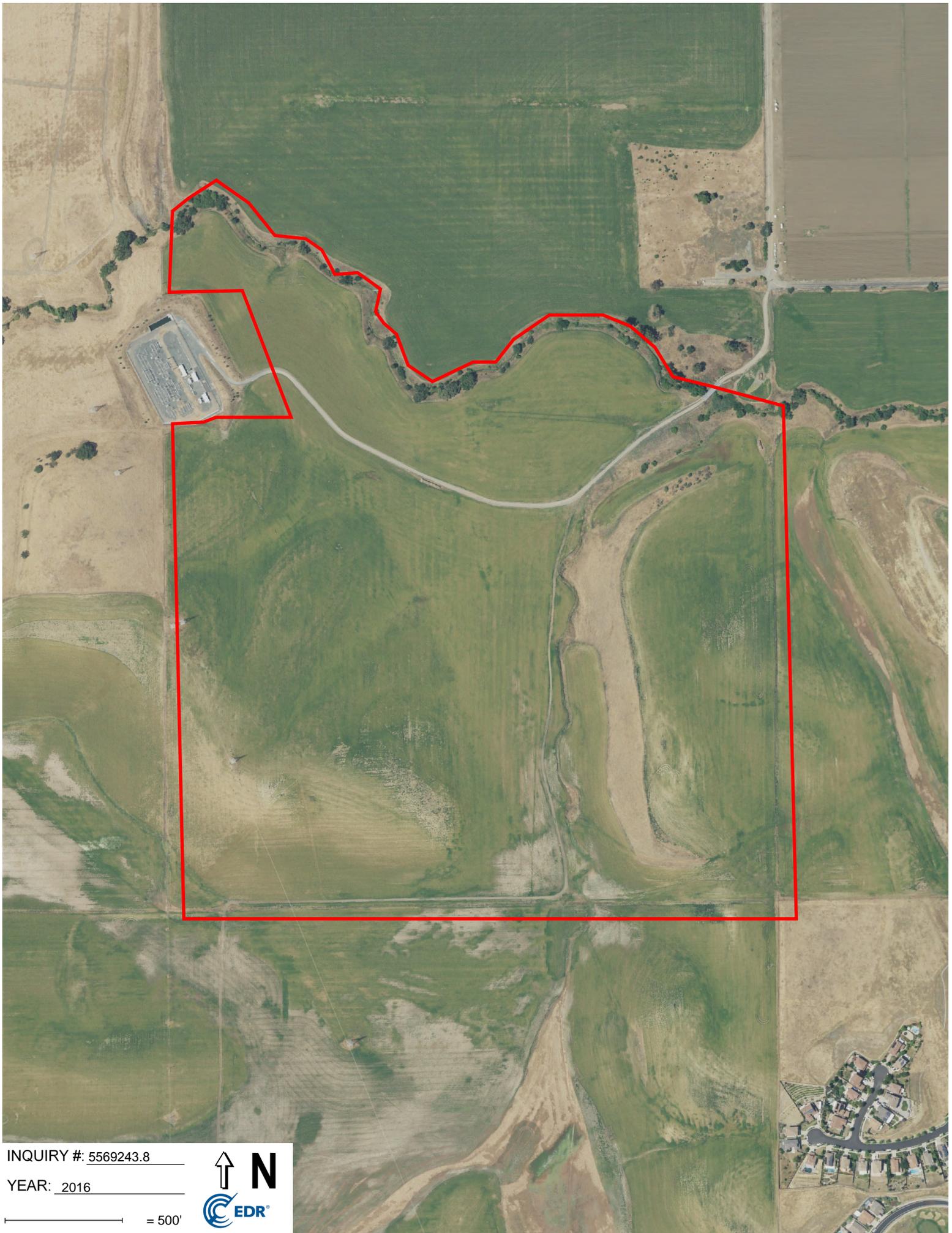
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INQUIRY #: 5569243.8

YEAR: 2016

— = 500'





INQUIRY #: 5569243.8

YEAR: 2012

— = 500'





INQUIRY #: 5569243.8

YEAR: 2009

— = 500'



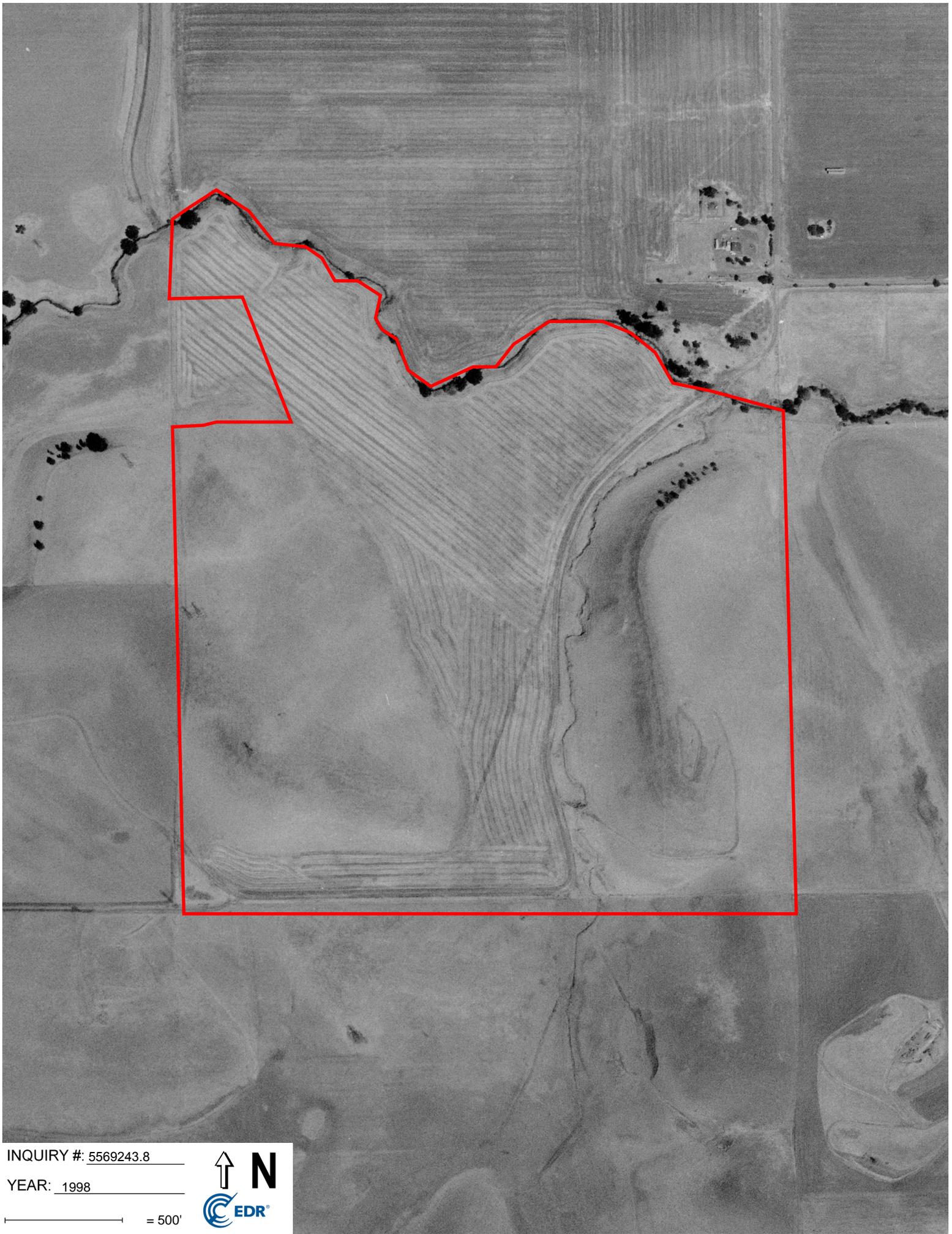


INQUIRY #: 5569243.8

YEAR: 2006

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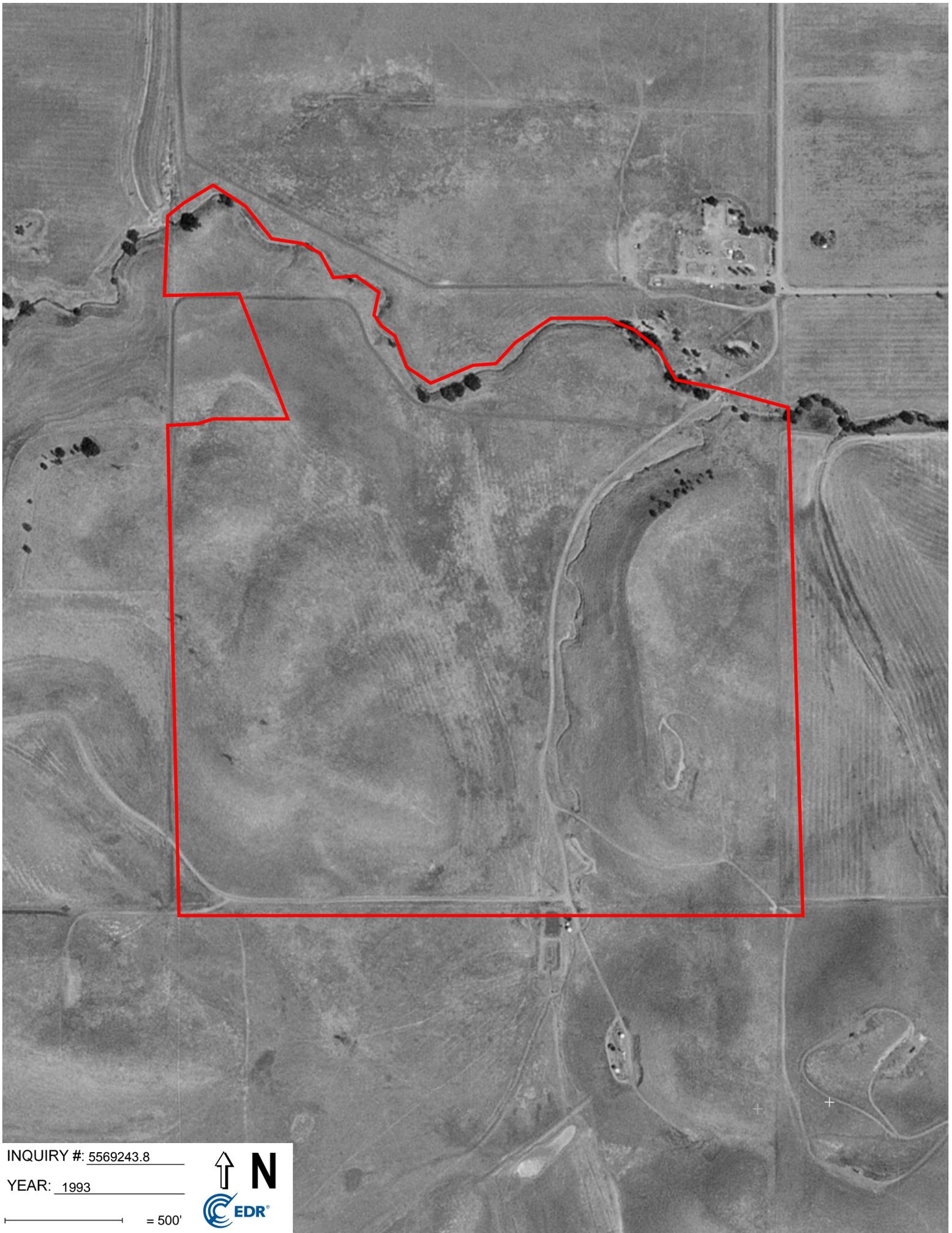


INQUIRY #: 5569243.8

YEAR: 1998

— = 500'





INQUIRY #: 5569243.8

YEAR: 1993

— = 500'





INQUIRY #: 5569243.8

YEAR: 1984

— = 500'



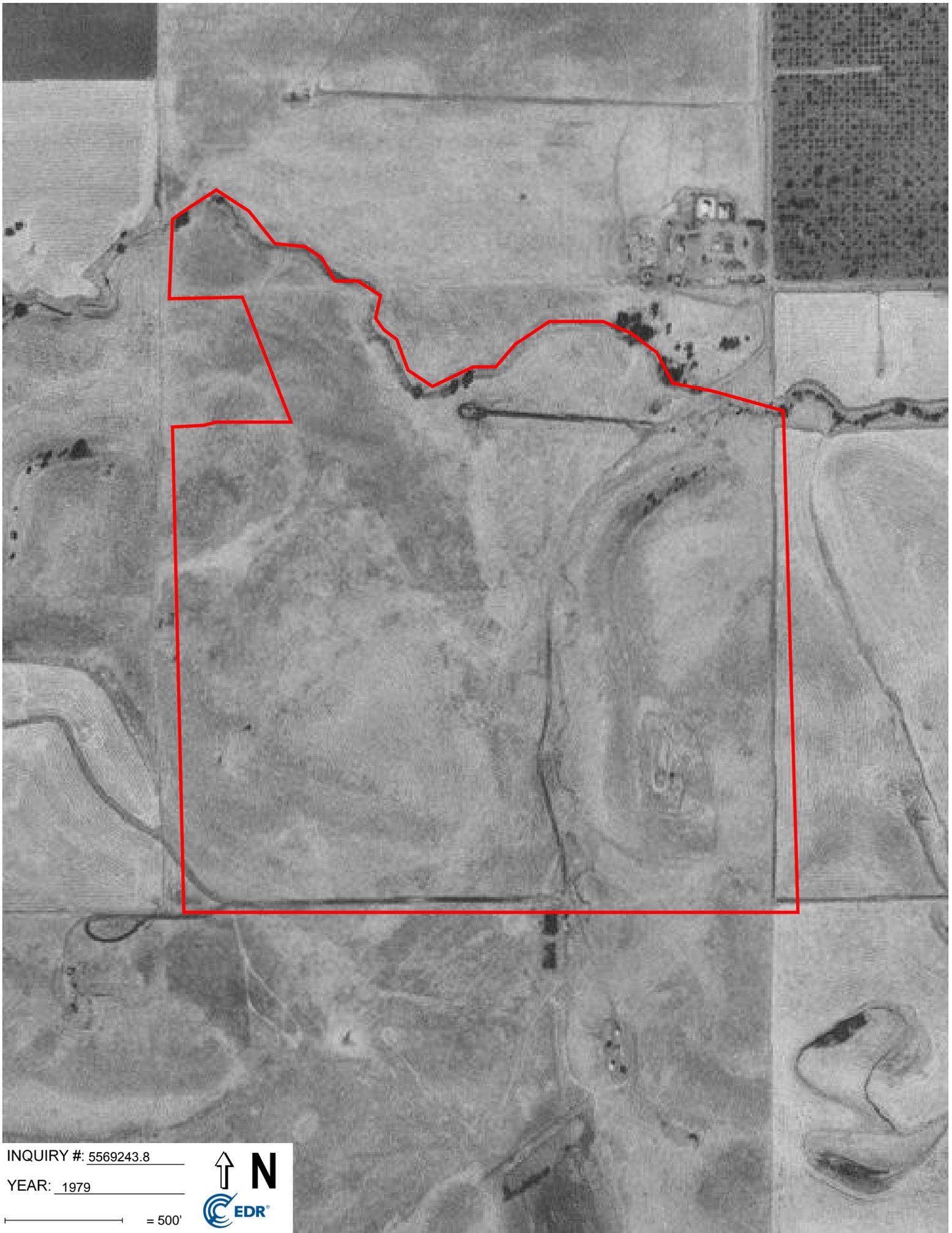


INQUIRY #: 5569243.8

YEAR: 1982

— = 500'





INQUIRY #: 5569243.8

YEAR: 1979

— = 500'



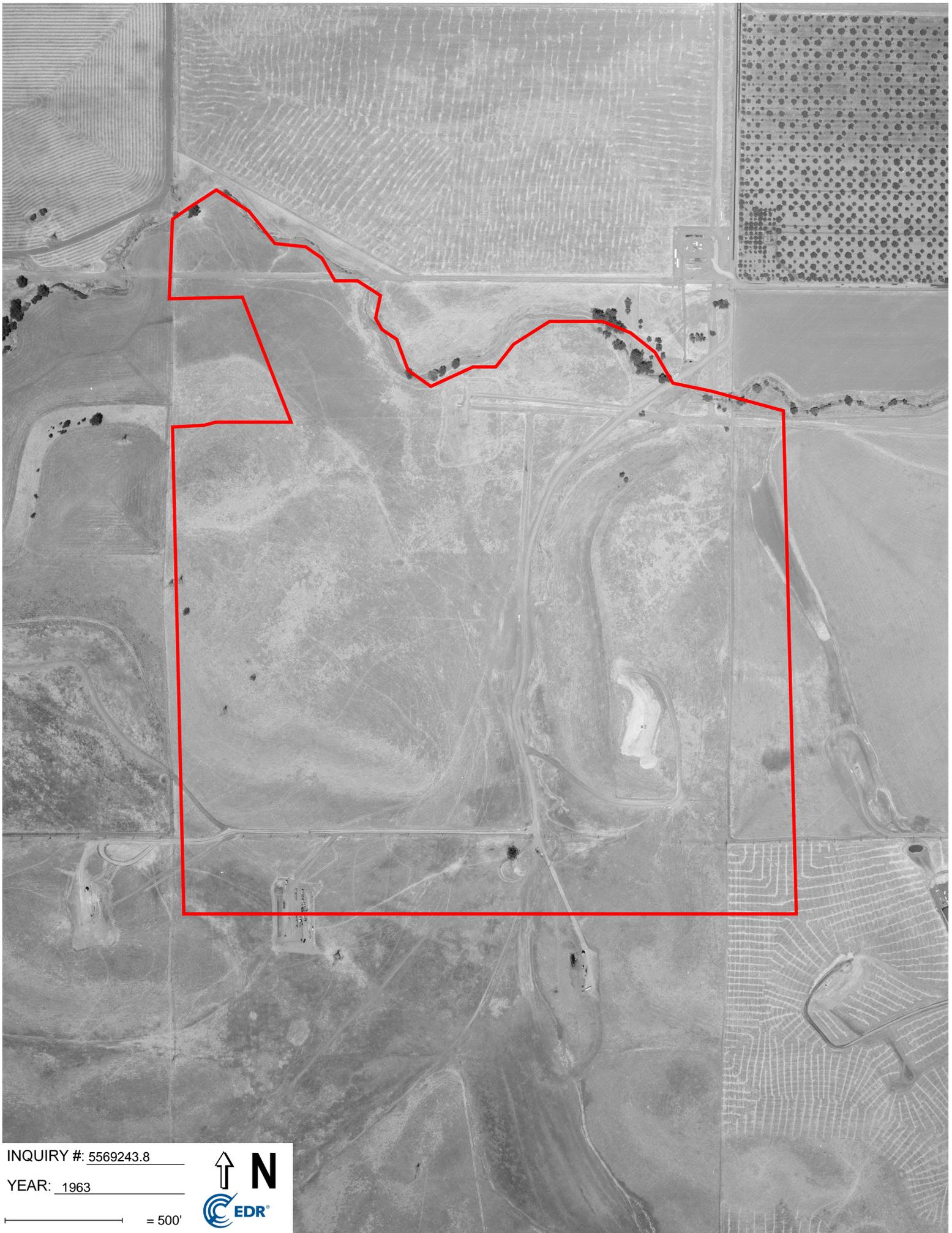


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YEAR: 1966

— = 500'



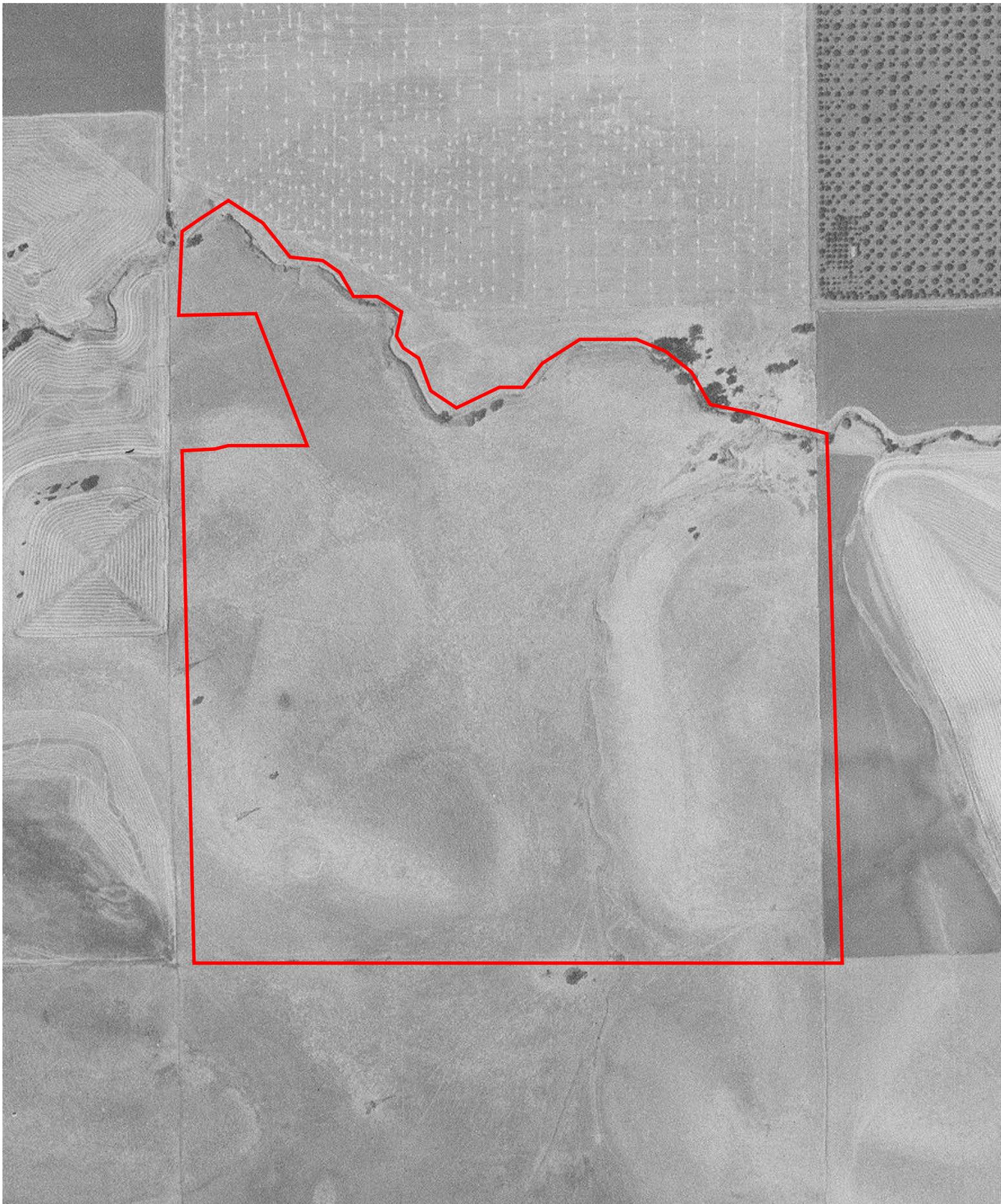


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YEAR: 1963

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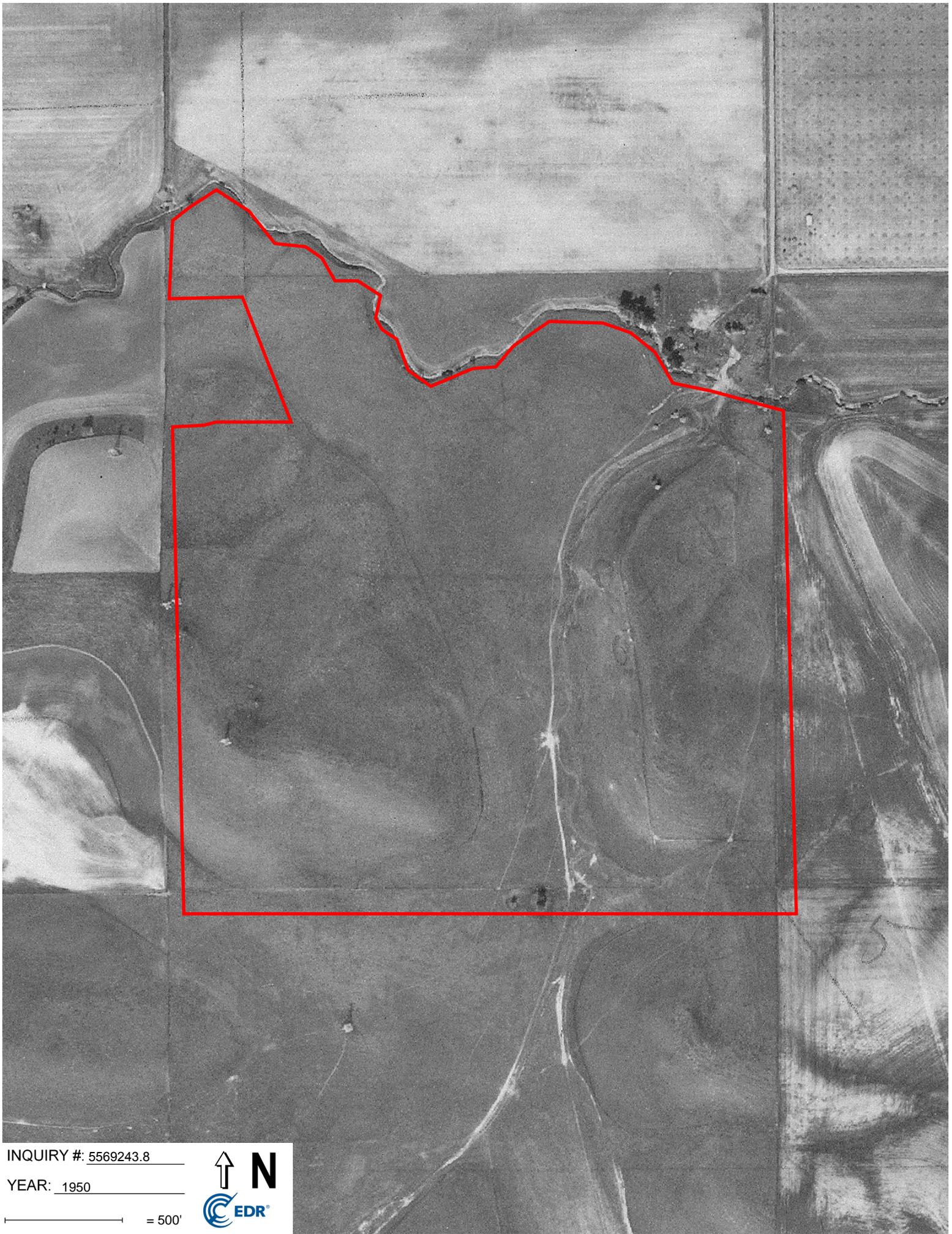


INQUIRY #: 5569243.8

YEAR: 1958

— = 500'



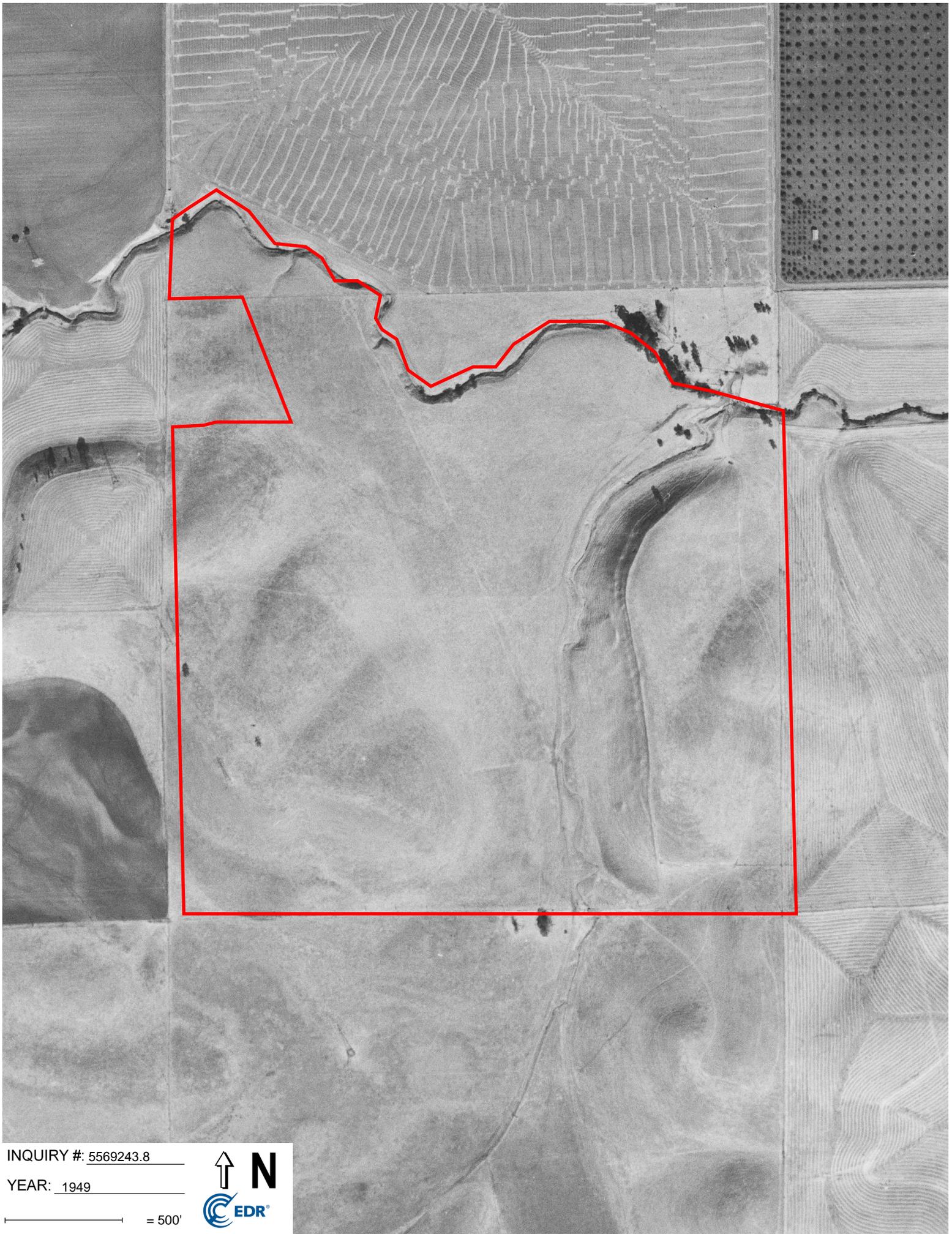


INQUIRY #: 5569243.8

YEAR: 1950

— = 500'



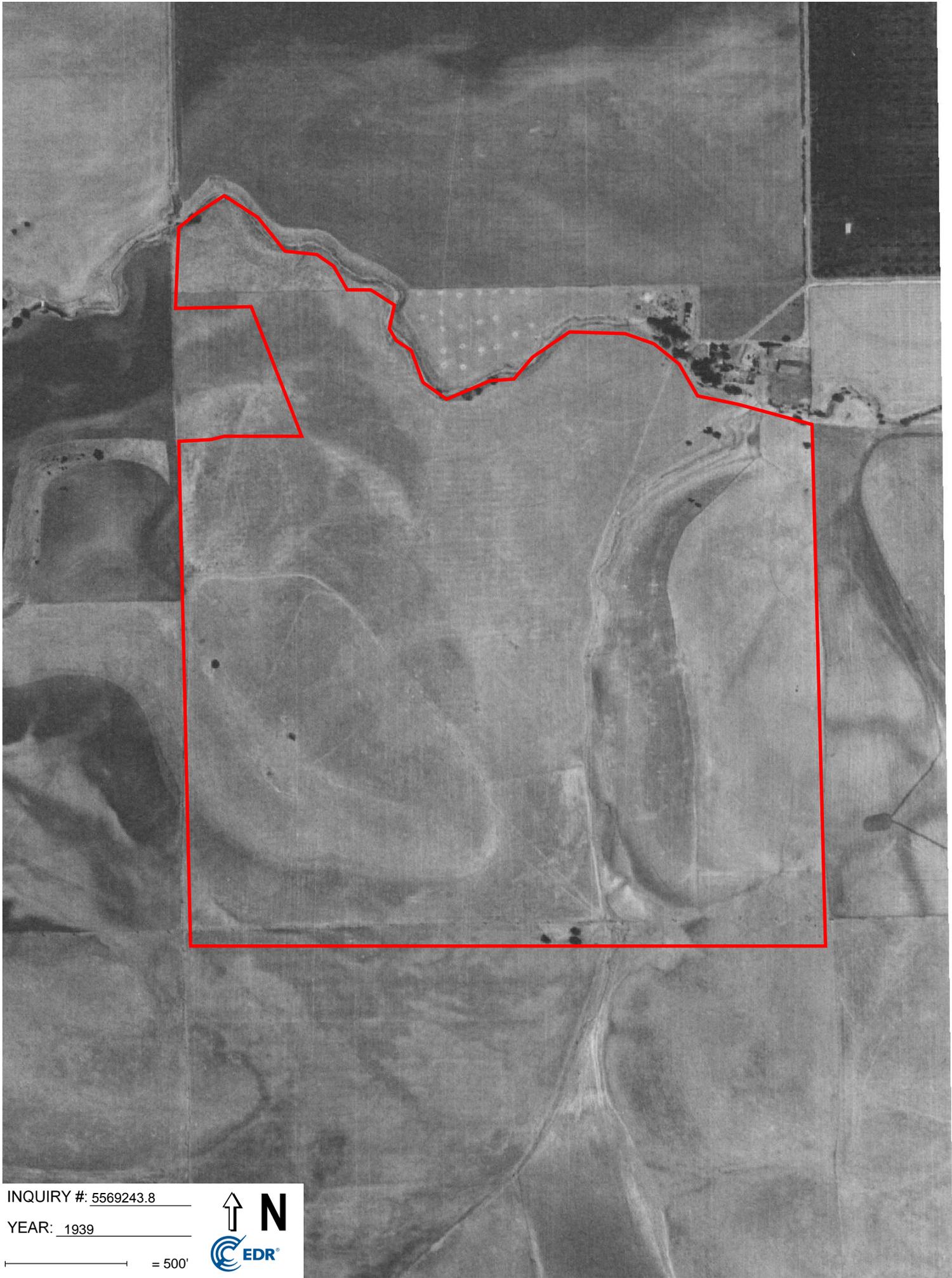


INQUIRY #: 5569243.8

YEAR: 1949

— = 500'





INQUIRY #: 5569243.8

YEAR: 1939

— = 500'





APPENDIX F

ENVIRONMENTAL DATA RESOURCES, INC.

City Directory

Creekside

3052 Heidorn Ranch Rd
Antioch, CA 94531

Inquiry Number: 5569243.5
February 26, 2019

The EDR-City Directory Image Report

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City Directory Images

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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Data by

infoUSA[®]

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RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
2004	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1999	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1994	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1989	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1985	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1980	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory
1975	<input type="checkbox"/>	<input type="checkbox"/>	Haines Criss-Cross Directory

FINDINGS

TARGET PROPERTY STREET

3052 Heidorn Ranch Rd
Antioch, CA 94531

Year

CD Image

Source

HEIDORN RANCH RD

2014	pg A1	EDR Digital Archive	
2010	pg A2	Haines Criss-Cross Directory	
2004	pg A3	Haines Criss-Cross Directory	
1999	-	Haines Criss-Cross Directory	Street not listed in Source
1994	-	Haines Criss-Cross Directory	Street not listed in Source
1989	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

FINDINGS

CROSS STREETS

Year

CD Image

Source

OLD SAND CREEK RD

2014	-	EDR Digital Archive	Target and Adjoining not listed in Source
2010	-	Haines Criss-Cross Directory	Street not listed in Source
2004	-	Haines Criss-Cross Directory	Street not listed in Source
1999	-	Haines Criss-Cross Directory	Street not listed in Source
1994	-	Haines Criss-Cross Directory	Street not listed in Source
1989	-	Haines Criss-Cross Directory	Street not listed in Source
1985	-	Haines Criss-Cross Directory	Street not listed in Source
1980	-	Haines Criss-Cross Directory	Street not listed in Source
1975	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

HEIDORN RANCH RD 2014

5030 JOBE, LUCIA F
5200 HERITAGE BAPTIST ACADEMY INC
5320 JOHNSON, RICHARD G

HEIDORN RANCH RD 2010

HEIDORN RANCH RD
94531 ANTIOCH

WEALTH CODE 7

5200 ★ HERITAGE BAPTIST 925-778- 2234 2
ACADEMY

★ HERITAGE BAPTIST 925-757- 5242 2
CHURCH

5320 ● JOHNSON Richard G 925-634- 5126

★ 2 BUS 1 RES 0 NEW

HEIDORN RANCH RD 2004

HEIDORN RANCH RD (00)
94531 ANTIOCH

WEALTH CODE 7

5020	● LAVASSE Daryl	00	+3
5030	JOBE Lucia	925-778-3085	2
5200	★ HERITAGE BAPTIST ACADEMY	925-778-2234	2
	★ HERITAGE BAPTIST CHURCH	925-757-5242	2
5320	● JOHNSON Richard G	925-634-5126	0
	★ 2 BUS 3 RES 1 NEW		



APPENDIX G

ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRES ()

Project Name: Creekside
Project No. P2019.000.143



<input type="checkbox"/> 2010 Crow Canyon Place • Suite 250 • San Ramon, CA 94583	(925) 866-9000 • Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive • Rocklin, CA 95765	(916) 786-8883 • Fax (888) 279-2698
<input type="checkbox"/> 101 California Street • Suite 875 • San Francisco, CA 94104	(415) 284-9900 • Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue • Suite 150 • San Jose, CA 95119	(408) 574-4900 • Fax (888) 279-2698
<input type="checkbox"/> 17278 Golden Valley Parkway • Lathrop, CA 95330	(209) 835-0610 • Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway • Santa Clarita, CA 91351	(661) 257-4004 • Fax (888) 279-2698
<input type="checkbox"/> 6 Morgan • Suite 162 • Irvine, CA 92618	(949) 529-3479 • Fax (888) 279-2698
<input type="checkbox"/> 1630 San Pablo Avenue • Suite 200 • Oakland, CA 94612	(510) 451-1255 • Fax (888) 279-2698
<input type="checkbox"/> 9475 Double R Boulevard • B-22 • Reno, NV 89521	(775) 393-4891 • Fax (888) 279-2698

**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE
FOR CLIENT**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be completed by the user of the phase one environmental site assessment, or their authorized representative.

PART I

1. Property address and Assessor's Parcel Number (APN):

Heidorn Ranch Road, Antioch Ca 94509
APN 057-050-024 (157.96 Acres)

2. Current property owner (name, address, voice/fax number):

Ron Ginochio
6401 Cana Highway, Chico CA 95973
510-410-2316

3. Date current property owner assumed title of property:

40+ years

4. Current property development/improvements:

roadway access to PG+E site, dryland farming operations above ground, PG+E towerline in west/south west. + a storm drain outfall into Sand Creek.

5. Past property use, development/improvements:

dryland farming. Previous oil/gas exploration sites and access ways.

6. Neighboring property uses:

agricultural & a PG+E substation on APN 057-050-016 to the west.

PART II

1. Are you aware of any environmental cleanup liens against the *property* that are filed under federal, tribal, local or state law? Yes No
2. Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions, or institutional controls that are in place at the property and/or have been filed or recorded in a registry under federal, tribal, state or local law? Yes No
3. Do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the *property* or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? Yes No
4. If a property transaction is occurring in conjunction with this environmental assessment, does the purchase price of this *property* reasonably reflect the fair market value of the *property*? Yes No
5. If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the *property*? Yes No N/A
6. Are you aware of any commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example,
 - (a) do you know of specific chemicals that are present or once were present at the *property*? Yes No
 - (b) do you know of spills or other chemical releases that have taken place at the *property*?
 - (c) do you know of any environmental cleanups that have taken place at the *property*?
7. Based on your knowledge and experience related to the *property* are there any obvious indicators that point to the presence or likely presence of contamination at the *property*? Yes No

If a "Yes" response was provided to any of the above questions, please provide details below:

this environmental assessment is being conducted to inform the environmental review for development of a residential neighborhood.

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Lisa M. Borba

Signature: *Lisa M. Borba*

Date: 1/28/19

<input type="checkbox"/> 2010 Crow Canyon Place • Suite 250 • San Ramon, CA 94583	(925) 866-9000 • Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive • Rocklin, CA 95765	(916) 786-8883 • Fax (888) 279-2698
<input type="checkbox"/> 101 California Street • Suite 875 • San Francisco, CA 94104	(415) 284-9900 • Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue • Suite 150 • San Jose, CA 95119	(408) 574-4900 • Fax (888) 279-2698
<input type="checkbox"/> 17278 Golden Valley Parkway • Lathrop, CA 95330	(209) 835-0610 • Fax (888) 279-2698
<input type="checkbox"/> 17675 Sierra Highway • Santa Clarita, CA 91351	(661) 257-4004 • Fax (888) 279-2698
<input type="checkbox"/> 6 Morgan • Suite 162 • Irvine, CA 92618	(949) 529-3479 • Fax (888) 279-2698
<input type="checkbox"/> 1630 San Pablo Avenue • Suite 200 • Oakland, CA 94612	(510) 451-1255 • Fax (888) 279-2698
<input type="checkbox"/> 9475 Double R Boulevard • B-22 • Reno, NV 89521	(775) 393-4891 • Fax (888) 279-2698

**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE
FOR KEY SITE MANAGER**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be preferably completed by the current property owner, or owner representative, leasing agent, or other person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

PART I

1. Property Address/Location and Assessor's Parcel Number (APN):

*Heidorn Ranch Road, Antioch Ca 94509
APN 057-050-024 (157.96 Acres)*

2. Current property owner (name, address, voice/fax number):

*Ron Ginochio
6401 Cana Highway, Chico CA 95973
510-410-2316*

3. Date current property owner assumed title of property:

40+ years

4. Current property development/improvements:

roadway access to PG+ E site, dryland farming operations above ground, PG+E towerline in west/southwest of property and a storm drain outfall into Sand Creek.

5. Past property use, development/improvements:

dryland farming + grazing. Previous oil/gas exploration sites + access ways.

6. Neighboring property uses:

agricultural and a PG+E substation on APN 057-050-016 to the west.

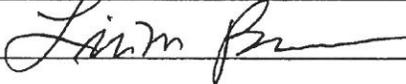
PART II - The following questions should be answered to the best of your knowledge.

1. Is/has the *property* or any adjoining property used/been used for industrial purposes? Yes No
2. Has the *property* or any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? Yes No
3. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the *property* or at the facility? Yes No
4. Has undocumented soil been brought onto the property at any time? If yes, estimated quantity is _____ cubic yards. Yes No
5. Has soil been brought onto the property that originated from a contaminated site or that is of an unknown origin? Yes No
6. Are there currently, or have there been previously, any pits, ponds, or lagoons located on the *property* in connection with waste treatment or waste disposal? Yes No
7. Is there currently, or has there been previously, any stained soil on the *property*? Yes No
8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the *property*? Yes No
9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the *property*? Yes No
10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors? Yes No
11. Are there any domestic, irrigation or monitoring wells on the property? Yes No
12. If the *property* is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? Yes No
13. Have you been informed of the past or current existence of *hazardous substances* or *petroleum products* or environmental violations with respect to the *property* or any facility located on the *property*? Yes No
14. Have there been any *environmental site assessments* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*? Yes No
15. Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any *hazardous substance* or *petroleum products* involving the *property*? Yes No
16. Has there been any past agricultural use of the *property*, such as orchards or seed crop cultivation? Yes No
17. Have any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the *property*? Yes No
18. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? Yes No

If a "Yes" response was provided to any of the above questions, please provide details below:

1. The property is located in a historical Brentwood Oil Fields & has had oil/gas exploration sites.
9. There may have been vent pipes associated with past oil/gas exploration activities onsite.
16. The property has been dry-land farmed for many years.

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Lisa M. Borba
Signature:  Date: 1/28/19

<input type="checkbox"/> 2010 Crow Canyon Place ▪ Suite 250 ▪ San Ramon, CA 94583	(925) 866-9000 ▪ Fax (888) 279-2698
<input type="checkbox"/> 2213 Plaza Drive ▪ Rocklin, CA 95765	(916) 786-8883 ▪ Fax (888) 279-2698
<input type="checkbox"/> 101 California Street ▪ Suite 875 ▪ San Francisco, CA 94104	(415) 284-9900 ▪ Fax (888) 279-2698
<input type="checkbox"/> 6399 San Ignacio Avenue ▪ Suite 150 ▪ San Jose, CA 95119	(408) 574-4900 ▪ Fax (888) 279-2698
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**ENVIRONMENTAL SITE ASSESSMENT QUESTIONNAIRE
FOR KEY SITE MANAGER**

To evaluate the potential for possible environmentally related impacts and site contamination the following information is requested. This questionnaire is to be preferably completed by the current property owner, or owner representative, leasing agent, or other person having good knowledge of the uses and physical characteristics of the property (Key Site Manager).

PART I

1. Property Address/Location and Assessor's Parcel Number (APN):

Heidorn Ranch Rd, Antioch, CA (APN 057-050-024)

2. Current property owner (name, address, voice/fax number):

Ron Ginochio

3. Date current property owner assumed title of property:

Unknown

4. Current property development/improvements:

Agricultural

5. Past property use, development/improvements:

Agricultural, oil and gas exploration, access roads

6. Neighboring property uses:

PG&E Substation, Agricultural area

PART II - The following questions should be answered to the best of your knowledge.

- | | | |
|---|-------------------------------------|-------------------------------------|
| 1. Is/has the <i>property</i> or any adjoining property used/been used for industrial purposes? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Yes | No |
| 2. Has the <i>property</i> or any adjoining property been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 3. Are there currently, or have there been previously, any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of greater than 5 gal in volume or 50 gal in the aggregate, stored on or used at the <i>property</i> or at the facility? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 4. Has undocumented soil been brought onto the property at any time? If yes, estimated quantity is _____ cubic yards. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 5. Has soil been brought onto the property that originated from a contaminated site or that is of an unknown origin? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 6. Are there currently, or have there been previously, any pits, ponds, or lagoons located on the <i>property</i> in connection with waste treatment or waste disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 7. Is there currently, or has there been previously, any stained soil on the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 8. Are there currently, or have there been previously, any registered or unregistered storage tanks (above or underground) located on the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 9. Are there currently, or have there been previously, any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the <i>property</i> or adjacent to any structure located on the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 10. Are there currently, or have there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or are emitting foul odors? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 11. Are there any domestic, irrigation or monitoring wells on the property? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 12. If the <i>property</i> is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 13. Have you been informed of the past or current existence of <i>hazardous substances</i> or <i>petroleum products</i> or environmental violations with respect to the <i>property</i> or any facility located on the <i>property</i> ? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Yes | No |
| 14. Have there been any <i>environmental site assessments</i> of the <i>property</i> or facility that indicated the presence of <i>hazardous substances</i> or <i>petroleum products</i> on, or contamination of, the <i>property</i> or recommended further assessment of the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 15. Have there been any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any <i>hazardous substance</i> or <i>petroleum products</i> involving the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 16. Has there been any past agricultural use of the <i>property</i> , such as orchards or seed crop cultivation? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Yes | No |
| 17. Have any <i>hazardous substances</i> or <i>petroleum products</i> , unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the <i>property</i> ? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |
| 18. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Yes | No |

If a "Yes" response was provided to any of the above questions, please provide details below:

1. The property was historically used for oil and gas production.

13. Four oil/gas wells exist on the property. These wells (4-9, 41-9, 42-9, and 43-9) are all listed as abandoned with DOGGR. Prior surveys of the property indicated that in addition to oil and gas production wells, the property also had several oil and gas pipeline easements within its boundaries. Although there is no data regarding pipeline removal on the property, based on the adjacent property and prior practices, it is to the best of my knowledge that all oil and gas related facilities have been removed.

16. The property has been used for agricultural purposes, mainly dryland farming.

I certify that the information herein is true and correct to the best of my knowledge as of the date signed below.

Name (Printed/Typed): Bob Nunn

Signature:

Date: 02/28/2019



APPENDIX H

QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL

SHAWN MUNGER, CHG
Principal Geologist

EDUCATION

BS, Geology, U.C. Davis, 1985

EXPERIENCE

Years with ENGEO: 31
Years with Other Firms: 0

**REGISTRATIONS &
CERTIFICATIONS**

Certified Hydrogeologist, CA, 413
8 Hour HAZWOPER Training, CA,
160115576014
Professional Geologist, CA, 5810
Certified Environmental Manager,
NV, 1332
40 Hour HAZWOPER Training, CA,
100830513934

SPECIALIZATIONS

- Environmental Assessments and Remediation
- Environmental Restoration
- Water Quality Studies
- Water Wells/Hydrogeology

Since joining ENGEO in 1985, Shawn has been managing groundwater supply evaluations, hydrogeologic studies, chemical assessments, Phase I and II Site Assessment projects, UST site investigations, risk based corrective action (RBCA), VOC remediation, and agricultural impact evaluations. He serves as Principal-in-Charge or Project Manager for environmental and hazardous materials projects involving groundwater hydrology, contaminant fate and transport, and remediation. He is Principal-in-Charge of the environmental components of our on-call contracts with the City of Sacramento and the County of Sacramento.

Select Project Experience

14234 Saratoga Sunnyvale Road—Saratoga, CA

Project Geologist. Shawn performed Principal review of ENGEO's environmental documents. This 2.2-acre townhome site is planned for a new multi-family development comprising up to 20 units in 8 buildings. The site immediately borders Saratoga Creek and contains numerous mature trees, many of which are to be saved. Site challenges include shallow groundwater, creek bank stability, and the potential for liquefaction and lateral spreading.

Lenihan Dam Outlet Modification—Los Gatos, CA

Principal Geologist. Shawn provided technical advice, coordination, consultation, and review of ENGEO's documents to provide quality mitigation measures. The findings were presented to SCVWD and it was concluded that the stockpile was sufficient for transportation. This analysis led to significant project budget savings by avoiding removal and disposal at a solid waste disposal facility. The project consisted of a stockpile approximately 6,000 cubic yards that required profiling as requested by Santa Clara Valley Water District before use of as site backfill.

199 River Oaks Parkway—San Jose, CA

Principal in Charge. Shawn provided principal oversight, data analysis, and consultation regarding site characterization, risk evaluation, and demolition observation plans. The project consists of a proposed six-story podium structure with one level to be constructed below grade. The property is a former semiconductor facility that has received conditional closure from the Regional Water Quality Control Board and is approved for construction.

Riverside Avenue Property—Roseville, CA

Principal in Charge. Shawn provided principal oversight of a Phase II Environmental Site Assessments and site

characterization. The project site consists of an active auto sales and service facility. The historic use of the facility for industrial purposes resulted in soil and groundwater impacts beneath the site. The City of Roseville revised its plans for acquiring and redeveloping the site due to the identified soil and groundwater impacts.

1301 Standard Oil Ave—Pittsburg, CA

Principal in Charge. Shawn provided principal oversight of a Phase II Environmental Site Characterization. The property is an abandoned wastewater treatment plant with processing buildings, clarifier tanks, and sludge beds.

Pleasant Hill BART Station—Walnut Creek, CA

Principal in Charge. Shawn provided oversight, data analysis and consultation during the preparation of a Phase II Environmental Site Assessment. The property is an existing BART station that encompasses 20 acres, including the platform/station area, electrical facilities, a parking garage and additional paved parking areas.

County Crossings Property—Antioch, CA

Principal in Charge. Shawn provided environmental consultation and data review with regard to soil and groundwater contamination. Constituents of concern include petroleum hydrocarbons, nitrates and manganese. The approximately 264-acre site includes several former industrial facilities and petroleum pipelines. Soil and groundwater at the site has been impacted with petroleum hydrocarbons, nitrates and manganese. Planned uses include commercial, residential, retail, and a BART-oriented transit village. The center, which is currently in the entitlement phase, is estimated to break ground in 2011.

620 North Ninth Street—San Jose, CA

Principal in Charge. Shawn provided oversight of soil, groundwater and soil gas characterizations, risk evaluations and Remedial Action Plan preparation. Shawn also closely interacted with RWQCB staff to achieve approval for residential development. The property is a former fruit packing plant and food preparation facility. The proposed development consists of a single-family residential subdivision.

Westshore—Richmond, CA

Project Manager. Shawn conducted Phase I and II Site Assessments, risk evaluations and prepared a soil management plan. The property was a former automotive manufacturing plant proposed for a multi-unit condominium development, including a 6-story podium structure to include five residential floors with 269 units and one parking floor.

Mills Ranch—King City, CA

Principal in Charge. Shawn provided principal oversight of Phase I/II Environmental Site Assessments and risk evaluations. The approximate 80-acre property is used for agricultural cultivation and commercial uses. The proposed mixed-use development includes over 400 single-family residential lots.

Select Foods Site/Cross Creek—Hayward, CA

Principal in Charge. Shawn provided principal oversight, consultation, and data analysis. The property was a former processed food facility, a drum recycling business, battery manufacturing operation and a bus assembly plant. Following completion of soil remediation under RWQCB oversight, the property was developed into a single-family residential subdivision.

Arroyo Crossing—Livermore, CA

Principal in Charge. Shawn provided oversight, data analysis and regulatory consultation while ENGEO provided geotechnical and environmental engineering services for this 34-acre site. This former corporation yard and quarry site was developed into a single-family residential subdivision.

Renaissance Square—Concord, CA

Project Manager. Shawn provided consultation, data analysis, and field observation. This former automotive dealership was redeveloped as a five-story multi-family residential structure supported on slab-on-grade foundations, with two levels of below-grade parking. Petroleum hydrocarbon-impacted soil was encountered during excavation of the parking structure, which required characterization and remediation. Soil impacts were attributed to former sumps, USTs and hydraulic lifts.

Union Pacific Railroad Corridor—San Jose, CA

Project Manager. Shawn prepared a Phase I and II Environmental Site Assessment. Work included a site reconnaissance, historical records research and recovery of soil samples with laboratory analysis. Lead impacted soil was identified which required risk evaluation. This former 1800 lineal foot section of the former Union Pacific Railroad Corridor was proposed for mixed-use development.

Former SFPP Alignment—Concord, CA

Project Manager. Shawn prepared a Phase I and II Environmental Site Assessment. The site was a former ±6,500-foot corridor formerly occupied by the Southern Pacific Railroad. Kinder Morgan petroleum pipelines existed within an easement along the property. The southern portion of the site was crossed by East Bay Municipal Utilities District water distribution lines and a multi-lane highway overpass. The corridor was developed as a self-storage facility. Work included the recovery of soil and groundwater samples along the SP right of way.

Hercules Property—Hercules, CA

Project Manager. Shawn provided oversight of a Phase I Environmental Site Assessment, site asbestos survey, site characterization, and demolition observation/contaminant assessment. The project area consists of ±167 acres located near and along the southeastern shore of San Pablo Bay in Hercules. The property was once a portion of a 1300-acre manufacturing facility that was operated by DuPont from 1879 to 1913 and Hercules Incorporated from 1913 to 1979. The planned development includes single/multi-family residential development with some commercial components.

Highlands Ranch—Antioch, CA

Principal in Charge. Shawn provided oversight, data analysis, and collaboration with RWQCB personnel. The project site consists of a 140-acre portion of the former Chevron Los Medanos Tank Farm located in Pittsburg, California. The site was historically occupied by 24 crude oil tanks and four wax ponds. Remediation of the crude oil tank and wax pond locations was conducted according to a remedial action plan (RAP) and oversight was provided by the CRWQCB. Remediation was performed over a period of four months and consisted of excavating approximately 110,000 cubic yards of impacted soil and placing the material in windrows for ex-situ bioremediation.



APPENDIX D

ENVIRONMENTAL NOISE ASSESSMENT



Creekside Vineyards at Sand Creek Environmental Noise Assessment

City of Antioch, California

February 21, 2020

jcb Project # 2019-154

Prepared for:

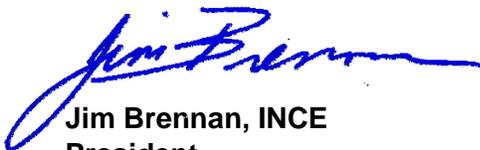


Attn:

**Mr. Rod Stinson
1501 Sports Drive
Sacramento, CA 95834**

Prepared by:

j.c. brennan & associates, Inc.



**Jim Brennan, INCE
President
Member, Institute of Noise Control Engineering (INCE)**

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INTRODUCTION

This report has been prepared to address the noise impacts due to, and upon the Creekside Vineyards at Sand Creek residential subdivision. The project site consists of 220 lots located in the southeast and southwest corners of the future Hillcrest Avenue and Sand Creek Road, in the City of Antioch, California. The proposed Project is bordered to the north by Sand Creek and open space, to the east by vacant land, and future Hillcrest Avenue to the west. Figure 1 shows the project site plan and location.

The project applicant is proposing to develop the site in 3 phases. Figure 2 shows the phasing of the project.

ENVIRONMENTAL SETTING

Background Information on Noise and Vibration

Fundamentals of Acoustics

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

Legend



**Continuous 24-hour
Noise Monitoring Site**

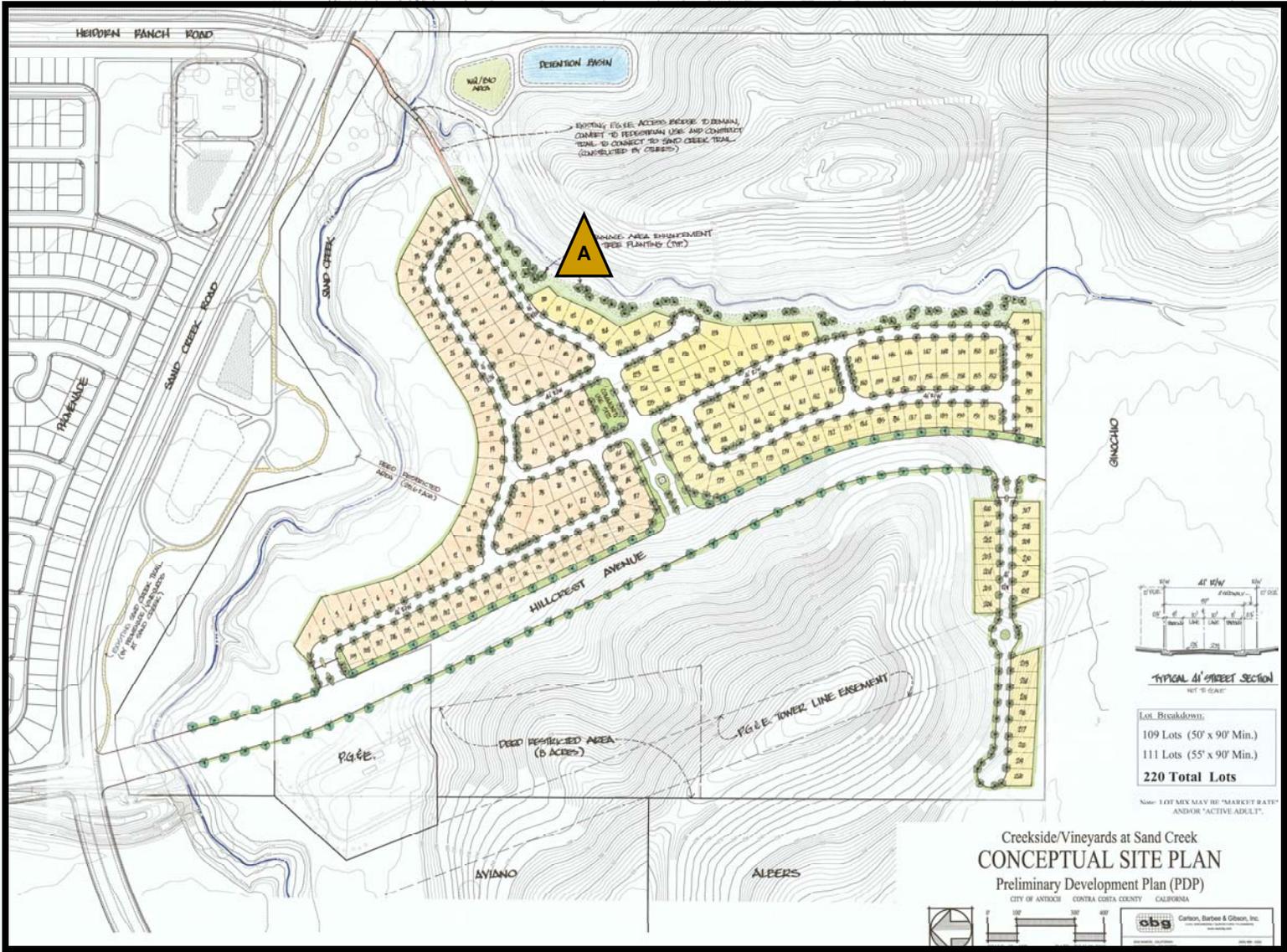
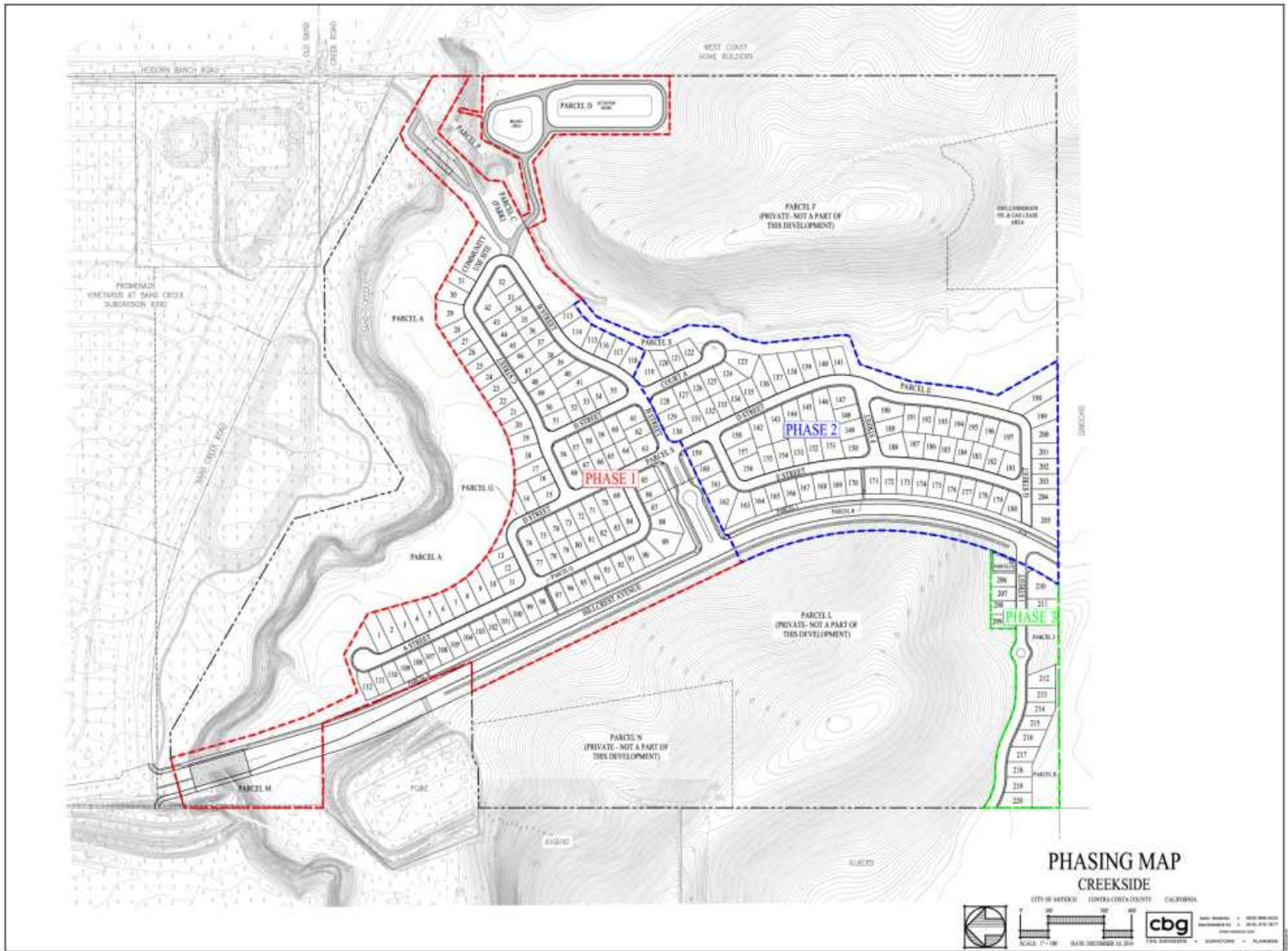
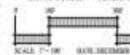



Figure 1
Project Site Plan & Noise Monitoring Sites



**PHASING MAP
CREEKSIDE**

CITY OF BAYWOOD - CONTRA COSTA COUNTY - CALIFORNIA



DATE: 09/20/17
DRAWN BY: JCB
CHECKED BY: JCB
DATE: 12/15/17

SCALE: 1" = 50'

DATE: DECEMBER 15, 2017

**Figure 2
Project Site Phasing**

j.c. brennan & associates
consultants in acoustics

Rev. 1/11/17

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment.

Table 1 lists several examples of the noise levels associated with common situations. Appendix A provides a summary of acoustical terms used in this report.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

Table 1: Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. November 2009.		

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

Existing Conditions

The project site consists of relatively flat topography and is currently used for farming and ranch land.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others. Land uses often associated with sensitive receptors generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species, although many jurisdictions have not adopted noise standards for wildlife areas. Noise sensitive land uses are typically given special attention in order to achieve protection from excessive noise.

In the vicinity of the project site, sensitive land uses consist of residential currently being developed to the north, and across Sand Creek Road.

Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the project vicinity, j.c. brennan & associates, Inc. staff utilized continuous 24-hour noise level measurements which were conducted on January 22-23, 2020. See Figure 1 for noise measurement location. Due to construction in the area, additional background noise measurements were not conducted due to interference from construction equipment. The noise level measurements were conducted to determine typical background noise levels and for comparison to the project related noise levels. Table 2 shows a summary of the noise measurement results. Appendix B graphically shows the results of the 24-hour noise measurements.

Table 2: Summary of Ambient Noise Measurements

<i>Continuous 24-hour Noise Measurement Site</i>									
Site	Location	Date	Average Measured Hourly Noise Levels, dBA						
			CNEL	Daytime (7:00 am-10:00 pm)			Nighttime (10:00 pm – 7:00 am)		
				L _{eq}	L ₅₀	L _{max}	L _{eq}	L ₅₀	L _{max}
A	North portion of site	January 22-23, 2020	52.7	51.4	40.9	64.0	44.6	40.2	58.9
Source: j.c. brennan & associates, Inc. - 2020									

The sound level meters were programmed to record the maximum, median, and average noise levels at each site during the survey. The maximum value, denoted L_{max}, represents the highest noise level measured. The average value, denoted L_{eq}, represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. The median value, denoted L₅₀, represents the sound level exceeded 50 percent of the time during the monitoring period.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the ambient noise level measurement survey. The meter was calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Existing Roadway Noise Levels

To predict existing noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the traffic study prepared for the project (Fehr & Peers). Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the sensitive receptors located at 75-feet from the centerline along each project-area roadway segment. In some locations sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the project-area roadway segments analyzed in this report.

The actual distances to noise level contours may vary from the distances predicted by the FHWA model due to roadway curvature, roadway grade, shielding from local topography, sound walls or structures. The distances reported in Table 3 are generally considered to be conservative estimates of noise exposure along the project-area roadways.

Table 3 shows the existing traffic noise levels in terms of CNEL at 75-feet from the centerline along each roadway segment. This table also shows the distances to existing traffic noise contours. A complete listing of the FHWA Model input data is contained in Appendix C.

**Table 3: Predicted Existing Traffic Noise Levels
Creekside Vineyards at Sand Creek**

Roadway	Segment	CNEL, dB @ 75-feet	Noise Levels (CNEL, dB)			
			Distance (feet)	Distance to Contours (feet) Existing (CNEL)		
				70	65	60
Lone Tree Way	West of Hillcrest	67.5	75	51	110	238
Lone Tree Way	Hillcrest to Heidorn	68.3	75	57	124	266
Lone Tree Way	Heidorn to S.R. 4	63.4	75	27	59	126
Sand Creek Road	West of Deer Valley	41.2	75	1	2	4
Sand Creek Road	Deer Valley to Future Hillcrest	57.0	75	10	22	47
Sand Creek Road	East of S.R. 4	68.3	75	58	124	267
Deer Valley Road	South of Sand Creek Road	62.2	75	23	49	106
Deer Valley Road	North of Sand Creek Road	62.1	75	22	48	103
Heidorn Road	Lone Tree to Future Sand Creek	60.1	75	16	36	77
Hillcrest Avenue	North of Lone Tree Way	64.8	75	34	72	156
Hillcrest Avenue	Lone Tree to Future Sand Creek	60.6	75	18	38	83

¹ Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.
² Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.
Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2020

REGULATORY CONTEXT

Federal

There are no federal regulations related to noise that apply to the Proposed Project.

State

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a project exposes persons to noise levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room.

Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment

City of Antioch General Plan

The Environmental Hazards Chapter of the City of Antioch General Plan sets forth noise and land use compatibility standards to guide development, and noise goals and policies to protect citizens from the harmful and annoying effects of excessive noise. Objectives and policies established in the Noise Element of the General Plan that are applicable to the proposed project include:

11.6.1 Noise Objective

Achieve and maintain exterior noise levels appropriate to planned land uses throughout Antioch as described below:

- Residential
Single-Family: 60 dBA CNEL within rear yards
Multi-Family: 60 dBA CNEL within exterior open space
- Schools
Classrooms: 65 dBA CNEL
Play and sports areas: 70 dB CNEL
- Hospitals, Libraries: 60 dBA CNEL
- Commercial/Industrial: 70 dBA CNEL at the front setback

11.6.2 Noise

Noise Compatible Land Use and Circulation Patterns

- b. Maintain a pattern of land uses that separates noise-sensitive land uses from major noise sources to the extent possible, and guide noise-tolerant land uses into the noisier portions of the Planning Area.

Noise Analysis and Mitigation

- e. When new development incorporating a potentially significant noise generator is proposed, require noise analyses to be prepared by a qualified acoustical engineer. Require the implementation of appropriate noise mitigation when the proposed project will cause new exceedances of General Plan noise objectives, or an audible (3.0 dBA) increase in noise in areas where General Plan noise objectives are already exceeded as the result of existing development.
- f. In reviewing noise impacts, utilize site design and architectural design features to the extent feasible to mitigate impacts on residential neighborhoods and other uses that are sensitive to noise. In addition to sound barriers, design techniques to mitigate noise impacts may include, but are not limited to:
 - Increased building setbacks to increase the distance between the noise source and sensitive receptor.
 - Orient buildings which are compatible with higher noise levels adjacent to noise generators or in clusters to shield more noise sensitive areas and uses.

- Orient delivery, loading docks, and outdoor work areas away from noise sensitive uses.
 - Place noise tolerant use, such as parking areas, and noise tolerant structures, such as garages, between the noise source and sensitive receptor.
 - Cluster office, commercial, or multifamily residential structures to reduce noise levels within interior open space areas.
 - Provide double glazed and double paned windows on the side of the structure facing a major noise source, and place entries away from the noise source to the extent possible.
- g. Where feasible, require the use of noise barriers (walls, berms, or a combination thereof) to reduce significant noise impacts.
- The barrier must have sufficient mass to reduce noise transmission and high enough to shield the receptor from the noise source
 - To be effective, the barrier needs to be constructed without cracks or openings.
 - The barrier must interrupt the line-of-sight between the noise source and the receptor.
 - The effects of noise “flanking” the noise barrier should be minimized by bending the end of the barrier back from the noise source
 - Require appropriate landscaping treatment to be provided in conjunction with noise barriers to mitigate their potential aesthetic impacts.
- h. Continue enforcement of California Noise Insulation Standards (Title 25, Section 1092, California Administration Code).

Temporary Construction

- i. Ensure that construction activities are regulated as to hours of operation in order to avoid or mitigate noise impacts on adjacent noise-sensitive land uses.
- j. Require proposed development adjacent to occupied noise sensitive land uses to implement a construction-related noise mitigation plan. This plan would depict the location of construction equipment storage and maintenance areas, and document methods to be employed to minimize noise impacts on adjacent noise sensitive land uses.
- k. Require that all construction equipment utilize noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- m. Prior to the issuance of any grading plans, the City shall condition approval of subdivisions and non-residential development adjacent to any developed/occupied noise sensitive land uses by requiring applicants to submit a construction-related noise mitigation plan to the City for review and approval. The plan should depict the location of construction equipment and how the noise from this equipment will be mitigated during construction of the project through the use of such methods as:

- The construction contractor shall use temporary noise-attenuation fences, where feasible, to reduce construction noise impacts on adjacent noise sensitive land uses
 - During all project site excavation and grading on-site, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.
 - The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.
 - The construction contractor shall limit all construction-related activities that would result in high noise levels to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Saturday. No construction shall be allowed on Sundays and public holidays.
- n. The construction-related noise mitigation plan required shall also specify that haul truck deliveries be subject to the same hours specified for construction equipment. Additionally, the plan shall denote any construction traffic haul routes where heavy trucks would exceed 100 daily trips (counting those both to and from the construction site). To the extent feasible, the plan shall denote haul routes that do not pass sensitive land uses or residential dwellings. Lastly, the construction-related noise mitigation plan shall incorporate any other restrictions imposed by the city.

City of Antioch Noise Ordinance

Section 9-5.1901 of the Antioch Zoning Ordinance sets forth noise attenuation requirements for stationary and mobile noise sources. The provisions applicable to the project include the following:

- (A) *Stationary noise sources.* Uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks shall not cause an increase in background ambient noise which will exceed 60 CNEL.
- (B) Mobile noise sources.
 - (1) Arterial and street traffic shall not cause an increase in background ambient noise which will exceed 60 CNEL.
- (D) Noise attenuation. The city may require noise attenuation measures be incorporated into a project to obtain compliance with this section. Measures outlined in the noise policies of the General Plan should be utilized to mitigate noise to the maximum feasible extent.

The City of Antioch Zoning Ordinance (2005) provides noise attenuation requirements for construction activity. Specifically, Section 5-17.04 prohibits construction during sensitive evening, nighttime, and weekend hours. 5-17.04

Construction Noise Attenuation

(B) It shall be unlawful for any person to be involved in construction activity during the hours specified below:

- On weekdays prior to 7:00 a.m. and after 6:00 p.m.
- On weekdays within 300 feet of occupied dwellings, prior to 8:00 a.m. and after 5:00 p.m.
- On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwellings.

Vibration Standards

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City of Antioch does not contain specific policies pertaining to vibration levels. However, vibration levels associated with construction activities are discussed in this report.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 4, which was developed by Caltrans, shows the vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

Table 4 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. and continuous vibrations of 0.10 in/sec p.p.v., or greater, would likely cause annoyance to sensitive receptors.

Table 4: Effects of Various Vibration Levels on People and Buildings

Vibration Level (Peak Particle Velocity)*		Human Reaction	Effect on Buildings
mm/s	in/sec		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage.

Source: Transportation Related Earthborne Vibrations, Caltrans Experiences. Technical Advisory: TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

Methods of Analysis

Traffic Noise Impact Assessment Methodology

To describe future noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. Direct inputs to the model included ADT traffic volumes provided by Fehr & Peers. The FHWA model is based upon the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict $L_{dn}/CNEL$ values, it is necessary to determine the day/night distribution of traffic and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Construction Noise and Vibration Impact Methodology

Construction noise and vibration was analyzed using data compiled for various pieces of construction equipment at a representative distance of 50 feet. Construction activities are discussed relative to the applicable City of Antioch General Plan noise policies and Noise Ordinance. Potential impacts and mitigation measures are discussed.

Thresholds of Significance

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. Significance criteria for noise impacts are drawn from CEQA Guidelines Appendix G (Items XI [a-f]).

Additional thresholds included in the General Plan EIR also are shown.

Would the project:

- a. Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- b. Expose persons to, or generate, excessive groundborne vibration or groundborne noise levels;
- c. Cause a substantial permanent increase in ambient noise levels in the project vicinity above existing levels without the project;
- d. Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels without the project;
- e. Expose persons residing or working in the project area to excessive noise levels if located within an airport land use plan or where such a plan has not been adopted within 2 miles of a public airport or public use airport; or

- f. Expose persons residing or working in the project area to excessive noise levels if located within the vicinity of a private airstrip.

Additionally, the General Plan EIR included the following discussion regarding increases in ambient noise:

“CEQA does not define “substantial increase.” Webster’s Dictionary defines “substantial” as “considerable in quantity.” As noted earlier in the discussion of noise definitions, the human ear can detect changes of 3 dBA and changes of less than 3 dBA, while audible under controlled circumstances, are not readily discernable in an outdoor environment. Thus a change of 3 dBA is considered a barely audible change. However, CEQA uses “substantial change” as its criterion. Because most people can readily hear a change of 5 dBA L_{dn} in an exterior environment, this value was established for the proposed General Plan as the CEQA criterion for substantial change. As a point of reference, Caltrans defines a noise increase as substantial when the predicted noise level with the project would exceed existing noise levels by 12 dBA L_{eq} .”

Thus, the proposed project could result in potentially significant impacts related to noise if it would exceed any of the thresholds of significance described below.

- An increase in long-term ambient noise by 5 dBA CNEL/ L_{dn} or more, where existing noise levels do not exceed the City’s 60 dBA CNEL exterior noise level standard (*General Plan DEIR*), or:
- An increase in long-term ambient noise by 3 dBA CNEL/ L_{dn} or more, where existing noise levels exceed the City’s 60 dBA CNEL exterior noise level standard (*General Plan Noise Element, Policy E*).

The proposed project is not located within two miles of a public or private airport or airstrip. Therefore, aircraft noise is not discussed further in this analysis.

Project-Specific Impacts and Mitigation Measures

Impact 1 Construction Noise at Sensitive Receptors

Construction of the Proposed Project would temporarily increase noise levels during construction. This would be a ***potentially significant*** impact.

During the construction of the project including roads, water and sewer lines and related infrastructure, noise from construction activities would add to the noise environment in the project vicinity. Activities involved in construction would generate maximum noise levels, as indicated in Table 5, ranging from 76 to 90 dB at a distance of 50 feet. Construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A substantial project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Table 5: Construction Equipment Noise

Type of Equipment	Maximum Level, dB at 50 feet
Backhoe	78
Compactor	83
Compressor (air)	78
Concrete Saw	90
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Jackhammer	89
Pneumatic Tools	85
Source: <i>Roadway Construction Noise Model User's Guide</i> . Federal Highway Administration. FHWA-HEP-05-054. January 2006.	

Construction activities are conditionally exempt from the Noise Ordinance during certain hours.

Mitigation for Impact 1:

The following mitigation measures are required for the Proposed Project to minimize construction noise impacts.

- MM 1a:** Construction activities shall comply with the City of Antioch Noise Ordinance with regards to hours of operations.
- MM 1b:** Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield all impact tools, and muffle or shield all intake and exhaust ports on power construction equipment.
- MM 1c:** Designate a disturbance coordinator and conspicuously post this person's number around the project site and in adjacent public spaces. The disturbance coordinator will receive all public complaints about construction noise disturbances and will be responsible for determining the cause of the complaint, and implement any feasible measures to be taken to alleviate the problem.
- MM 1d:** Develop a construction-related noise mitigation plan, consistent with the General Plan.

Significance after Mitigation: **Less-than-significant**

Impact 2 Construction Vibration at Sensitive Receptors

The proposed project has the potential to expose sensitive receptors to substantial vibration associated with construction activities. This would be a **less-than-significant** impact.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading and utility placement.

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 6 shows the typical vibration levels produced by construction equipment.

Sensitive receptors could be impacted by construction related vibrations, especially vibratory compactors/rollers. The nearest receptors from the residential lot portions of the project site are located approximately 600 feet from any potential residences to the north. The nearest potential existing residences are approximately 50-feet or further from any areas of the project site that might require roadway grading, paving or bridge construction across Sand Creek. At these distances construction vibrations are not predicted to exceed acceptable levels. Additionally, construction activities would be temporary in nature and would likely occur during normal daytime working hours.

Table 6: Vibration Levels for Varying Construction Equipment

Type of Equipment	Peak Particle Velocity @ 25 feet (inches/second)	Peak Particle Velocity @ 50 feet (inches/second)	Peak Particle Velocity @ 100 feet (inches/second)
Large Bulldozer	0.089	0.031	0.011
Loaded Trucks	0.076	0.027	0.010
Small Bulldozer	0.003	0.001	0.000
Auger/drill Rigs	0.089	0.031	0.011
Jackhammer	0.035	0.012	0.004
Vibratory Hammer	0.070	0.025	0.009
Vibratory Compactor/roller	0.210	0.074	0.026

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006

The Table 6 data indicate that construction vibration levels anticipated for the project are less than the 0.1 in/sec criteria at distances of 50 feet. Therefore, construction vibrations are not predicted to cause damage to existing buildings or cause annoyance to sensitive receptors. Implementation of the proposed project would have a **less than significant** impact.

Mitigation for Impact 2: None required

Impact 3 Transportation Noise at Existing Sensitive Receptors

Traffic generated by the Proposed Project will not generate traffic noise increases exceeding the substantial increase criteria, as outlined in the Thresholds of Significance criteria above. This would be a **less-than-significant** impact.

Tables 7 through 9 show the predicted traffic noise level increases on the local roadway network for Existing, Existing Plus Promenade, Existing Plus Promenade Plus Project, Cumulative Plus Project and Cumulative Plus Project scenarios.

**Table 7: Existing No Project vs. Existing + Promenade Project Traffic Noise Levels
Creekside Vineyards at Sand Creek**

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Existing No Project	Existing + Promenade Project	Δ Change	Existing No Project (CNEL, dB)			Existing + Promenade Project (CNEL, dB)		
					70	65	60	70	65	60
Lone Tree Way	West of Hillcrest	67.5	67.6	0.1	51	110	238	52	112	242
Lone Tree Way	Hillcrest to Heidorn	68.3	68.4	0.1	57	124	266	59	127	274
Lone Tree Way	Heidorn to S.R. 4	63.4	63.7	0.3	27	59	126	29	62	133
Sand Creek Road	West of Deer Valley	41.2	41.2	0	1	2	4	1	2	4
Sand Creek Road	Deer Valley to Future Hillcrest	57.0	57.0	0	10	22	47	10	22	47
Sand Creek Road	East of S.R. 4	68.3	68.3	0	58	124	267	58	125	269
Deer Valley Road	South of Sand Creek Road	62.2	62.3	0.1	23	49	106	23	50	107
Deer Valley Road	North of Sand Creek Road	62.1	62.2	0.1	22	48	103	23	49	105
Heidorn Road	Lone Tree to Future Sand Creek	60.1	62.0	1.9	16	36	77	22	47	102
Hillcrest Avenue	North of Lone Tree Way	64.8	64.8	0	34	72	156	34	73	157
Hillcrest Avenue	Lone Tree to Future Sand Creek	60.6	61.3	0.7	18	38	83	20	43	92

¹ Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways

² Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.

³ Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Bold indicates a potential significant increase in traffic noise levels.

Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2020

**Table 8: Existing Plus Promenade vs. Existing + Promenade + Project Traffic Noise Levels
Creekside Vineyards at Sand Creek**

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Existing Plus Promenade	Existing + Promenade + Project	Δ Change	Existing Plus Promenade (CNEL, dB)			Existing + Promenade + Project (CNEL, dB)		
					70	65	60	70	65	60
Lone Tree Way	West of Hillcrest	67.6	67.7	0.1	52	112	242	53	113	244
Lone Tree Way	Hillcrest to Heidorn	68.4	68.6	0.2	59	127	274	61	131	282
Lone Tree Way	Heidorn to S.R. 4	63.7	63.9	0.2	29	62	133	29	64	137
Sand Creek Road	West of Deer Valley	41.2	41.2	0	1	2	4	1	2	4
Sand Creek Road	Deer Valley to Future Hillcrest	57.0	57.0	0	10	22	47	10	22	47
Sand Creek Road	East of S.R. 4	68.3	68.4	0.1	58	125	269	58	126	271
Deer Valley Road	South of Sand Creek Road	62.3	62.6	0.3	23	50	107	24	52	111
Deer Valley Road	North of Sand Creek Road	62.2	62.4	0.2	23	49	105	23	50	108
Heidorn Road	Lone Tree to Future Sand Creek	62.0	62.0	0	22	47	102	22	47	102
Hillcrest Avenue	North of Lone Tree Way	64.8	64.9	0.1	34	73	157	34	73	158
Hillcrest Avenue	Lone Tree to Future Sand Creek	61.3	62.5	1.2	20	43	92	24	51	111
Hillcrest Avenue	South of Sand Creek Road	---	57.6	NA	---	---	---	11	24	52

¹ Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways

² Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.

³ Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Bold indicates a potential significant increase in traffic noise levels.

Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2020

**Table 9: Cumulative No Project vs. Cumulative + Project Traffic Noise Levels
Creekside Vineyards at Sand Creek**

Roadway	Segment	Traffic Noise Levels (CNEL, dB)			Distance to Noise Level Contours (feet)					
		Cumulative No Project	Cumulative + Project	Δ Change	Cumulative No Project (CNEL, dB)			Cumulative + Project (CNEL, dB)		
					70	65	60	70	65	60
Lone Tree Way	West of Hillcrest	69.4	69.7	0.3	69	148	319	71	154	332
Lone Tree Way	Hillcrest to Heidorn	70.0	70.1	0.1	75	163	350	76	163	352
Lone Tree Way	Heidorn to S.R. 4	65.8	65.8	0	39	85	183	39	85	183
Sand Creek Road	West of Deer Valley	62.7	62.7	0	24	53	114	24	53	114
Sand Creek Road	Deer Valley to Future Hillcrest	65.4	65.8	0.4	37	80	172	39	84	181
Sand Creek Road	East of S.R. 4	69.9	70.1	0.2	73	158	341	76	165	355
Deer Valley Road	South of Sand Creek Road	65.2	65.3	0.1	36	77	165	36	78	168
Deer Valley Road	North of Sand Creek Road	67.0	67.0	0	47	101	219	47	102	220
Heidorn Road	Lone Tree to Future Sand Creek	66.7	66.7	0	45	97	208	45	97	208
Hillcrest Avenue	North of Lone Tree Way	66.8	66.8	0	46	99	212	46	99	213
Hillcrest Avenue	Lone Tree to Future Sand Creek	64.5	64.8	0.3	32	70	151	34	73	157
Hillcrest Avenue	South of Sand Creek Road	60.5	62.3	1.8	17	38	81	23	50	107
Hillcrest Avenue	First Entrance to South side of Project	60.5	63.2	2.7	17	38	81	26	57	122
Hillcrest Avenue	South of Project Site	60.5	60.5	0	17	38	81	17	38	81
Sand Creek Road	Hillcrest to Heidorn	67.5	67.8	0.3	51	111	239	53	115	248
Sand Creek Road	Heidorn to S.R. 4	69.3	69.4	0.1	67	144	311	69	148	319

¹ Traffic noise levels are modeled at 75-feet from the centerlines of the Roadways

² Distances to traffic noise contours are measured in feet from the centerlines of the Roadways.

³ Traffic noise levels do not account for shielding from existing noise barriers or intervening structures. Traffic noise levels may vary depending on actual setback distances and localized shielding.

Bold indicates a potential significant increase in traffic noise levels.

Source: FHWA-RD-77-108 with inputs from Fehr & Peers and j.c. brennan & associates, Inc. - 2020

Based upon the General Plan EIR and general standards of significance, a project results in an increase in long-term ambient noise by 5 dBA CNEL/L_{dn} or more, where existing noise levels do not exceed the City's 60 dBA CNEL exterior noise level standard (*General Plan DEIR*). Based upon the results of the analysis, this does not occur.

The project does not result in an increase in long-term ambient noise by 3 dBA CNEL/L_{dn} or more, where existing noise levels exceed the City's 60 dBA CNEL exterior noise level standard (*General Plan Noise Element, Policy E*).

Implementation of the proposed project would have a **less than significant** impact.

Mitigation for Impact 3: None required

Impact 4 Transportation Noise at New Sensitive Receptors

The proposed project could expose new noise-sensitive uses on the project site to transportation noise levels that exceed the City of Antioch exterior and interior noise level standards. This is considered to be a **potentially significant** impact.

Exterior Traffic Noise Level Impacts:

The FHWA traffic noise prediction model was used to predict Cumulative Plus Project traffic noise levels at the proposed residential land uses associated with the project. This would occur at the first row of residences adjacent to Hillcrest Avenue. Based upon Table 9, the traffic noise levels at the project site would range between 62.3 dB and 63.2 dB CNEL.

Using the FHWA barrier analysis, a barrier 6-feet in height would be required to reduce traffic noise levels to less than 60 dB CNEL. The modeled noise barrier assumes flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent.

Interior Noise Impacts:

Standard construction practices consistent with the uniform building code typically provide a 25 dB exterior-to-interior noise level reduction with windows closed. Therefore, sensitive receptors exposed to exterior noise levels of 70 dB CNEL, or less, will typically comply with the California State Building Code 45 dB CNEL interior noise level standard. Additional noise reduction measures, such as acoustically rated windows are generally required for exterior noise levels exceeding 70 dB CNEL.

Based upon analysis, the predicted cumulative plus project traffic noise levels at the project site will be less than 65 dB CNEL. Therefore, interior noise levels will comply with the interior noise level standard of 45 dB CNEL.

Mitigation for Impact 4:

MM 4a: A sound wall and/or landscaped berms should be constructed along Hillcrest Avenue where residences are located within 157-feet of the roadway. The barrier heights should be 6-feet in height. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials. If roadway elevations and building pad elevations are not equal, the barrier heights and locations should be reviewed once grading plans are available for these locations.

MM 4b: Mechanical ventilation shall be installed in all residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation.

Significance after Mitigation: **Less-than-significant.**

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
L_(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L ₅₀ is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B

2019-154 Creekside Vinyards at Sand Creek

Continuous 24 Hr Monitoring - Site A

January 22-23, 2020

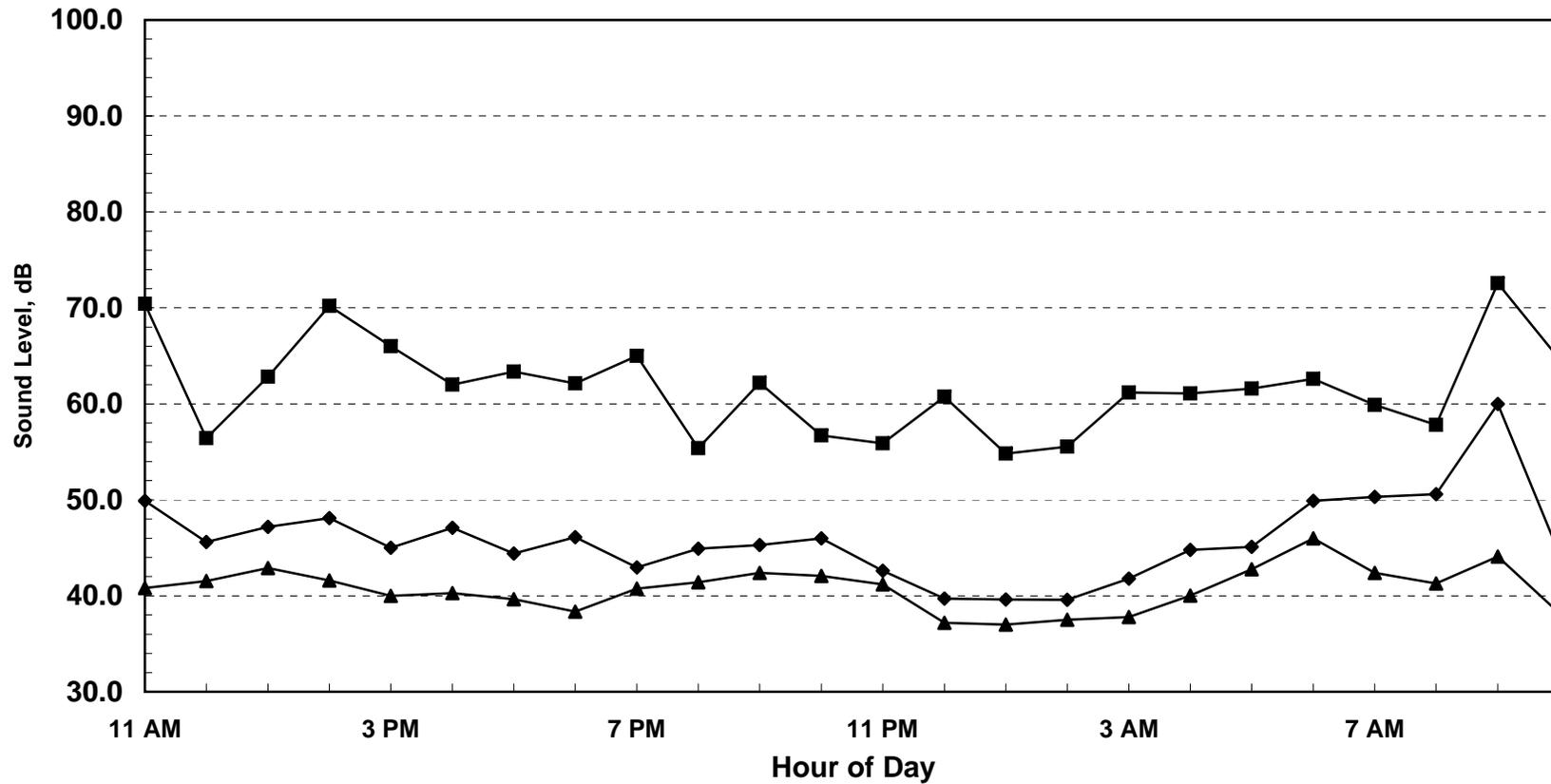
Hour	Leq	Lmax	L50	L90
11:00	49.9	70.4	40.8	36.7
12:00	45.6	56.4	41.5	37.8
13:00	47.2	62.8	42.9	39.3
14:00	48.1	70.2	41.6	37.3
15:00	45.0	66.0	40.0	36.0
16:00	47.1	62.0	40.3	36.4
17:00	44.4	63.4	39.7	35.8
18:00	46.1	62.1	38.4	34.7
19:00	43.0	65.0	40.8	37.1
20:00	44.9	55.4	41.4	38.0
21:00	45.3	62.2	42.4	38.7
22:00	46.0	56.7	42.1	38.2
23:00	42.6	55.9	41.2	38.4
0:00	39.7	60.8	37.2	33.5
1:00	39.6	54.8	37.0	34.5
2:00	39.6	55.5	37.5	35.2
3:00	41.8	61.2	37.8	34.3
4:00	44.8	61.1	40.0	36.7
5:00	45.1	61.6	42.8	39.0
6:00	49.9	62.6	46.0	41.8
7:00	50.3	59.9	42.4	39.0
8:00	50.6	57.8	41.3	37.5
9:00	60.0	72.6	44.1	34.7
10:00	44.4	64.7	38.2	34.3

	Statistical Summary								
	Daytime (7 a.m. - 7 p.m.)			Evening (7 p.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average	High	Low	Average
Leq (Average)	60.0	44.4	51.4	45.3	43.0	44.5	49.9	39.6	44.6
Lmax (Maximum)	72.6	56.4	64.0	65.0	55.4	60.9	62.6	54.8	58.9
L50 (Median)	44.1	38.2	40.9	42.4	40.8	41.5	46.0	37.0	40.2
L90 (Background)	39.3	34.3	36.6	38.7	37.1	37.9	41.8	33.5	36.8

Computed CNEL, dB	52.7
% Daytime Energy	83%
% Evening Energy	4%
% Nighttime Energy	13%



Appendix B
Continuous Measured Hourly Noise Levels
Creekside Vineyards at Sand Creek
January 22-23, 2020



CNEL = 52.7 dB

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2019-154

Description: Existing

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Hillcrest	21,220	87		13	2.0	1	45	75	
2	Lone Tree Way	Hillcrest to Heidorn	25,110	87		13	2.0	1	45	75	
3	Lone Tree Way	Heidorn to S.R. 4	27,370	87		13	2.0	1	25	75	
4	Sand Creek Road	West of Deer Valley	50	87		13	2.0	1	45	75	
5	Sand Creek Road	Deer Valley to Future Hillcrest	1,890	87		13	2.0	1	45	75	
6	Sand Creek Road	East of S.R. 4	25,250	87		13	2.0	1	45	75	
7	Deer Valley Road	South of Sand Creek Road	6,280	87		13	2.0	1	45	75	
8	Deer Valley Road	North of Sand Creek Road	6,030	87		13	2.0	1	45	75	
9	Heidorn Road	Lone Tree to Future Sand Cr.	3,870	87		13	2.0	1	45	75	
10	Hillcrest Ave	North of Lone Tree Way	11,220	87		13	2.0	1	45	75	
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	4,350	87		13	2.0	1	45	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-154

Description: Existing

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Hillcrest	66.3	57.7	59.2	67.5
2	Lone Tree Way	Hillcrest to Heidorn	67.0	58.4	59.9	68.3
3	Lone Tree Way	Heidorn to S.R. 4	60.0	54.8	59.4	63.4
4	Sand Creek Road	West of Deer Valley	40.0	31.4	32.9	41.2
5	Sand Creek Road	Deer Valley to Future Hillcrest	55.8	47.2	48.7	57.0
6	Sand Creek Road	East of S.R. 4	67.0	58.4	59.9	68.3
7	Deer Valley Road	South of Sand Creek Road	61.0	52.4	53.9	62.2
8	Deer Valley Road	North of Sand Creek Road	60.8	52.2	53.7	62.1
9	Heidorn Road	Lone Tree to Future Sand Cr.	58.9	50.3	51.8	60.1
10	Hillcrest Ave	North of Lone Tree Way	63.5	54.9	56.4	64.8
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	59.4	50.8	52.3	60.6

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-154

Description: Existing

Ldn/CNEL: CNEL

Hard/Soft: Soft

----- Distances to Traffic Noise Contours -----

Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Lone Tree Way	West of Hillcrest	24	51	110	238	513
2	Lone Tree Way	Hillcrest to Heidorn	27	57	124	266	573
3	Lone Tree Way	Heidorn to S.R. 4	13	27	59	126	272
4	Sand Creek Road	West of Deer Valley	0	1	2	4	9
5	Sand Creek Road	Deer Valley to Future Hillcrest	5	10	22	47	102
6	Sand Creek Road	East of S.R. 4	27	58	124	267	576
7	Deer Valley Road	South of Sand Creek Road	11	23	49	106	228
8	Deer Valley Road	North of Sand Creek Road	10	22	48	103	222
9	Heidorn Road	Lone Tree to Future Sand Cr.	8	16	36	77	165
10	Hillcrest Ave	North of Lone Tree Way	16	34	72	156	335
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	8	18	38	83	178

Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2019-154
 Description: Existing with Promenade
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Hillcrest	21,760	87		13	2.0	1	45	75	
2	Lone Tree Way	Hillcrest to Heidorn	26,200	87		13	2.0	1	45	75	
3	Lone Tree Way	Heidorn to S.R. 4	29,470	87		13	2.0	1	25	75	
4	Sand Creek Road	West of Deer Valley	50	87		13	2.0	1	45	75	
5	Sand Creek Road	Deer Valley to Future Hillcrest	1,890	87		13	2.0	1	45	75	
6	Sand Creek Road	East of S.R. 4	25,520	87		13	2.0	1	45	75	
7	Deer Valley Road	South of Sand Creek Road	6,440	87		13	2.0	1	45	75	
8	Deer Valley Road	North of Sand Creek Road	6,190	87		13	2.0	1	45	75	
9	Heidorn Road	Lone Tree to Future Sand Cr.	5,920	87		13	2.0	1	45	75	
10	Hillcrest Ave	North of Lone Tree Way	11,380	87		13	2.0	1	45	75	
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	5,100	87		13	2.0	1	45	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-154
Description: Existing with Promenade
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Hillcrest	66.4	57.8	59.3	67.6
2	Lone Tree Way	Hillcrest to Heidorn	67.2	58.6	60.1	68.4
3	Lone Tree Way	Heidorn to S.R. 4	60.4	55.1	59.7	63.7
4	Sand Creek Road	West of Deer Valley	40.0	31.4	32.9	41.2
5	Sand Creek Road	Deer Valley to Future Hillcrest	55.8	47.2	48.7	57.0
6	Sand Creek Road	East of S.R. 4	67.1	58.5	60.0	68.3
7	Deer Valley Road	South of Sand Creek Road	61.1	52.5	54.0	62.3
8	Deer Valley Road	North of Sand Creek Road	60.9	52.3	53.8	62.2
9	Heidorn Road	Lone Tree to Future Sand Cr.	60.7	52.1	53.6	62.0
10	Hillcrest Ave	North of Lone Tree Way	63.6	55.0	56.4	64.8
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	60.1	51.5	53.0	61.3

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-154
Description: Existing with Promenade
Ldn/CNEL: CNEL
Hard/Soft: Soft

----- Distances to Traffic Noise Contours -----

Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Lone Tree Way	West of Hillcrest	24	52	112	242	521
2	Lone Tree Way	Hillcrest to Heidorn	27	59	127	274	590
3	Lone Tree Way	Heidorn to S.R. 4	13	29	62	133	286
4	Sand Creek Road	West of Deer Valley	0	1	2	4	9
5	Sand Creek Road	Deer Valley to Future Hillcrest	5	10	22	47	102
6	Sand Creek Road	East of S.R. 4	27	58	125	269	580
7	Deer Valley Road	South of Sand Creek Road	11	23	50	107	231
8	Deer Valley Road	North of Sand Creek Road	10	23	49	105	225
9	Heidorn Road	Lone Tree to Future Sand Cr.	10	22	47	102	219
10	Hillcrest Ave	North of Lone Tree Way	16	34	73	157	338
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	9	20	43	92	198

Appendix C
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet

Project #: 2019-154
Description: Existing with Promenade Plus Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Hillcrest	22,090	87		13	2.0	1	45	75	
2	Lone Tree Way	Hillcrest to Heidorn	27,410	87		13	2.0	1	45	75	
3	Lone Tree Way	Heidorn to S.R. 4	30,950	87		13	2.0	1	25	75	
4	Sand Creek Road	West of Deer Valley	50	87		13	2.0	1	45	75	
5	Sand Creek Road	Deer Valley to Future Hillcrest	1,890	87		13	2.0	1	45	75	
6	Sand Creek Road	East of S.R. 4	25,740	87		13	2.0	1	45	75	
7	Deer Valley Road	South of Sand Creek Road	6,770	87		13	2.0	1	45	75	
8	Deer Valley Road	North of Sand Creek Road	6,520	87		13	2.0	1	45	75	
9	Heidorn Road	Lone Tree to Future Sand Cr.	5,920	87		13	2.0	1	45	75	
10	Hillcrest Ave	North of Lone Tree Way	11,490	87		13	2.0	1	45	75	
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	6,750	87		13	2.0	1	45	75	
12	Hillcrest Ave	South of Sand Creek Road	2,180	87		13	2.0	1	45	75	
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Appendix C

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-154

Description: Existing with Promenade Plus Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Hillcrest	66.5	57.8	59.3	67.7
2	Lone Tree Way	Hillcrest to Heidorn	67.4	58.8	60.3	68.6
3	Lone Tree Way	Heidorn to S.R. 4	60.6	55.3	59.9	63.9
4	Sand Creek Road	West of Deer Valley	40.0	31.4	32.9	41.2
5	Sand Creek Road	Deer Valley to Future Hillcrest	55.8	47.2	48.7	57.0
6	Sand Creek Road	East of S.R. 4	67.1	58.5	60.0	68.4
7	Deer Valley Road	South of Sand Creek Road	61.3	52.7	54.2	62.6
8	Deer Valley Road	North of Sand Creek Road	61.2	52.5	54.0	62.4
9	Heidorn Road	Lone Tree to Future Sand Cr.	60.7	52.1	53.6	62.0
10	Hillcrest Ave	North of Lone Tree Way	63.6	55.0	56.5	64.9
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	61.3	52.7	54.2	62.5
12	Hillcrest Ave	South of Sand Creek Road	56.4	47.8	49.3	57.6

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-154

Description: Existing with Promenade Plus Project

Ldn/CNEL: CNEL

Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Lone Tree Way	West of Hillcrest	24	53	113	244	526
2	Lone Tree Way	Hillcrest to Heidorn	28	61	131	282	608
3	Lone Tree Way	Heidorn to S.R. 4	14	29	64	137	295
4	Sand Creek Road	West of Deer Valley	0	1	2	4	9
5	Sand Creek Road	Deer Valley to Future Hillcrest	5	10	22	47	102
6	Sand Creek Road	East of S.R. 4	27	58	126	271	583
7	Deer Valley Road	South of Sand Creek Road	11	24	52	111	239
8	Deer Valley Road	North of Sand Creek Road	11	23	50	108	233
9	Heidorn Road	Lone Tree to Future Sand Cr.	10	22	47	102	219
10	Hillcrest Ave	North of Lone Tree Way	16	34	73	158	340
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	11	24	51	111	239
12	Hillcrest Ave	South of Sand Creek Road	5	11	24	52	112

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2019-154
 Description: Cumulative No Project
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Hillcrest	32,900	87		13	2.0	1	45	75	
2	Lone Tree Way	Hillcrest to Heidorn	37,900	87		13	2.0	1	45	75	
3	Lone Tree Way	Heidorn to S.R. 4	47,700	87		13	2.0	1	25	75	
4	Sand Creek Road	West of Deer Valley	7,000	87		13	2.0	1	45	75	
5	Sand Creek Road	Deer Valley to Future Hillcrest	13,000	87		13	2.0	1	45	75	
6	Sand Creek Road	East of S.R. 4	36,400	87		13	2.0	1	45	75	
7	Deer Valley Road	South of Sand Creek Road	12,300	87		13	2.0	1	45	75	
8	Deer Valley Road	North of Sand Creek Road	18,700	87		13	2.0	1	45	75	
9	Heidorn Road	Lone Tree to Future Sand Cr.	17,400	87		13	2.0	1	45	75	
10	Hillcrest Ave	North of Lone Tree Way	17,900	87		13	2.0	1	45	75	
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	10,700	87		13	2.0	1	45	75	
12	Hillcrest Ave	South of Sand Creek Road	4,200	87		13	2.0	1	45	75	
13	Hillcrest Ave	First Entrance to South Side	4,200	87		13	2.0	1	45	75	
14	Hillcrest Ave	South of Project	4,200	87		13	2.0	1	45	75	
15	Sand Creek Road	Hillcrest to Heidorn	21,300	87		13	2.0	1	45	75	
16	Sand Creek Road	Heidorn to S.R. 4	31,700	87		13	2.0	1	45	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-154
Description: Cumulative No Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Hillcrest	68.2	59.6	61.1	69.4
2	Lone Tree Way	Hillcrest to Heidorn	68.8	60.2	61.7	70.0
3	Lone Tree Way	Heidorn to S.R. 4	62.4	57.2	61.8	65.8
4	Sand Creek Road	West of Deer Valley	61.5	52.9	54.3	62.7
5	Sand Creek Road	Deer Valley to Future Hillcrest	64.1	55.5	57.0	65.4
6	Sand Creek Road	East of S.R. 4	68.6	60.0	61.5	69.9
7	Deer Valley Road	South of Sand Creek Road	63.9	55.3	56.8	65.2
8	Deer Valley Road	North of Sand Creek Road	65.7	57.1	58.6	67.0
9	Heidorn Road	Lone Tree to Future Sand Cr.	65.4	56.8	58.3	66.7
10	Hillcrest Ave	North of Lone Tree Way	65.5	56.9	58.4	66.8
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	63.3	54.7	56.2	64.5
12	Hillcrest Ave	South of Sand Creek Road	59.2	50.6	52.1	60.5
13	Hillcrest Ave	First Entrance to South Side	59.2	50.6	52.1	60.5
14	Hillcrest Ave	South of Project	59.2	50.6	52.1	60.5
15	Sand Creek Road	Hillcrest to Heidorn	66.3	57.7	59.2	67.5
16	Sand Creek Road	Heidorn to S.R. 4	68.0	59.4	60.9	69.3

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-154
 Description: Cumulative No Project
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Lone Tree Way	West of Hillcrest	32	69	148	319	687
2	Lone Tree Way	Hillcrest to Heidorn	35	75	163	350	755
3	Lone Tree Way	Heidorn to S.R. 4	18	39	85	183	394
4	Sand Creek Road	West of Deer Valley	11	24	53	114	245
5	Sand Creek Road	Deer Valley to Future Hillcrest	17	37	80	172	370
6	Sand Creek Road	East of S.R. 4	34	73	158	341	734
7	Deer Valley Road	South of Sand Creek Road	17	36	77	165	356
8	Deer Valley Road	North of Sand Creek Road	22	47	101	219	471
9	Heidorn Road	Lone Tree to Future Sand Cr.	21	45	97	208	449
10	Hillcrest Ave	North of Lone Tree Way	21	46	99	212	458
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	15	32	70	151	325
12	Hillcrest Ave	South of Sand Creek Road	8	17	38	81	174
13	Hillcrest Ave	First Entrance to South Side	8	17	38	81	174
14	Hillcrest Ave	South of Project	8	17	38	81	174
15	Sand Creek Road	Hillcrest to Heidorn	24	51	111	239	514
16	Sand Creek Road	Heidorn to S.R. 4	31	67	144	311	670

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2019-154
 Description: Cumulative Plus Project
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Lone Tree Way	West of Hillcrest	34,920	87		13	2.0	1	45	75	
2	Lone Tree Way	Hillcrest to Heidorn	38,110	87		13	2.0	1	45	75	
3	Lone Tree Way	Heidorn to S.R. 4	47,920	87		13	2.0	1	25	75	
4	Sand Creek Road	West of Deer Valley	7,000	87		13	2.0	1	45	75	
5	Sand Creek Road	Deer Valley to Future Hillcrest	14,130	87		13	2.0	1	45	75	
6	Sand Creek Road	East of S.R. 4	38,620	87		13	2.0	1	45	75	
7	Deer Valley Road	South of Sand Creek Road	12,610	87		13	2.0	1	45	75	
8	Deer Valley Road	North of Sand Creek Road	18,920	87		13	2.0	1	45	75	
9	Heidorn Road	Lone Tree to Future Sand Cr.	17,410	87		13	2.0	1	45	75	
10	Hillcrest Ave	North of Lone Tree Way	18,010	87		13	2.0	1	45	75	
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	11,350	87		13	2.0	1	45	75	
12	Hillcrest Ave	South of Sand Creek Road	6,400	87		13	2.0	1	45	75	
13	Hillcrest Ave	First Entrance to South Side	7,780	87		13	2.0	1	45	75	
14	Hillcrest Ave	South of Project	4,200	87		13	2.0	1	45	75	
15	Sand Creek Road	Hillcrest to Heidorn	22,520	87		13	2.0	1	45	75	
16	Sand Creek Road	Heidorn to S.R. 4	32,910	87		13	2.0	1	45	75	
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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Predicted Levels

Project #: 2019-154
Description: Cumulative Plus Project
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Lone Tree Way	West of Hillcrest	68.4	59.8	61.3	69.7
2	Lone Tree Way	Hillcrest to Heidorn	68.8	60.2	61.7	70.1
3	Lone Tree Way	Heidorn to S.R. 4	62.5	57.2	61.8	65.8
4	Sand Creek Road	West of Deer Valley	61.5	52.9	54.3	62.7
5	Sand Creek Road	Deer Valley to Future Hillcrest	64.5	55.9	57.4	65.8
6	Sand Creek Road	East of S.R. 4	68.9	60.3	61.8	70.1
7	Deer Valley Road	South of Sand Creek Road	64.0	55.4	56.9	65.3
8	Deer Valley Road	North of Sand Creek Road	65.8	57.2	58.7	67.0
9	Heidorn Road	Lone Tree to Future Sand Cr.	65.4	56.8	58.3	66.7
10	Hillcrest Ave	North of Lone Tree Way	65.6	57.0	58.4	66.8
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	63.6	55.0	56.4	64.8
12	Hillcrest Ave	South of Sand Creek Road	61.1	52.5	53.9	62.3
13	Hillcrest Ave	First Entrance to South Side	61.9	53.3	54.8	63.2
14	Hillcrest Ave	South of Project	59.2	50.6	52.1	60.5
15	Sand Creek Road	Hillcrest to Heidorn	66.5	57.9	59.4	67.8
16	Sand Creek Road	Heidorn to S.R. 4	68.2	59.6	61.1	69.4

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FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Noise Contour Output

Project #: 2019-154
 Description: Cumulative Plus Project
 Ldn/CNEL: CNEL
 Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Lone Tree Way	West of Hillcrest	33	71	154	332	714
2	Lone Tree Way	Hillcrest to Heidorn	35	76	163	352	757
3	Lone Tree Way	Heidorn to S.R. 4	18	39	85	183	395
4	Sand Creek Road	West of Deer Valley	11	24	53	114	245
5	Sand Creek Road	Deer Valley to Future Hillcrest	18	39	84	181	391
6	Sand Creek Road	East of S.R. 4	35	76	165	355	764
7	Deer Valley Road	South of Sand Creek Road	17	36	78	168	362
8	Deer Valley Road	North of Sand Creek Road	22	47	102	220	475
9	Heidorn Road	Lone Tree to Future Sand Cr.	21	45	97	208	449
10	Hillcrest Ave	North of Lone Tree Way	21	46	99	213	459
11	Hillcrest Ave	Lone Tree to Future Sand Cr.	16	34	73	157	338
12	Hillcrest Ave	South of Sand Creek Road	11	23	50	107	231
13	Hillcrest Ave	First Entrance to South Side	12	26	57	122	263
14	Hillcrest Ave	South of Project	8	17	38	81	174
15	Sand Creek Road	Hillcrest to Heidorn	25	53	115	248	533
16	Sand Creek Road	Heidorn to S.R. 4	32	69	148	319	687