City of Oakley
Planning Division

Oakley Village Subdivision 9577 Project

Initial Study/Mitigated Negative Declaration

October 2021

Prepared by

RANEY PLANNING & MANAGEMENT, INC. | 20 years
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Appendices

INITIAL STUDY

A. BACKGROUND

1. Project Title: Oakley Village Subdivision 9577 Project

2. Lead Agency Name and Address:
City of Oakley
Planning Division
3231 Main Street
Oakley, CA 94561

3. Contact Person and Phone Number:
Ken Strelo
Principal Planner
(925) 625-7000

4. Project Location: West of the intersection of Sellers Avenue and BNSF Railroad tracks
Oakley, CA 94561
Accessor's Parcel Numbers (APNs): 033-150-011 and 033-150-018

5. Project Applicant Name and Address:
Edgemont Station, LLC
8880 Cal Center Drive, Suite 400
Sacramento, CA 95826

6. Existing General Plan Designation: Single-Family Residential, Medium Density (SM)

7. Existing Zoning Designation: Single-Family Residential, 10,000 sf Min. Lot Area (R-10)

8. Required Approvals from Other Public Agencies: None

9. Surrounding Land Uses and Setting:

The 14.82-acre, irregularly-shaped project site is identified by APNs 033-150-011 and 033-150-018, and is located immediately west of the intersection of Sellers Avenue and the BNSF Railway Company (BNSF) railroad tracks in the City of Oakley, California. The project site is used for livestock grazing and consists of one single-family residence along the northern portion of the project site and one single-family residence, pool, and three outbuildings along the western portion of the project site. The remainder of the site consists of undeveloped land with ruderal vegetation and limited trees. The project site is generally bound by BNSF railroad tracks to the northeast, Sellers Avenue to the east, and an unnamed private road to the south. Surrounding existing land uses include single-family residences to the west, and agricultural land and scattered rural single-family residences to the north and east. The City of Oakley General Plan designates the site as Single-Family Residential, Medium Density (SM) and the site is zoned Single-Family Residential, 10,000 sf Min. Lot Area (R-10).

10. Project Description Summary:

    The Oakley Village Subdivision 9577 (TM 05-20) Project (proposed project) would include demolition of the existing on-site residence and associated structures, as well as the removal of all on-site trees, to allow for future development of 42 single-family residences, which have not yet been proposed. The proposed project would involve the construction of an internal roadway network throughout the project site, which would connect to an existing stubbed street to the west. Primary access to the site would be provided by Sellers Avenue from the east. Additionally, the proposed project would include the provision of a 18,066-sf bioretention facility, a right-of-way dedication along Sellers Avenue, and on-site improvements along Sellers Avenue. The project would require approval of a Vesting Tentative Map, which has been filed with the City of Oakley Planning Division as application # TM 05-20.

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

    In compliance with Assembly Bill (AB) 52 (Public Resources Code [PRC] Section 21080.3.1), a project notification letter was distributed to the chairpersons of the following tribes on July 9, 2021: Amah Mutsun Tribal Band of Mission San Juan Bautista, Chicken Ranch Rancheria of Me-Wuk Indians, Guidiville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the SF Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, North Valley Yokuts Tribe, The Ohline Indian Tribe, Tule River Indian Tribe, Wilton Rancheria, and The Confederated Villages of Lisjan.

    A request for consultation was received from The Confederated Villages of Lisjan Chairperson Corrina Gould on August 25, 2021, to which a response was given, explaining that the proposed project does not include residential development. Additionally, the response to Gould noted that as part of compliance with AB 52 requirements, all tribes that have requested to be notified of future development applications requiring evaluation under CEQA would be apprised of such projects. A meeting with Chairperson Gould occurred on September 22, 2021. Additional comments were not received from Chairperson Gould subsequent to the foregoing meeting. As such, consultation was concluded on October 5, 2021.

B. SOURCES

All technical reports and modeling results prepared for the project analysis are available at: https://www.ci.oakley.ca.us/ceqa-documents/. The following documents are referenced information sources used for the purposes of this Initial Study:

1. Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed March 2020.
2. Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.
3. California Building Standards Commission. *California Green Building Standards Code*. 2019.
4. California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.
5. California Building Standards Commission. *California Green Building Standards Code.* 2019.

6. California Department of Conservation. *Contra Costa County Important Farmland Map.* 2016.
7. California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021, with 2010 Benchmark*. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed June 2021.
8. California Department of Forestry and Fire Protection. Contra Costa *County, Fire Hazard Severity Zones in LRA*. November 7, 2007.
9. California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary: Potrero Hill Landfill (48-AA-0075)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/3591. Accessed June 2021.
10. California Department of Transportation. *California State Scenic Highway System Map.* Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983. Accessed June 2021.
11. California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ.* November 2018.
12. Caltrans. *Transportation Related Earthborne Vibrations. TAV-02-01-R9601*. February 20, 2002.
13. City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report*. September 2002.
14. City of Oakley. *Oakley Municipal Code*. Updated February 23, 2021.
15. City of Oakley. *Oakley 2020 General Plan*. December 16, 2002.
16. City of Oakley. *Strategic Energy Plan*. Fall 2015.
17. City of Oakley Police Department. *2017 Annual Report*. 2017. Available at: http://www.ci.oakley.ca.us/wp-content/uploads/2018/04/Annual-Report-2017-2-2.pdf. Accessed June 2021.
18. Contra Costa County. *Transportation Analysis Guidelines*. June 23, 2020.
19. Contra Costa County Clean Water Program. *Stormwater C.3 Guidebook.* May 17, 2017.
20. Contra Costa Conservation and Development. *2016 Agricultural Preserves Map*. Available at: https://www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract?bidId=. Accessed June 2021.
21. Department of Toxic Substances Control. *Hazardous Waste and Substances Site List.* Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29. Accessed June 2021.
22. Diablo Water District. *Draft 2020 Urban Water Management Plan.* May 2021.
23. East Contra Costa County Habitat Conservation Plan Association. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan*. October 2006.
24. East Contra Costa County Integrated Regional Water Management. *East Contra Costa Subbasin Map.* Available at: https://www.eccc-irwm.org/about-sgma. Accessed June 2021.
25. Federal Emergency Management Agency. *Flood Insurance Rate Map 06013C0355G.* Effective March 21, 2017.
26. Federal Highway Administration. *Roadway Construction Noise Model User's Guide.* January 2006.
27. Federal Transit Administration. *Transit Noise and Vibration Impact Assessment Guidelines.* May 2006.
28. Geocon Consultants, Inc. *Geotechnical Investigation.* April 2020.

29. H.T. Harvey & Associates. *East Contra Costa Habitat Conservation Plan – Assessment of Plan Effects on CEQA Species.* February 17, 2015.
30. Ironhouse Sanitary District. *Sewer System Management Plan*. April 2017.
31. Moore Biological Consultants. *Planning Survey Report.* October 2020.
32. O'Dell Engineering. *Preliminary Storm Drain Report.* April 15, 2021.
33. O'Dell Engineering. *Stormwater Control Plan.* April 15, 2021.
34. State Water Resources Control Board. *GeoTracker.* Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=oakley+california. Accessed June 2021.
35. Saxelby Acoustics. *Environmental Noise Assessment, Oakley Village Subdivision.* June 14, 2021.
36. South Coast Air Quality Management District. 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf. Accessed October 2020.
37. TJKM. *City of Oakley, Oakley Village Subdivision Project Traffic Memorandum.* June 9, 2020.
38. TJKM. *Burroughs Residential Development Draft Traffic Impact Analysis*. January 13, 2021.
39. Tom Origer & Associates. *Cultural Resources Study for the Oakley Village Project, Oakley, Contra Costa County, California.* August 11, 2021.

C. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Less Than Significant with Mitigation Incorporated" or as indicated by the checklist on the following pages.

☐ **Aesthetics**	☐ **Agriculture and Forest Resources**	☐ **Air Quality**
☐ **Biological Resources**	☒ **Cultural Resources**	☐ **Energy**
☒ **Geology and Soils**	☐ **Greenhouse Gas Emissions**	☒ **Hazards and Hazardous Materials**
☐ **Hydrology and Water Quality**	☐ **Land Use and Planning**	☐ **Mineral Resources**
☒ **Noise**	☐ **Population and Housing**	☐ **Public Services**
☐ **Recreation**	☐ **Transportation**	☒ **Tribal Cultural Resources**
☐ **Utilities and Service Systems**	☐ **Wildfire**	☐ **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

October 12, 2021
Date

Ken Strelo, Principal Planner
Printed Name

City of Oakley
For

E. BACKGROUND AND INTRODUCTION

This Initial Study/Mitigated Negative Declaration (IS/MND) provides an environmental analysis pursuant to the California Environmental Quality Act (CEQA) for the proposed project. The applicant has submitted this application to the City of Oakley, which is the Lead Agency for the purposes of CEQA review. The IS/MND contains an analysis of the environmental effects of construction and operation of the proposed project.

In December 2002, the City of Oakley adopted the Oakley General Plan and the Oakley General Plan Environmental Impact Report (EIR). The General Plan EIR was a program-level EIR, prepared pursuant to Section 15168 of the CEQA Guidelines (Title 14, California Code of Regulations [CCR], Sections 15000 et seq.). The General Plan EIR analyzed full implementation of the Oakley General Plan and identified measures to mitigate the significant adverse project and cumulative impacts associated with the General Plan. Pursuant to CEQA Guidelines Section 15150(a), the City of Oakley General Plan and General Plan EIR are incorporated by reference. Due to the current public health emergency, Oakley City Hall, including the Community Development Department, has limited hours open to the public until further notice. Both documents are available online at:

https://www.ci.oakley.ca.us/departments/planning-zoning/reference-documents/

The impact discussions for each section of this IS/MND have been largely based on information in the Oakley General Plan and the Oakley General Plan EIR, as well as technical studies prepared for the proposed project.

The mitigation measures prescribed for environmental effects described in this IS/MND would be implemented in conjunction with the project, as required by CEQA, and the mitigation measures would be incorporated into the project. In addition, a project Mitigation Monitoring and Reporting Program (MMRP) would be adopted in conjunction with approval of the project.

F. PROJECT DESCRIPTION

The following section provides a comprehensive description of the proposed project in accordance with CEQA Guidelines.

Project Location and Setting

The project site consists of approximately 14.82 acres located immediately west of the intersection of Sellers Avenue and the BNSF tracks in the City of Oakley, California (see Figure 1). The project site is generally bound by BNSF railroad tracks to the northeast, Sellers Avenue to the east, and an unnamed private road to the south (see Figure 2). The project site is located approximately 3.5-mile east of State Route (SR) 4 and approximately 4.3-mile southeast of SR 160. The site, identified by APNs 033-150-011 and 033-150-018, is designated SM per the City's General Plan, and the site is zoned R-10.

Surrounding existing land uses include single-family residences to the west, agricultural land and scattered rural single-family residences to the north and east, a single-family residence and associated farm buildings to the northeast, and vacant land to the south. Currently, the western portion of the project site is developed with two single-family residences, pool, and three outbuildings. The remaining project site area is undeveloped and consists of undeveloped land with ruderal vegetation and limited trees. The topography of the site is relatively flat.

Figure 1
Regional Project Location

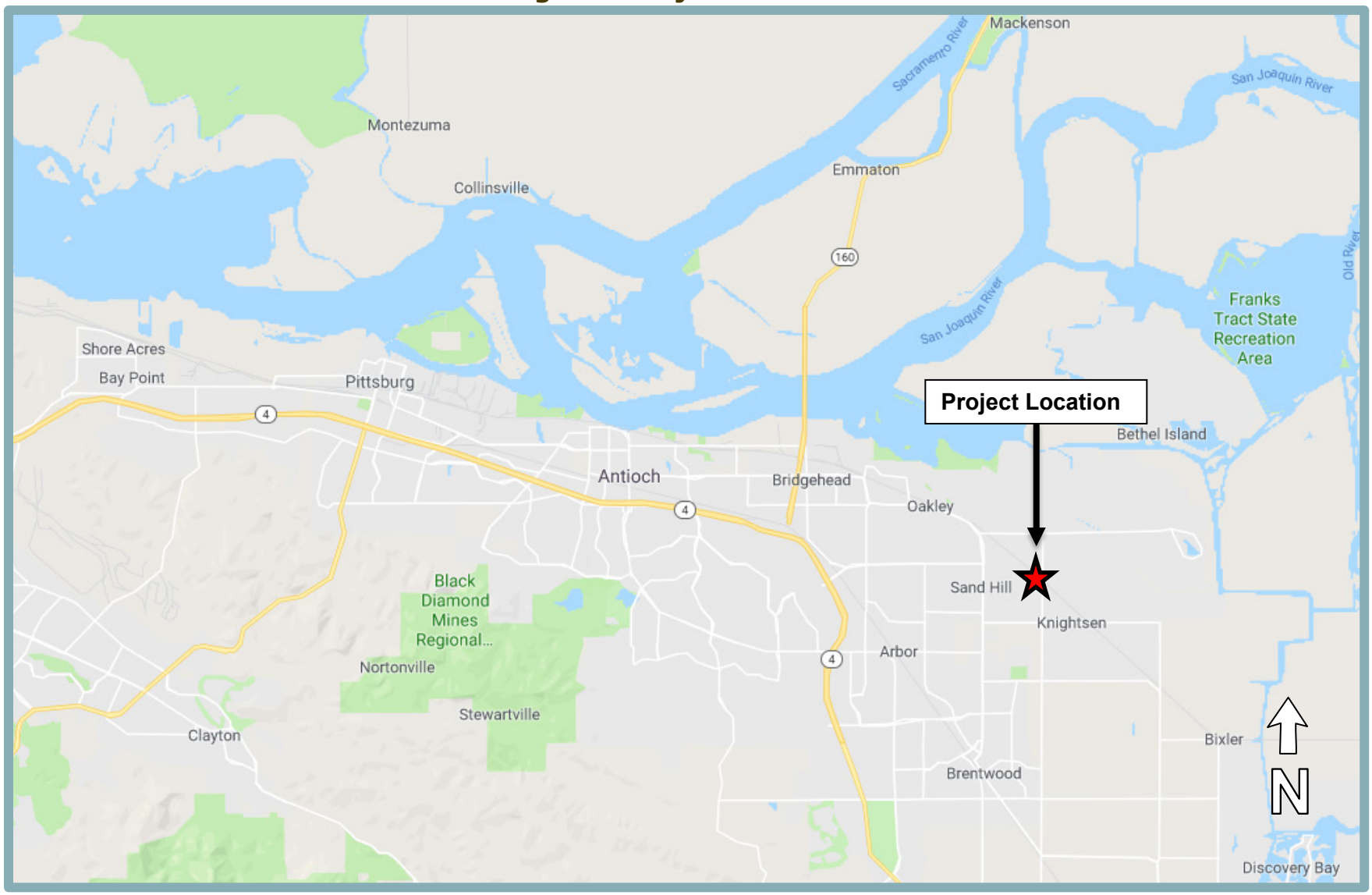
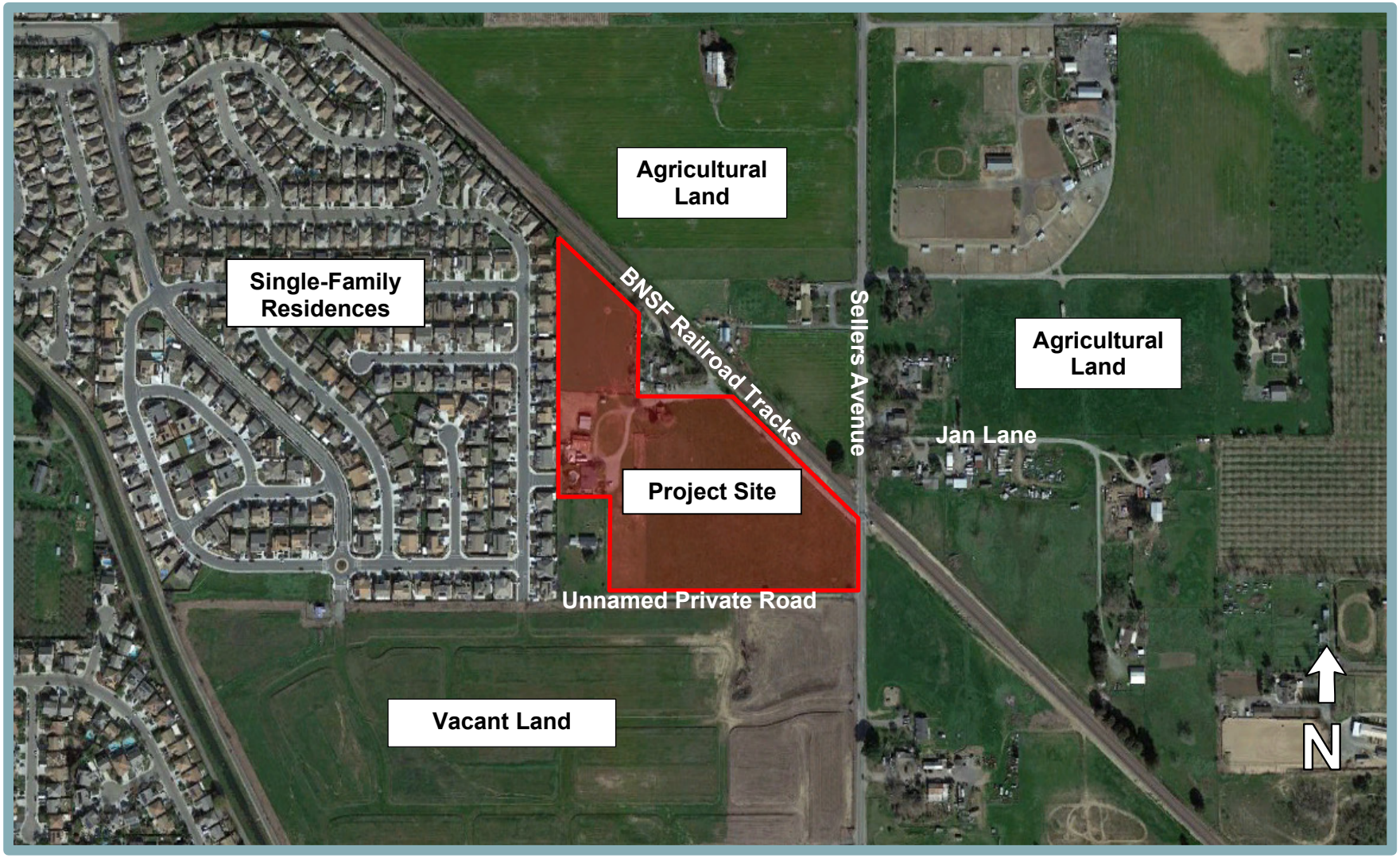


Figure 2
Project Site Boundaries



Project Components

The proposed project would include the demolition of the existing on-site residence and associated structures and subsequent development of the site with 42 single-family residential units, associated internal roadways, and roadway improvements to Sellers Avenue (see Figure 3). The project would require approval of a Vesting Tentative Map (VTM). The following sections describe the VTM.

Vesting Tentative Map

The VTM would divide the project site into 42 single-family lots, a bioretention facility parcel, Parcels A, B, and C, an expansion of Sellers Avenue, and an internal circulation network (see Figure 3). The single-family lots range in size from 10,000 sf to 10,530 sf. Parcel A is not planned for development at this time, Parcel B would support a new sewer lift station, and Parcel C would serve as a private access easement. A ten-foot-tall masonry sound wall is proposed along the northeastern border of the site, along the BNSF railroad tracks, and a six-foot-tall sound wall is proposed along the eastern border of the site. Below is additional detail regarding the project access and circulation, on-site landscaping, and utility infrastructure.

Project Access and Circulation

A 56-foot-wide right-of-way for the internal roadway system would be constructed throughout the project site to provide access to each unit including 36 feet of travel lane and five-foot sidewalks. The intersection of Sellers Avenue and A Street would provide primary access to the proposed project. The internal roadway network would connect to an existing stubbed street to the west to provide secondary access to the proposed project.

In addition, the proposed project would include the widening of Sellers Avenue. An additional 22 feet of pavement would be provided west of the existing Sellers Avenue, as well as a five-foot-wide sidewalk, curb, and gutter. Overall, the Sellers Avenue right-of-way would be extended by 12 feet, from 80 feet to 92 feet wide. The proposed sidewalk along Sellers Avenue would connect to the pedestrian network throughout the project site.

Landscaping

As part of the proposed project, all trees along the western boundary would be removed. Landscaping improvements would be provided throughout the project site, as well as along the Sellers Avenue frontage and (see Figure 4). A variety of trees and shrubs would be provided along the internal roadways, as well as the frontage of the residential lots. Drought-tolerant landscaping would be included between the eastern boundary of the project site and Sellers Avenue. All landscaping would comply with the State's Model Water Efficient Landscape Ordinance (MWELO).

Utilities

Water service for the proposed project would be provided by the Diablo Water District (DWD). The proposed project would include construction of new eight-inch water lines throughout the project site, and would connect to the existing water line within the stubbed street to the west (see Figure 5). In addition, ten fire hydrants are proposed throughout the site.

Sanitary sewer service is provided to the City of Oakley by the Ironhouse Sanitary District (ISD). The proposed project would include construction of new eight- and ten-inch sanitary sewer lines throughout the project site and extend to Sellers Avenue. The proposed sanitary sewer lines within the project site would direct wastewater to the proposed sewer lift station in Parcel B, along a force main, and ultimately into the existing wastewater main in Kings Canyon Way.

Figure 3
Vesting Tentative Map

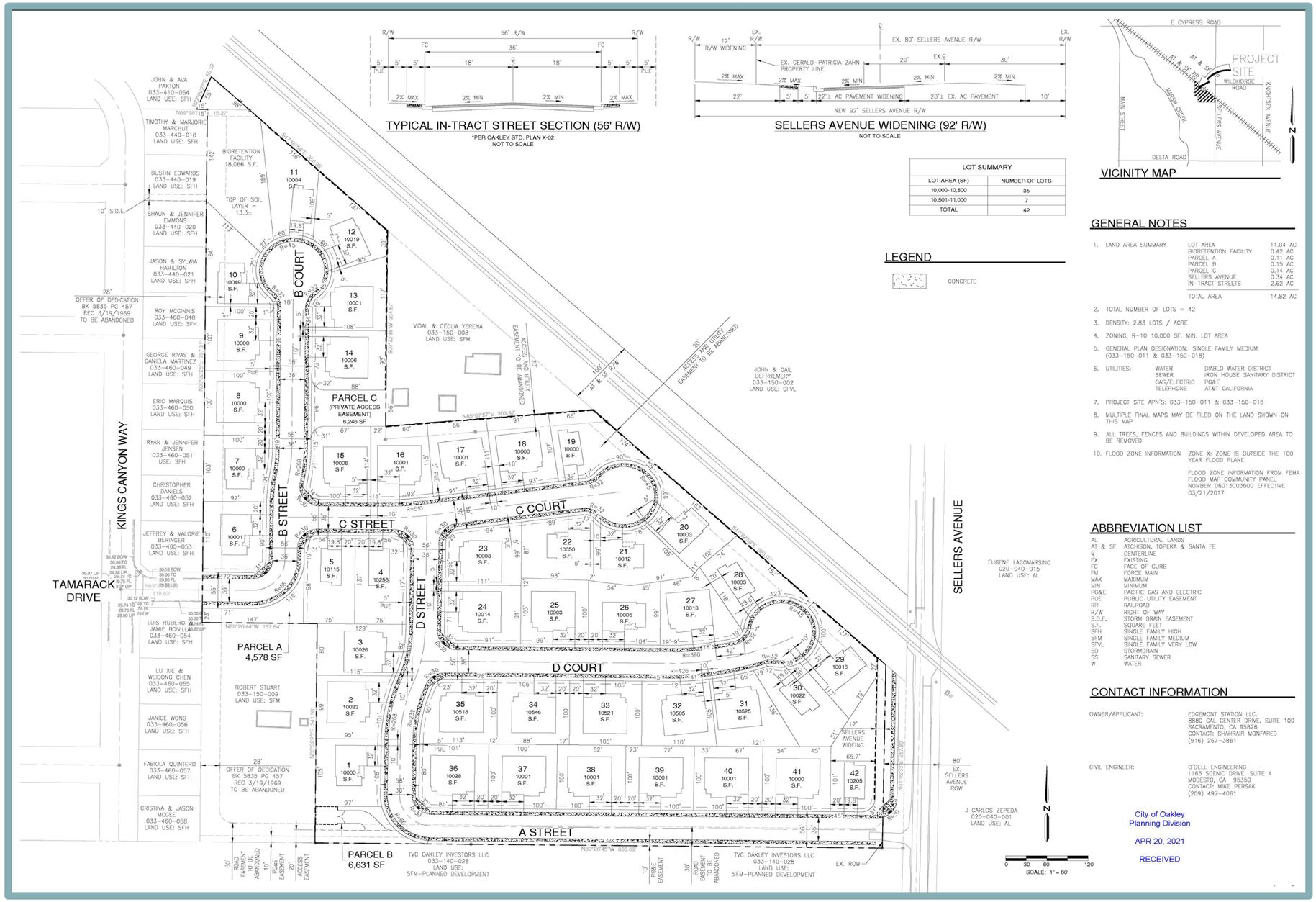
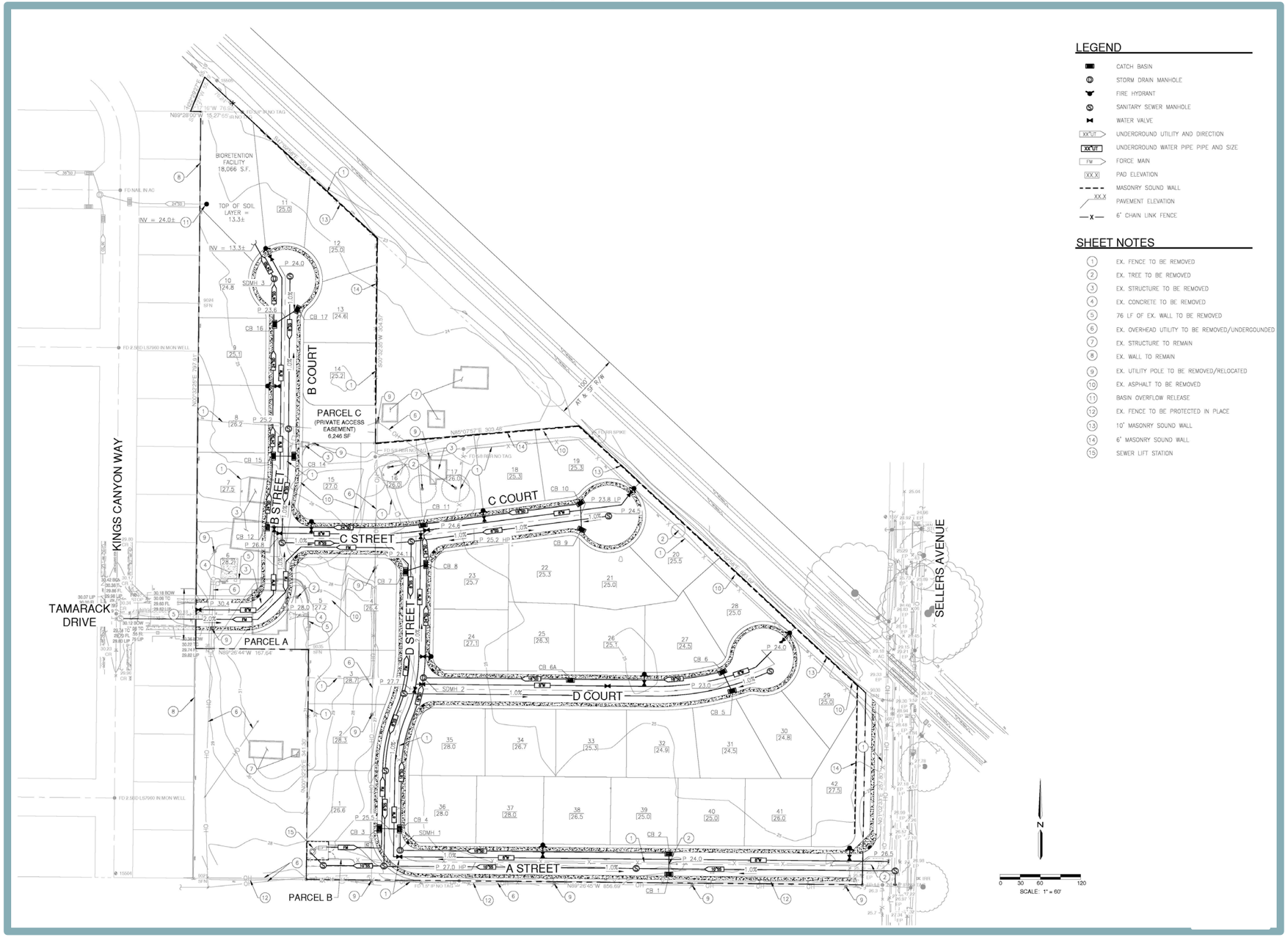


Figure 4
Landscape Plan

STREET TREE LEGEND				
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WATER USE
	Acer Rubrum 'Redpointe'	Redpointe Maple	15 GAL	MODERATE
	Ginkgo biloba	Maidenhair Tree	15 GAL	MODERATE
	Koelreuteria paniculata	Golden Rain Tree	15 GAL	MODERATE
	Lagerstroemia x 'Muskogee'	Crape Myrtle Light Lavender	15 GAL	LOW
	Platanus x acerfolia 'Bloodgood'	Bloodgood London Plane Tree	15 GAL	MODERATE
	Quercus douglasii	Blue Oak	15 GAL	VERY LOW
	Tilia cordata 'Greenspire'	Greenspire Littleleaf Linden	15 GAL	MODERATE
	Ulmus Parvifolia 'Drake'	Drake Lacebark Elm	15 GAL	LOW
BIOFILTRATION BASIN				
	BIOFILTRATION GRASS MIX			
STREETSCAPE				
	DROUGHT TOLERANT PLANTING			

Figure 5
Preliminary Grading and Drainage Plan



Stormwater from impervious areas within the project site would be collected by a series of roof and street gutters into new catch basins which would connect to a network of 18- and 24-inch stormwater lines. The existing low area of the site would be filled in so the stormwater would flow towards an 18,066-sf bioretention facility in the northwest corner of the site. The bioretention facility would be landscaped with bioretention grass mix and would serve to treat stormwater on the project site. The proposed bioretention facility would accommodate runoff from all 42 residential lots and the roadways on the site, and is designed according to the criteria in the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook* to treat stormwater on the project site prior to discharge into the City's stormwater system. Runoff would enter the facility through a storm drain pipe, where the water would be treated before it enters into the public storm drain system in Kings Canyon Way. After treatment, the stormwater would be conveyed through a storm drain pipe that connects to an existing storm drain system on the west side of the property. The water would then be taken to an existing detention basin off-site.

Discretionary Actions

The proposed project would require the following approvals from the City of Oakley:

- Adoption of the Initial Study/Mitigated Negative Declaration;
- Adoption of the Mitigation Monitoring and Reporting Program; and
- Vesting Tentative Map.

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. 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?	☐	☐	✖	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	✖	☐
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?	☐	☐	✖	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	✖	☐

Discussion

a. Examples of typical scenic vistas 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. A scenic vista includes any such areas designated by a federal, State, or local agency. Scenic vistas in the City of Oakley, as defined by the City's General Plan, include natural landscape features such as the Delta, Dutch Slough, Marsh Creek, the Contra Costa Canal, agricultural and other open space lands, as well as views of Mount Diablo.[1] Views of the Delta, Dutch Slough, Marsh Creek, and the Contra Costa Canal are not available from the project site.

Given the flat topography of the project site and the undeveloped land to the south and southeast, views of Mount Diablo from Sellers Avenue to the southwest are framed by rolling hillsides within the project site (see Figure 6). Therefore, public views of Mount Diablo could be partially obstructed by development of the proposed project. However, because the proposed project would be consistent with the General Plan land use designation for the site, potential impacts to scenic vistas and visual character associated with future development of the project site was already evaluated and considered in the General Plan EIR analysis, which concluded that the General Plan's Goals, Policies, and Programs would mitigate any potential impacts on the aesthetic qualities inherent in the Planning Area.[2] In addition, the proposed development would be subject to all design guidelines, such as building height and setback requirements, set forth in Section 9.1.404 of the City's Municipal Code for the R-10 zoning district.

Therefore, the proposed project would not result in new or more severe impacts related to scenic vistas and visual character from what has already been anticipated and analyzed for the site in the City's General Plan EIR, and a ***less-than-significant*** impact would occur.

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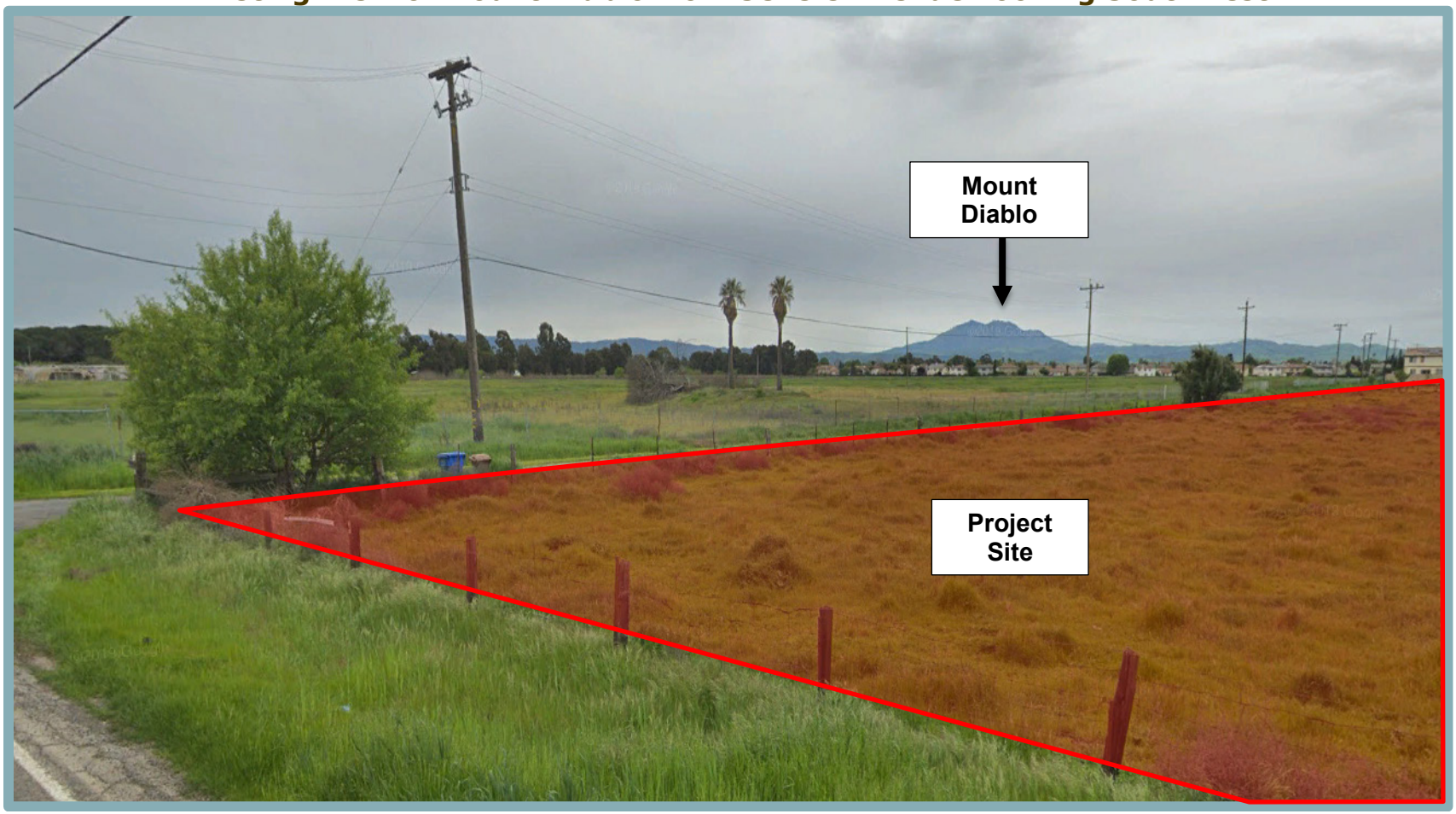
1 City of Oakley. *Oakley 2020 General Plan* [pg. 6-28]. December 16, 2002.
2 City of Oakley. *City of Oakley 2020 General Plan Environmental Impact Report* [pg. 3-24]. September 2002.

Figure 6
Existing View of Mount Diablo from Sellers Avenue Looking Southwest



b. According to the California Scenic Highway Mapping System, a portion of SR 4 and SR 160 are listed as eligible for State Scenic Highway designation.[3] The project site is located approximately 3.5 miles east of SR 4 and approximately 4.25 miles southeast of SR 160. Views of the project site from either highway are not currently available due to the distance and surrounding urban development. Because the project site is not visible from either highway, the project would not have an adverse effect on the foregoing scenic resources from a State scenic highway.

Therefore, development of the proposed project 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. The project site is located within an urbanized area of the City. Currently, the northern portion of the project site is developed with one single-family residence and the western portion of the project site is developed with one single-family residence, pool, and three outbuildings. The remaining project site area is undeveloped and consists of ruderal vegetation and limited trees. The visual character of the site would be changed from the existing character; however, future single-family residences would be consistent with the existing General Plan land use designation (SM) and the urban development in the surrounding area. Implementation of the proposed project would also require Design Review. Design Review would ensure that the aesthetic and architectural design of the development be compatible with surrounding development. The proposed project would include landscaping features at the project site frontage and within the project site that would be similar to existing features in the development to the west of the site. As such, the residences would be designed in keeping with the surrounding residential land uses and, thus, would not substantially degrade the visual character of the project site or the surroundings and a ***less-than-significant*** impact would occur.

d. The two existing single-family residences would be demolished as part of the proposed project, and future development of the 42 residences would add new sources of light and glare to the site, where minimal sources currently exist. The proposed project is anticipated to include street lights on the project site along the internal roadways and along the project site frontage, as well as interior lights spilling from the windows of future residences. In addition, the proposed project would generate vehicle trips which, in turn, would create sources of light from vehicle headlights. As previously discussed, the project site is surrounded by existing development including similar land uses. Light and glare associated with the proposed project would be expected to be similar to that of the surrounding area.

Furthermore, pursuant to Section 9.1.1604 of the City's Municipal Code, the project would be required to undergo a Design Review to ensure that development of the project would be in compliance with the Residential Design Guidelines, which establishes the City's standard for residential street lights and limits residential lighting for security purposes. In addition, because the proposed project would be consistent with the General Plan land use designation for the site, the impacts of new sources of light or glare associated with future development of the project site were already evaluated and considered in the General Plan EIR analysis. Therefore, any creation of new sources of light and glare by the future project would be considered a ***less-than-significant*** impact.

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[3] California Department of Transportation. *California State Scenic Highway System Map*. Available at: https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983. Accessed June 2021.

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?	☐	☐	✖	☐
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	✖
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))?	☐	☐	☐	✖
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	✖
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?	☐	☐	✖	☐

Discussion

a,e. Currently, the project site is used for livestock grazing and is developed with one single-family residence, pool, and three outbuildings along the western portion of the project site and one single-family residence along the northern portion of the project site. The remainder of the site consists of undeveloped land with ruderal vegetation and limited trees. Per the Farmland Mapping and Monitoring Program, the project site is designated as "Other Land."[4] The project site does not contain, and is not located adjacent to, Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Given the designation of the site as Other Land, development of the proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use or otherwise result in the loss of Farmland to non-agricultural use. Thus, a ***less-than-significant*** impact would occur as a result of the proposed project.

b. The project site is currently designated SM per the City's General Plan and is currently zoned R-10; thus, the site is not zoned for agricultural use. Additionally, the site is not under a Williamson Act contract.[5] Therefore, the proposed project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract, and ***no impact*** would occur.

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[4] California Department of Conservation. *Contra Costa County Important Farmland Map.* 2016.

[5] Contra Costa Conservation and Development. *2016 Agricultural Preserves Map.* Available at: https://www.contracosta.ca.gov/DocumentCenter/View/882/Map-of-Properties-Under-Contract. Accessed June 2021.

c,d. The project area is not considered forest land (as defined in PRC Section 12220[g]), timberland (as defined by PRC 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.

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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	✖	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	✖	☐

Discussion

a,b. The City of Oakley 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 (PM_{10}) 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 and the Association of Bay Area Governments (ABAG).

The most recent federal ozone plan is the 2001 Ozone Attainment Plan, which was adopted on October 24, 2001 and approved by the California Air Resources Board (CARB) on November 1, 2001. The plan was submitted to the USEPA on November 30, 2001 for review and approval. The most recent State ozone plan is the 2017 Clean Air Plan, adopted on April 19, 2017. The 2017 Clean Air Plan was developed as a multi-pollutant plan that provides an integrated control strategy to reduce ozone, PM, toxic air contaminants (TACs), and greenhouse gases (GHGs). Although a plan for achieving the State PM_{10} standard is not required, the BAAQMD has prioritized measures to reduce PM in developing the control strategy for the 2017 Clean Air Plan. The control strategy serves as the backbone of the BAAQMD's current PM control program.

The aforementioned air quality plans contain mobile source controls, stationary source controls, and transportation control measures to be implemented in the region to attain the State and federal AAQS within the SFBAAB. Adopted BAAQMD rules and regulations, as well as the thresholds of significance, have been developed with the intent to ensure

continued attainment of AAQS, or to work towards attainment of AAQS for which the area is currently designated nonattainment, consistent with applicable air quality plans. The BAAQMD's established significance thresholds associated with development projects for emissions of the ozone precursors reactive organic gases (ROG) and oxides of nitrogen (NOx), as well as for PM_{10} and $PM_{2.5}$, expressed in pounds per day (lbs/day) and tons per year (tons/yr), are listed in Table 1. By exceeding the BAAQMD's mass emission thresholds for ROG, NO_X, PM_{10}, or $PM_{2.5}$, a project would be considered to conflict with or obstruct implementation of the BAAQMD's air quality planning efforts.

Table 1
BAAQMD Thresholds of Significance

Pollutant	Construction	Operational	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/yr)
ROG	54	54	10
NO_x	54	54	10
PM_{10} (exhaust)	82	82	15
$PM_{2.5}$ (exhaust)	54	54	10

Source: BAAQMD, CEQA Guidelines, May 2017.

Particulate matter can be split into two categories: fugitive and exhaust. The BAAQMD thresholds of significance for exhaust are presented in Table 1. It should be noted that BAAQMD does not maintain quantitative thresholds for fugitive emissions of PM_{10} or $PM_{2.5}$, rather, BAAQMD requires all projects within the district's jurisdiction to implement Basic Construction Mitigation Measures (BCMMs) related to dust suppression.

The proposed project's construction and operational emissions were quantified using the California Emissions Estimator Model (CalEEMod) software Version 2016.3.2[6] – a statewide model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify air quality emissions, including GHG emissions, from land use projects. The model applies inherent default values for various land uses, including construction data, vehicle mix, trip length, average speed, compliance with the 2016 California Building Standards Code (CBSC), etc. To reflect compliance with the 2019 CBSC, the model is adjusted to incorporate a Title 24 exceedance. Where project-specific information is available, such information should be applied in the model. Accordingly, the proposed project's modeling assumes the following project and/or site-specific information:

- Construction would begin in October 2021 and occur over approximately 1.5 years;
- Operational trip generation rates were updated to 9.44 vehicle trips per unit, consistent with the project-specific Traffic Impact Assessment Memorandum;
- Natural gas fireplaces would be included in all of the units;
- The project would comply with the MWELO and the 2019 CALGreen Code; and

[6] It is noted that a more recent version of the CalEEMod software (Version 2020.4.0) was released to the public in June, 2021. However, CalEEMod Version 2016.3.2 was the most up-to-date version at the time that the air quality and GHG modeling was conducted. Because CalEEMod Version 2020.4.0 assumes the most updated emissions factors for electricity, building codes, and vehicle emissions, the use of the former CalEEMod Version 2016.3.2 presents a conservative approach to analysis.

- The project would comply with all applicable provisions of the 2019 California CBSC, including meeting 100 percent of electricity demand through on-site renewable energy generation.

The proposed project's estimated emissions associated with construction and operations are presented and discussed in further detail below. A discussion of the proposed project's contribution to cumulative air quality conditions is provided below as well. All CalEEMod modeling results are included as Appendix A to this IS/MND.

Construction Emissions

According to the CalEEMod modeling results, buildout of the proposed project would result in maximum unmitigated construction criteria air pollutant emissions as shown in Table 2.

Table 2
Maximum Unmitigated Construction Emissions (lbs/day)

Pollutant	Construction Emissions	Threshold of Significance	Exceeds Threshold?
ROG	5.53	54	**NO**
NO_X	46.45	54	**NO**
PM_{10}*	2.05	82	**NO**
$PM_{2.5}$*	1.88	54	**NO**

Notes:
* Denotes emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Sources: CalEEMod, May 2021 (see Appendix A).

As shown in the table, the proposed project's construction emissions would be below the applicable thresholds of significance for ROG, NO_X, PM_{10}, and $PM_{2.5}$.

All projects within the jurisdiction of the BAAQMD are required to implement all of the BAAQMD's BCMMs, which would be required by the City as conditions of approval:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

The proposed project's required implementation of the BAAQMD's BCMMs listed above for the project's construction activities, would help to further minimize construction-related emissions.

Operational Emissions

According to the CalEEMod results, buildout of the proposed project would result in maximum unmitigated operational criteria air pollutant emissions as shown in Table 3.

Table 3
Maximum Unmitigated Operational Emissions

Pollutant	Proposed Project Emissions		Threshold of Significance		Exceeds Threshold?
	lbs/day	tons/yr	lbs/day	tons/yr	
ROG	2.71	0.45	54	10	**NO**
NO_X	3.36	0.46	54	10	**NO**
PM_{10}*	0.13	0.01	82	15	**NO**
$PM_{2.5}$*	0.12	0.01	54	10	**NO**

Note:
* Denotes emissions from exhaust only. BAAQMD does not have adopted PM thresholds for fugitive emissions.

Source: CalEEMod, May 2021 (see Appendix A).

As shown in the table, operations of the proposed project would be below the applicable thresholds of significance. Thus, operations of the project would not be considered to conflict with air quality plans during project operations.

Cumulative Emissions

Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By nature, air pollution is largely a cumulative impact. A single project is not sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant. In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The thresholds of significance presented in Table 1 represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. If a project exceeds the significance thresholds presented in Table 1, the proposed project's emissions would be cumulatively considerable, resulting in significant adverse cumulative air quality impacts to the region's existing air quality conditions.

Because the proposed project would result in both construction-related and operational emissions below the applicable thresholds of significance, construction and operations of

the project would not be expected to result in a cumulatively considerable contribution to the region's existing air quality conditions.

Conclusion

According to BAAQMD, if a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the air quality plans. Because construction and operations of the proposed project would result in emissions below the applicable thresholds of significance, the project would not be considered to conflict with or obstruct implementation of regional air quality plans. Therefore, the proposed project would not conflict with or obstruct implementation of the applicable air quality plans, violate any air quality standards or contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in any criteria air pollutant, and impacts would be considered ***less than significant***.

c. Some land uses are considered more sensitive to air pollution than others, due to the types of population groups or activities involved. Heightened sensitivity may be caused by health problems, proximity to the emissions source, and/or duration of exposure to air pollutants. Children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the effects of air pollution. Sensitive receptors are typically defined as facilities where sensitive receptor population groups (i.e., children, the elderly, the acutely ill, and the chronically ill) are likely to be located. Accordingly, land uses that are typically considered to be sensitive receptors include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics. Existing sensitive receptors in the project area include the single-family residences immediately west of the project site, and the rural residence located northeast of the project site. The nearest receptor is located approximately 20 feet west of the site.

The major pollutant concentrations of concern are localized carbon monoxide (CO) emissions, TAC, and criteria pollutant emissions, which are addressed in further detail below.

Localized CO Emissions

Localized concentrations of CO are related to the levels of traffic and congestion along streets and at intersections. High levels of localized CO concentrations are only expected where background levels are high, and traffic volumes and congestion levels are high. Emissions of CO are of potential concern, as the pollutant is a toxic gas that results from the incomplete combustion of carbon-containing fuels such as gasoline or wood.

To provide a conservative indication of whether a project would result in localized CO emissions that would exceed the applicable threshold of significance, BAAQMD has established screening criteria for localized CO emissions. According to BAAQMD, a proposed project would result in a less-than-significant impact related to localized CO emission concentrations if all of the following conditions are true for the project:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans;

- The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, underpass, etc.).

While BAAQMD has established the foregoing screening criteria for potential impacts, it should be noted that the SFBAAB has been in attainment of CAAQS and NAAQS for CO for more than 20 years.[7] Due to the continued attainment of CAAQS and NAAQS, and advances in vehicle emissions technologies, the likelihood that any single project would create a CO hotspot is minimal. With regard to the proposed project, according to the Traffic Impact Assessment Memorandum prepared by TJKM, the proposed project is expected to generate 397 daily vehicle trips, 32 of which would be during the AM peak hour, and 42 during the PM peak hour.[8] As demonstrated in a Traffic Impact Analysis prepared for a separate development project in the area, the intersections surrounding the project site experience between one and 1,381 vehicles during the peak hour.[9] As such, the addition of 74 total peak hour trips per day generated by the proposed project would not increase traffic volumes at any nearby intersections to more than 44,000 vehicles per hour. Furthermore, areas where vertical and/or horizontal mixing is limited due to tunnels, underpass, or similar features do not exist in the project area. Therefore, based on the BAAQMD's screen criteria for localized CO emissions, the proposed project would not be expected to result in substantial levels of localized CO at surrounding intersections or generate localized concentrations of CO that would exceed standards or cause health hazards.

TAC Emissions

Another category of environmental concern is TACs. The CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook) provides recommended setback distances for sensitive land uses from major sources of TACs, including, but not limited to, freeways and high traffic roads, distribution centers, and rail yards. The CARB has identified diesel particulate matter (DPM) from diesel-fueled engines as a TAC; thus, high volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic are identified as having the highest associated health risks from DPM. Health risks associated with TACs are a function of both the concentration of emissions and the duration of exposure, where the higher the concentration and/or the longer the period of time that a sensitive receptor is exposed to pollutant concentrations would correlate to a higher health risk.

The proposed project does not include any operations that would be considered a substantial source of TACs. Accordingly, operations of the proposed project would not expose sensitive receptors to excess concentrations of TACs.

Short-term, construction-related activities could result in the generation of TACs, specifically DPM, from on-road haul trucks and off-road equipment exhaust emissions. However, as discussed above, construction is temporary and occurs over a relatively short

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[7] Bay Area Air Quality Management District. *Air Quality Summary Reports*. Available at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed March 2020.
[8] TJKM. *City of Oakley, Oakley Village Subdivision Project Traffic Impact Assessment Memorandum*. June 9, 2020.
[9] TJKM. *Burroughs Residential Development Draft Traffic Impact Analysis*. January 13, 2021.

duration in comparison to the operational lifetime of the proposed project. Health risks are typically associated with exposure to high concentrations of TACs over extended periods of time (e.g., 30 years or greater), whereas the construction period associated with the proposed project would likely be limited to approximately 1.5 years. All construction equipment and operation thereof would be regulated per the In-Use Off-Road Diesel Vehicle Regulation, which is intended to help reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources.

During construction, only portions of the project site would be disturbed at a time. Operation of construction equipment would occur on such portions of the site intermittently throughout the course of a day over the overall construction period. Because construction equipment on-site would not operate for any long periods of time and would be used at varying locations within the site, associated emissions of DPM would not occur at the same location (or be evenly spread throughout the entire project site) for long periods of time. Due to the temporary nature of construction and the relatively short duration of potential exposure to associated emissions, sensitive receptors in the area would not be exposed to pollutants for a permanent or substantially extended period of time. Furthermore, any one nearby sensitive receptor would be exposed to varying concentrations of DPM emissions throughout the construction period. According to BAAQMD, research conducted by CARB indicates that DPM is highly dispersive in the atmosphere. Thus, emissions at the project site would be substantially dispersed at the nearest sensitive receptors, and the concentration of DPM at the nearest sensitive receptors would be lower than the concentration of DPM at the source of emissions.

Considering the short-term nature of construction activities, the regulated and intermittent nature of the operation of construction equipment, the highly dispersive nature of DPM, and the distance of the nearest sensitive receptor from the project site, the likelihood that any one sensitive receptor would be exposed to high concentrations of DPM for any extended period of time, during development the project, would be low. For the aforementioned reasons, project construction would not be expected to expose sensitive receptors to substantial pollutant concentrations.

Criteria Pollutants

The BAAQMD thresholds of significance were established with consideration given to the health-based air quality standards established by the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS), and are designed to aid the district in achieving attainment of the NAAQS and CAAQS,[10] for which the SFBAAB is in nonattainment, but the thresholds of significance do not represent a level above which individual project-level emissions would directly result in public health impacts. Rather, the thresholds of significance represent emissions levels that would ensure that project-specific emissions would not inhibit attainment of regional NAAQS and CAAQS. Considering that the proposed project would not result in short-term construction-related or long-term operational emissions of criteria pollutants that would exceed BAAQMD standards, the proposed project would not inhibit attainment of regional NAAQS and CAAQS.

[10] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines*. May 2017.

Conclusion

Based on the above discussion, the proposed project would not expose any sensitive receptors to substantial concentrations of pollutants, including localized CO, TACs, or criteria pollutants, during construction or operation. Therefore, the proposed project would result in a ***less-than-significant*** impact related to the exposure of sensitive receptors to substantial pollutant concentrations.

d. Emissions of principal concern include emissions leading to odors, emission that have the potential to cause dust, or emissions considered to constitute air pollutants. Air pollutants have been discussed in sections "a" through "c" above. Therefore, the following discussion focuses on emissions of odors and dust.

Per the BAAQMD CEQA Guidelines, odors are generally regarded as an annoyance rather than a health hazard.[11] Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The presence of an odor impact is dependent on a number of variables including: the nature of the odor source; the frequency of odor generation; the intensity of odor; the distance of odor source to sensitive receptors; wind direction; and sensitivity of the receptor.

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, quantitative analysis to determine the presence of a significant odor impact is difficult. Typical odor-generating land uses include, but are not limited to, wastewater treatment plants, landfills, and composting facilities. The proposed project would not introduce any such land uses.

Construction activities often include diesel-fueled equipment and heavy-duty trucks, which could create odors associated with diesel fumes that may be considered objectionable. However, construction activities would be temporary, and hours of operation for construction equipment would be restricted to the hours of 7:30 AM to 7:00 PM on weekdays and 9:00 AM to 7:00 PM on weekends and holidays per Section 4.2.208 of the City of Oakley Municipal Code. Project construction would also be required to comply with all applicable BAAQMD rules and regulations, particularly associated with permitting of air pollutant sources. The aforementioned regulations would help to minimize emissions, including emissions leading to odors. Accordingly, substantial objectionable odors would not be expected to occur during construction activities.

BAAQMD regulates objectionable odors through Regulation 7, Odorous Substances, which does not become applicable until the Air Pollution Control Officer (APCO) receives odor complaints from ten or more complainants within a 90-day period. Once effective, Regulation 7 places general limitation on odorous substances and specific emission limitations on certain odorous compounds, which remain effective until such time that citizen complaints have not been received by the APCO for one year. The limits of Regulation 7 become applicable again when the APCO receives odor complaints from five or more complainants within a 90-day period. Thus, although not anticipated, if odor complaints are made after the proposed project is developed, the BAAQMD would ensure that such odors are addressed and any potential odor effects are minimized or eliminated.

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[11] Bay Area Air Quality Management District. *California Environmental Quality Act Air Quality Guidelines* [pg. 7-1]. May 2017.

With respect to dust, as noted previously, all projects under the jurisdiction of BAAQMD are required to implement the BAAQMD's BCMMs. Such measures would act to reduce construction-related dust by ensuring that haul trucks with loose material are covered, reducing vehicle dirt track-out, and limiting vehicle speeds within project site, among other methods, which would ensure that construction of the proposed project does not result in substantial emissions of dust. Although the project would require soil hauling, all haul trucks would be covered to minimize emissions of fugitive dust during transport. Following project construction, vehicles operating within the project site would be limited to paved areas of the site, and non-paved areas would be landscaped. Thus, project operations would not include sources of dust that could adversely affect a substantial number of people.

For these reason, construction and operation of the proposed project would not result in emissions (such as those leading to odors) adversely affecting a substantial number of people, and a ***less-than-significant*** impact would occur.

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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	✖	☐
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?	☐	☐	✖	☐

Discussion

The following discussion based primarily on a Planning Survey Report (PSR), prepared by Moore Biological Consultants for the proposed project.[12] The PSR is included as Appendix B to this IS/MND.

a. Currently, the northern portion of the project site is developed with one single-family residence and the western portion of the project site is developed with one single-family residence, pool, and three outbuildings. The remaining project site area is undeveloped and consists of ruderal vegetation and limited trees.

Special-status species include those plant and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal and State Endangered Species Acts. Both acts afford protection to listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, sensitive species included in USFWS Recovery Plans, and CDFW special-status invertebrates are all considered special-status species. Although CDFW

[12] Moore Biological Consultants. *Planning Survey Report.* October 2020.

Species of Special Concern generally do not have special legal status, they are given special consideration under CEQA. 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. Species that meet the definition of rare, threatened, or endangered under Section 15380 of the CEQA guidelines are also considered special-status species. In addition, plant species on California Native Plant Society (CNPS) categories 1A, 1B, 2B, 3, and 4 are considered special-status plant species and are protected under CEQA.

The project site is located within the boundaries of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCCHCP/NCCP), which is intended to provide an effective framework to protect natural resources in the County, including special-status species. Raney Planning & Management, Inc., conducted a search of the California Natural Diversity Database (CNDDB) for the project site quadrangle, Brentwood. Based on the results of the CNDDB search, 11 potential special-status wildlife species and eight potential special-status plant species could occur within the vicinity of the project site (see Appendix C). Of the 19 potential species that could occur within the vicinity of the project site, eight species were covered under the ECCCHCP/NCCP and 11 species were not covered.

In February 2015, the East Contra Costa County Habitat Conservancy prepared an ECCC HCP/NCCP Assessment of Plan Effects on CEQA Species.[13] The purpose of the assessment was to provide a programmatic, cumulative CEQA effects analysis for CEQA species not covered by the HCP/NCCP. The 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species concluded that mitigation measures required in the ECCCHCP/NCCP also provide mitigation for non-covered species; therefore, projects consistent with the ECCCHCP/NCCP would have a less-than-significant impact on other potential special-status species.

According to the 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species, for all but two of the potential special-status species addressed (Lime Ridge navarretia [*Navarretia gowenii*] and the Lime Ridge eriastrum [*Eriastrum ertterae]*), impacts would be less than significant under CEQA. Because of uncertainty regarding the distribution of the Lime Ridge navarretia and the Lime Ridge eriastrum, the 2015 ECCC HCP/NCCP Assessment of Plan Effects on CEQA Species concluded that a potentially significant impact could occur related to the two aforementioned species. Raney Planning & Management, Inc. conducted a separate search of the CNDDB and did not identify any known occurrences of Lime Ridge navarretia or Lime Ridge eriastrum within the project site or immediate vicinity. According to the results of the CNDDB search, the nearest documented occurrence of Lime Ridge navarretia or Lime Ridge eriastrum is approximately 17 miles southwest of the project site and, therefore, implementation of the proposed project would not impact the species. Based on the conclusions of the 2015 ECCCHCP/NCCP Assessment of Plan Effects on CEQA Species and the absence of the Lime Ridge navarretia and Lime Ridge eriatrum in the vicinity of the project site, the proposed project would have a less-than-significant impact on any potential special-status wildlife species and potential special-status plant species not covered by the

[13] H.T. Harvey & Associates. *East Contra Costa County Habitat Conservation Plan – Assessment of Plan Effects on CEQA Species.* February 17, 2015.

ECCCHCP/NCCP that could occur within the vicinity of the project site because the proposed project will be in compliance with the ECCCHCP/NCCP.

In compliance with the ECCCHCP/NCCP, a PSR was prepared for the proposed project by Moore Biological Consultants, which included all species covered under the ECCCHCP/NCCP. Per the PSR, approximately 13.45 acres of the site are categorized by the Grassland (Ruderal) land cover type and 1.41 acres of the site are considered Developed (Urban). Based on the land cover types found on-site, Moore Biological Consultants conducted planning-level surveys on the project site for western burrowing owl, Swainson's hawk, and golden eagle. In addition, Moore Biological Consultants conducted a search of the CNDDB for the project site quadrangle, Brentwood. 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 to evaluate whether the site meets the habitat requirements of such species. Based on the results of the CNDDB search, three special-status wildlife species covered by the ECCCHCP/NCCP warranted further consideration and are presented further below.

Special-Status Plants

Special-status plants generally occur in relatively undisturbed areas within vegetation communities such as vernal pools, marshes and swamps, chenopod scrub, seasonal wetlands, riparian scrub, chaparral, alkali playa, dunes, and areas with unusual soil characteristics.

Based on the results of the CNDDB searches, plant species did not warrant further consideration due to the absence of potentially suitable habitat for special-status plants within the project site. Due to the absence of suitable habitat for special-status plants within the site, construction activities associated with the proposed project would not result in adverse effects to special-status plant species.

Special-Status Wildlife

As noted previously, the PSR concluded that three special-status wildlife species required further planning surveys. The surveys were conducted in accordance with Section 6.3.1 of the ECCCHCP/NCCP and focused on identifying and evaluating potentially suitable habitat for the covered species and the presence of suitable habitat features that could suggest past or current inhabitance of the site that may have been disturbed through regular disking.

The on-site ruderal grassland and nearby trees provide potential habitat for western burrowing owl (*Athene cunnicularia*), Swainson's hawk (*Buteo swainsoni*), and golden eagle (*Aquila chrysaetos*). In addition, other avian species protected by the MBTA could use the existing grassland as foraging and potential nesting habitat.

Western Burrowing Owl

The primary habitat requirement for western burrowing owls is small mammal burrows that the species uses for nesting. Typically, the species uses abandoned ground squirrel burrows, but western burrowing owls have been known to dig burrows in softer soils. In urban areas, western burrowing owls may use pipes, culverts, and piles of material as artificial burrows. Western burrowing owls breed semi-colonially from March through August.

The project site contains ruderal grassland within the range of western burrowing owl; however, the CNDDB search did not include any records of the species within 500 feet of the project site. The nearest record of burrowing owl in the CNDDB search area is approximately 0.5-mile northwest of the project site. As part of the PSR, the site was inspected for burrowing owls and ground squirrel burrows with evidence of burrowing owl occupancy (i.e., white wash, pellets, feathers). Burrowing owls or burrows with evidence of burrowing owl occupancy were not observed during the survey. Because suitable habitat for western burrowing owl does not exist on the project site, the proposed project would not result in any significant adverse effects to western burrowing owl.

Swainson's Hawk

Swainson's hawk is a summer resident and migrant in California's Central Valley and scattered portions of the southern California interior. Areas typically used for nesting include the edge of narrow bands of riparian vegetation, isolated patches of oak woodland, lone trees, planted and natural trees associated with roads, farmyards and sometimes adjacent residential areas. Foraging occurs in open habitats, including grasslands, open woodlands, and agricultural areas.

Per the PSR, 11 trees within the project site area are potentially suitable for nesting Swainson's hawks, as well as several potential nest trees near and visible from the project site. As part of the PSR, trees on the site and visible from the site were inspected for raptor stick nests. Raptor stick nests were not observed in the on-site trees or in trees visible from the site. In addition, Swainson's hawks were not observed during the field survey; however, Swainson's hawks could use the ruderal land-cover found within the site to forage, should an occupied nest be located nearby.

The CNDDB search did not include any occurrences of Swainson's hawks within 1,000 feet of the project site. Nonetheless, pre-construction surveys for Swainson's hawk are required by the ECCCHCP/NCCP to confirm the presence or absence of the species. If the species does occur on or near the project site, implementation of the proposed project could result in direct take or nest abandonment, which would be considered an adverse impact.

Golden Eagle

Golden eagles are fairly adaptable in habitat but often reside in areas with few shared ecological characteristics, such as mountains and cliffs. In addition, golden eagles tend to avoid developed areas. The project site contains ruderal grassland that is located within the range of the golden eagle. The CNDDB search did not identify any occurrences of golden eagle within 0.5-mile of the site. 11 trees on the site are potentially suitable for nesting golden eagles, as well as a few potential nest trees near and visible from the site.

As part of the PSR, trees on the site, and visible from the site, were inspected for raptor stick nests. Raptor stick nests were not observed in the on-site trees or in trees visible from the site. Golden eagles were not observed. In addition, the species typically nests more often on cliffs in remote natural areas than in trees near urban areas. Nonetheless, pre-construction surveys for golden eagle are required by the ECCCHCP/NCCP to confirm presence or absence of the species. If golden eagle is present on or near the project site, the proposed project could result in an adverse impact to the species.

Nesting Raptors and Migratory Birds

The project site contains existing trees that could be used by raptors and other migratory birds protected by the MBTA for nesting. Such trees would be removed as part of the proposed project. Construction activities that adversely affect the nesting success of raptors and migratory birds (i.e., lead to the abandonment of active nests) or result in mortality of individual birds constitute a violation of State and federal laws. Thus, in the event that such species occur on or near the project site during the breeding season, project construction activities could result in an adverse effect to species protected under the MBTA.

ECCCHCP/NCCP Requirements

Procedures for preconstruction surveys, best management practices, and construction monitoring, as well as Applicable Avoidance and Minimization Measures for species covered by the ECCCHCP/NCCP are outlined in Section 6.3.3 Surveys for Construction Monitoring and Section 6.4.3 Species-Level Measures of the ECCCHCP/NCCP.[14] The project would be required to comply with all ECCCHCP/NCCP requirements, including conducting preconstruction surveys prior to ground disturbance activities to establish whether nests of Swainson's hawks and golden eagles are occupied. If nests are occupied, the project would be required to comply with the minimization requirements and construction monitoring in the ECCCHCP/NCCP. In compliance with the ECCCHCP/NCCP, the project would also be required to follow Applicable Avoidance and Minimization Measures if nests are located within 1,000 feet of the project site.

All birds covered by the ECCCHCP/NCCP (tricolored blackbird, western burrowing owl, golden eagle, and Swainson's hawks) are also considered migratory birds and subject to the prohibitions of the MBTA. Therefore, actions conducted under the ECCCHCP/NCCP comply with the provisions of the MBTA. Conservation Measure 1.12 Implement Best Management Practices for Rural Road Maintenance and Conservation Measure 1.14 Design Requirements for Covered Roads Outside of the UDA of the ECCCHCP/NCCP incorporate avoidance guidelines for compliance with the MBTA. Because the project would comply with all ECCCHCP/NCCP requirements, the project would also comply with the provisions of the MBTA.

Additionally, the proposed project would be subject to pay all applicable fees according to the Fee Zone Map of the ECCCHCP/NCCP prior to construction and in compliance with Section 9.2.712 of the Oakley Municipal Code. The developer would be required to pay the appropriate fees based on the applicable fee calculator at the time of development.

Conclusion

Based on the above, special-status species are unlikely to occur on-site. However, the project would comply with ECCCHCP/NCCP requirements, and pre-construction surveys would be required for Swainson's hawk and golden eagle. Although the site and surrounding area contains suitable nest trees for nesting raptors and migratory birds protected by the MBTA, the project would be required to comply with the ECCCHCP/NCCP's Applicable Avoidance and Minimization Measures for Swainson's hawk, golden eagle, and nesting and migratory birds. Thus, the proposed project could

[14] East Contra Costa County Habitat Conservation Plan Association. *Final East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan.* October 2006.

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, and a ***less-than-significant*** impact could result.

b,c. According to the PSR, the site consists of ruderal grassland habitats that support upland grasses and weeds. The project site does not contain riparian habitat or other sensitive natural communities, including wetlands, or potentially jurisdictional waters of the State. Therefore, the proposed project would not have a substantial adverse effect on riparian habitat, sensitive natural communities, or federally protected wetlands, and a ***less-than-significant*** impact would occur.

d. The project site is located in an urbanized area and is bordered by existing single-family residences to the west, agricultural land and scattered single-family residences to the north and east, and undeveloped land to the south. It is noted that the agricultural land to the north is subjected to regular disturbance and the undeveloped land to the south is planned for residential development; therefore, the project site and surrounding existing uses do not support any substantial wildlife movement corridors or wildlife nursery sites. 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, and a ***less-than-significant*** impact would occur.

e. According to the PSR, a grouping of non-native trees along the western site boundary would be removed. The trees consist primarily of mulberry, pine, almond, weeping willow, date palm, and other ornamental varieties.

Section 9.1.1112 of the Municipal Code defines protected trees and heritage trees, and establishes requirements governing the removal of such. Section 9.1.1112 defines a protected tree as any tree adjacent to or part of a riparian habitat, foothill woodland, or oak savanna that measures 20 inches or larger and an indigenous tree that measures 40 inches or larger or as a California native oak that measures at least 50 inches in circumference. The on-site trees do not meet the City's definition of protected or heritage tress. Because the trees located on the project site would not be considered a protected tree or heritage tree, the removal of the on-site trees and vegetation would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and a ***less-than-significant*** impact would occur.

f. The project site is located within the boundaries of the ECCCHCP/NCCP. As noted previously, the site is within the range of potential habitat for several wildlife species covered under the ECCCHCP/NCCP. The PSR and field survey for the proposed project were conducted in adherence with requirements of the ECCCHCP/NCCP. The project would be required to comply with the ECCCHCP/NCCP's Applicable Avoidance and Minimization Measures for Swainson's hawk, golden eagle, and nesting and migratory birds. Additionally, the proposed project would be subject to pay all applicable fees according to the Fee Zone Map of the ECCCHCP/NCCP prior to construction. The developer would be required to pay the appropriate fees based on the applicable fee calculator at the time of development. As the proposed project would be require to comply with all ECCCHCP/NCCP requirements, the proposed project would not conflict with the applicable provisions of the ECCCHCP/NCCP and a ***less-than-significant*** impact would occur related to conflicts with an adopted HCP, NCCP, or other approved local, regional, or State HCP.

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?	☐	☐	✖	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	☐	✖	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries.	☐	✖	☐	☐

Discussion

The following is primarily based on a Cultural Resources Study prepared for the proposed project by Tom Origer & Associates (see Appendix D).[15]

a. On June 7, 2021, the Northwest Information Center (NWIC) performed a records search of the California Historic Resources Information System (CHRIS) for cultural resource site records and survey reports within the project site. The CHRIS search concluded that the project site has a high potential for identifying historic-period archaeological resources in the project area. The project site has not been subject to any previous cultural studies. Nine studies have been conducted within a quarter mile of the site; however, based on such, cultural resources are not known to exist in the project site.

The Cultural Resources Study consisted of a literature review to identify any previously recorded cultural resources and a field survey, conducted on August 2, 2021, of the entire project site. The field survey included surface examination and excavation using a hoe. The field survey confirmed that a total of five buildings exist within the project site, including two houses and three outbuildings. One house within the study area dates to at least 1939 and is likely the house referenced in County records as having a construction date of 1912. One outbuilding was constructed between 1939 and 1958. The remaining house and two outbuildings were constructed within the last 20 years. In order to determine whether the buildings are historically significant, the features were evaluated using the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR) eligibility criteria.

The NRHP and CRHR eligibility criteria include the following:

(1)/(A) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.;
(2)/(B) It is associated with the lives of persons important to local, California, or national history;
(3)/(C) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or

[15] Tom Origer & Associates. *Cultural Resources Study for the Oakley Village Project, Oakley, Contra Costa County, California.* August 11, 2021.

(4)/(D) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, the resources must retain integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. The resource must be at least 50 years old, except in exceptional circumstances.

According to the Cultural Resources Study, the older residence and outbuilding meet the age threshold for consideration; however, they are architecturally indistinctive and have been modified from their original construction. Although the property was previously used as an orchard, the orchard does not remain. Given that the orchard and some of the original buildings constructed on the property are no longer present, and the existing buildings have been modified from their original construction, the resources would not be considered to have retained their integrity. As such, the buildings are not considered eligible for listing under the NRHP and CRHR.

Based on the above, development of the site would not cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, and a ***less-than-significant*** impact would occur.

b,c. As noted above, a record search of the CHRIS was conducted and concluded that the project site has a high potential for identifying historic-period archaeological resources in the project area. A field survey was conducted as part of the Cultural Resources Study, which did not indicate the presence of any archaeological resources. On June 14, 2021, the Native American Heritage Commission (NAHC) conducted a records search of the Sacred Lands File (SLF) which indicated that archaeological and other cultural resources are not known to be present in the project vicinity.

According to the Cultural Resources Study, the project site is underlain by Holocene-age dune sands and alluvial clays. Given that the project area dates to the Holocene Epoch (11,700 years ago to the present) and the project site is relatively undeveloped, the Cultural Resources Study determined that a moderate potential exists for buried resources to occur within the project site. While the project site has been subject to ground disturbance associated with past agricultural activities unknown archaeological resources, including human remains, have the potential to be uncovered during future ground-disturbing construction and excavation activities at the subject property. 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. Therefore, impacts could be considered ***potentially significant***.

Mitigation Measure(s)

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

V-1. *If buried archaeological, paleontological, and/or cultural resources are encountered during site grading or other site work, all such work shall be halted immediately within 100 feet of the discovery and the developer shall immediately notify the City of Oakley Planning Division of the discovery. In such case, the developer shall be required, at their own expense, to retain the services of a qualified archaeologist for the purpose of recording,*

protecting, or curating the discovery, as appropriate. The archaeologist shall be required to submit to the City of Oakley Planning Division for review and approval a report of the findings and method of curation or protection of the resources. Further grading or site work within the area of discovery would not be allowed until the preceding work has occurred.

V-2. *Pursuant to State Health and Safety Code §7050.5 (c) State Public Resources Code §5097.98, if human bone or bone of unknown origin is found during construction, all work shall stop within 100 feet of the find and the Contra Costa County Coroner shall be contacted immediately. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission, who shall notify the person believed to be the most likely descendant. The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. Additional work is not to take place within 100 feet of the find until the identified appropriate actions have been implemented.*

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?	☐	☐	✖	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	✖	☐

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 (CALGreen 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 CALGreen Code (CCR Title 24, Part 11), is a portion of the CBSC, which became effective on January 1, 2020.[16] 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 CALGreen Code standards regulate the method of use, properties, performance, types of materials used in construction, alteration repair, improvement and rehabilitation of a structure or improvement to property. The provisions of the CALGreen 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' 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; and
- Mandatory use of low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particle board.
- 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.

[16] California Building Standards Commission. *California Green Building Standards Code*. 2019.

Building Energy Efficiency Standards

The 2019 Building Energy Efficiency Standards is a portion of the CBSC. Energy reductions relative to previous Building Energy Efficiency Standards are achieved through various regulations including requirements for the use of high-efficacy lighting, improved water heating system efficiency, and high-performance attics and walls. For residential buildings, compliance with the 2019 standards would use approximately seven percent less energy due to energy efficiency measures compared to homes built under the 2016 standards.[17] The Building Energy Efficiency Standards require residential buildings that are three stories or less to include solar photovoltaic systems. Rooftop solar electricity generation would ensure future residences that are built under the 2019 standards further reduce energy consumption and result in about 53 percent less energy use than those residences built under the 2016 Building Energy Efficiency 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 site 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's 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. In addition, as a means of reducing emissions, construction vehicles are required to become cleaner through the use of renewable energy resources. The In-Use Off-Road Diesel Vehicle Regulation would therefore help to improve fuel efficiency for equipment used in construction of the proposed project. Technological innovations and more stringent standards are being researched, such as multi-function equipment, hybrid equipment, or other design changes, which could help to further reduce demand on oil and limit emissions associated with construction.

The CARB prepared the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan),[18] 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

[17] California Energy Commission. *Title 24 2019 Building Energy Efficiency Standards FAQ.* November 2018.
[18] California Air Resources Board. *The 2017 Climate Change Scoping Plan Update.* January 20, 2017.

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 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 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 project would be subject to all relevant provisions of the most recent update of the CBSC, including the CALGreen Code and 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. As noted previously, pursuant to the CALGreen Code, residential structures three stories or less, including the proposed project, must include on-site solar energy systems sufficient to meet 100 percent of the residences' energy demand. As a result, all residences constructed consistent with the 2019 CBSC, including future residences, are anticipated to be zero-net energy.

With regard to transportation energy use, the proposed project would comply with all applicable regulations associated with vehicle efficiency and fuel economy. In addition, as discussed in Section XVII, Transportation, of this IS/MND, the project site is not anticipated to substantially increase Vehicle Miles Traveled (VMT).

Strategic Energy Plan

The City of Oakley adopted a Strategic Energy Plan (SEP) in fall of 2015.[19] The City's SEP was prepared to help meet State mandates for required energy use and GHG emission reductions. The proposed project would be consistent with the goals of the SEP, as the proposed project would comply with the latest CBSC standards regarding energy conservation, renewable energy resources, and green building standards.

[19] City of Oakley. *Strategic Energy Plan*. Fall 2015.

Conclusion

Based on the above, construction and operations of future residences 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 or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	✖	☐
ii. Strong seismic ground shaking?	☐	☐	✖	☐
iii. Seismic-related ground failure, including liquefaction?	☐	✖	☐	☐
iv. Landslides?	☐	✖	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	✖☐	☐
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?	☐	✖	☐	☐
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?	☐	✖	☐	☐
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?	☐	☐	☐	✖
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	✖	☐	☐

Discussion

ai-ii. A Geotechnical Investigation was prepared for the proposed project by Geocon Consultants, Inc (see Appendix E).[20] According to the Geotechnical Investigation, active faults do not pass directly beneath the project site and the site is not located within an Alquist-Priolo Earthquake Zone; however, 12 nearby active faults, within 25 miles of the project site, are capable of producing potential ground shaking at the project site and are summarized in Table 4. The project site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards and no active or potentially active faults are known to pass directly beneath the site.

[20] Geocon Consultants, Inc. *Geotechnical Investigation.* April 2020.

Table 4
Regional Active Fault Summary

Fault Name	Distance to Site (miles)	Maximum Earthquake Magnitude, M_w
Great Valley 6	1.75	6.8
Great Valley 5	9.50	6.6
Clayton	12.25	6.9
Greenville	12.25	6.9
Los Medanos-Roe Island	13.25	6.8
Concord	18.00	6.6
Great Valley 7	19.00	6.8
Las Positas	20.00	6.5
Pleasanton	20.50	6.6
Calaveras	21.75	6.9
Contra Costa Shear Zone	23.75	6.5
Green Valley	23.75	6.8

Source: Geocon Consultants, 2020.

According to the Geotechnical Investigation, an earthquake of moderate to high magnitude generated by the above faults could cause seismic ground shaking at the project site. However, proper engineering of the proposed buildings in compliance with the CBSC would ensure that the proposed project would not be subject to substantial risks related to seismic ground shaking. Projects designed in accordance 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 CBSC design standards is enforced through building plan review and approval by the City. Based on the above, the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault or strong seismic ground shaking. Thus, a ***less-than-significant*** impact would occur.

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

Liquefaction and Subsidence/Settlement

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths. Additionally, loose unsaturated sandy soils have the potential to settle during strong seismic shaking. Liquefaction can often result in subsidence or settlement.

According to the Geotechnical Investigation, the project site is located within a State of California Seismic Hazard Zone for liquefaction and possess a "moderate" to "high" susceptibility to liquefaction. In addition, the Geotechnical Investigation included an evaluation of the potential for soil liquefaction and settlement to occur during a seismic event. The study used a *CLiq* (Version 2.3.1.15, Geologismiki) and in-situ soil parameters from Cone Penetrometer Test soundings to perform liquefaction and dynamic compaction analysis. Based on the evaluation, ground surface settlements up to approximately 1.5

inch may result from liquefaction after a seismic event. Due to the potential for liquefaction to occur on-site, foundation subsidence or settlement may occur and, without the implementation of mitigation, an impact could occur.

Landslides

Seismically-induced landslides are triggered by earthquake ground shaking. The risk of landslide hazard is greatest in areas with steep, unstable slopes. The project site is relatively flat and is not located near any slopes. Therefore, the proposed project would not be subject to landslide risks and would not expose people or structures to potential risk of loss, injury, or death involving landslides.

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. Given that the project site does not contain any free faces, lateral spreading would not present a likely hazard at the site.

Expansive Soils

Expansive soils can undergo significant volume changes with changes in moisture content. Specifically, such soils shrink and harden when dried and expand and soften when wetted. If structures are underlain by expansive soils, foundation systems must be capable of withstanding the potential damaging movements of the soil. Per the Geotechnical Investigation prepared for the proposed project, expansive soils were encountered at the site.[21] Because the project site is located on expansive soil, as defined in Table 18-1B of the Uniform Building Code (1994), substantial direct or indirect risks to life or property, may occur, and without the implementation of mitigation, an impact could occur.

Conclusion

Based on the above, the proposed project would not be subject to substantial risks related to landslides or lateral spreading. However, the potential exists for liquefaction, settlement, and soil expansion to occur at the project site. Without implementation of mitigation, the proposed project could cause substantial adverse effects related to such. 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 approval of any grading permits, the project Civil Engineer shall show on the project plans that the project design adheres to all engineering recommendations provided in the site-specific Geotechnical Investigation prepared for the proposed project by Geocon Consultants, Inc. The project plans shall include, but not be limited to, remedial grading for subgrade soils, building foundations deriving support from compacted fill materials and/or competent alluvial soils, well-graded import materials with a very low to low expansion potential, and underground utility trenches backfilled with*

[21] Geocon Consultants, Inc. *Geotechnical Investigation* [pg. 7]. April 2020.

properly compacted material. The site demolition activities shall also specify that undocumented fill, underground buried structures, and/or utility lines encountered during demolition and construction shall be properly removed and the resulting excavations backfilled with imported non-expansive engineered fill. Proof of compliance with all recommendations specified in the Geotechnical Investigation shall be subject to review and approval by the City Engineer.

b. The proposed project would include grading of the project site prior to construction of future residences. During construction activities, topsoil would be exposed. Following development of the site, all exposed soils would be covered with impervious surfaces or landscaping, and, thus, long-term erosion would not occur.

Per the City of Oakley Municipal Code Sections 6.9.308 and 6.11.212, preparation of an Erosion Control Plan and Stormwater Pollution Prevention Plan (SWPPP) prior to construction activities and implementation of Best Management Practices (BMPs) during construction is required. The erosion control measures required by both the SWPPP and the Erosion Control Plan would ensure that the proposed project would not result in substantial erosion or the loss of topsoil. Therefore, the proposed project would not result in substantial soil erosion or the loss of topsoil, and thus, a ***less-than-significant*** impact could occur.

e. The proposed project would connect to existing City sewer services. Thus, the construction or operation of septic tanks or other alternative wastewater disposal systems would not be included as part of the 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. The City's General Plan does not note the existence of any unique geologic features within the City. Consequently, implementation of the proposed project would not be anticipated to have the potential to result in direct or indirect destruction of unique geologic features.

The City's General Plan indicates that few paleontological resources are known to occur within the City Planning Area.[22] In addition, the majority of the surrounding area is developed and paleontological resources have not been encountered in the vicinity. Thus, existing paleontological resources are not expected to occur on the site. Nonetheless, the potential exists for previously unknown paleontological resources could exist within the project site. Ground-disturbing activity such as grading, trenching, or excavating associated with implementation of the proposed project would have the potential to disturb or destroy such resources if present. 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 impact to a *less-than-significant* level.

VII-3. Implement Mitigation Measures V-1 and V-2.

[22] City of Oakley. *City of Oakley 2020 General Plan* [pg. 6-23]. December 16, 2002.

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?	☐	☐	✖	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	☐	☐	✖	☐

Discussion

a,b. Emissions of 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.

Implementation of the proposed project would cumulatively contribute to increases of GHG emissions. Estimated GHG emissions attributable to future development would be primarily associated with increases of carbon dioxide (CO_2) and, to a lesser extent, other GHG pollutants, such as methane (CH_4) and nitrous oxide (N_2O) associated with area sources, mobile sources or vehicles, utilities (electricity and natural gas), water usage, wastewater generation, and the generation of solid waste. The primary source of GHG emissions for the project would be mobile source emissions. The common unit of measurement for GHG is expressed in terms of annual metric tons of CO_2 equivalents ($MTCO_2e$/yr).

The BAAQMD developed a threshold of significance for project-level GHG emissions in 2009. The BAAQMD's approach to developing the threshold was to identify a threshold level of GHG emissions for which a project would not be expected to substantially conflict with existing California legislation. At the time that the thresholds were developed, the foremost legislation regarding GHG emissions was AB 32, which established an emissions reduction goal of reducing statewide emissions to 1990 levels by 2020.[23] The GHG emissions threshold of significance recommended by BAAQMD to determine compliance with AB 32 is 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$ per service population per year ($MTCO_2e$/SP/yr). If a project generates GHG emissions above the BAAQMD's adopted threshold level, the project is considered to generate significant GHG emissions and conflict with AB 32. It is noted that the goal year for AB 32 (2020) has elapsed. Nonetheless, the aforementioned thresholds are still applicable in determining the significance of project-related GHG emissions under CEQA, and represent the BAAQMD's only adopted GHG thresholds at the time of analysis.

[23] Bay Area Air Quality Management District. *California Environmental Quality Act Guidelines Update: Proposed Thresholds of Significance*. May 2017.

The foregoing threshold is intended for use in assessing operational GHG emissions only. Construction of a proposed project would result in GHG emissions over a short-period of time in comparison to the operational lifetime of the project. To capture the construction-related GHG emissions due to buildout of the proposed project, such emissions are amortized over the anticipated project lifetime and added to the operational GHG emissions. Given that construction-related GHG emissions would not occur concurrently with operational emissions and would cease upon completion of construction activities, combining the two emissions sources represents a conservative estimate of total project GHG emissions.

Since the adoption of BAAQMD's GHG thresholds of significance, the State legislature has passed AB 197 and Senate Bill (SB) 32, which builds off of AB 32 and establishes a statewide GHG reduction target of 40 percent below 1990 levels by 2030. Considering the legislative progress that has occurred regarding statewide reduction goals since the adoption of BAAQMD's standards, the emissions thresholds presented above would determine whether a proposed project would be in compliance with the 2020 emissions reductions goals of AB 32, but would not demonstrate whether a project would be in compliance with SB 32. In accordance with the changing legislative environment, the BAAQMD has begun the process of updating the District's CEQA Guidelines; however, updated thresholds of significance have not yet been adopted. In the absence of BAAQMD-adopted thresholds to assess a project's compliance with SB 32, the City has chosen to consider additional GHG emissions thresholds.

The BAAQMD has determined that projects with operational emissions equal to or less than 1,100 $MTCO_2e$/yr or 4.6 $MTCO_2e$/SP/yr would comply with the emission reductions target of 1990 levels by 2020 set forth by AB 32. SB 32 requires that by 2030 statewide emissions be reduced by 40 percent beyond the 2020 reduction target set by AB 32; therefore, in the absence of specific guidance from BAAQMD or the CARB, the City assumes that in order to meet the reduction targets of SB 32, a proposed project would be required to reduce emissions by an additional 40 percent beyond the emissions reductions currently required by BAAQMD for compliance with AB 32. Assuming a 40 percent reduction from current BAAQMD targets, adjusted for the projected population, a proposed project would be in compliance with SB 32 if the project's emissions did not exceed 660 $MTCO_2e$/yr or 2.6 $MTCO_2e$/SP/yr.

In addition to the quantitative thresholds described above, the City has also determined that a qualitative analysis assessing the project's compliance with the CARB's *California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan) is warranted. The CARB's 2017 Scoping Plan establishes a strategy to meet California's 2030 GHG targets; accordingly, should the project be shown to comply with the 2017 Scoping Plan, the proposed project would be considered consistent with Statewide reduction targets for the year 2030. Based on recommendations from BAAQMD, a project's compliance with the local actions contained in Appendix B of the 2017 Scoping Plan may be used to assess a project's compliance with the 2017 Scoping Plan and, thus, consistency with SB 32.[24]

By using the BAAQMD thresholds of significance for GHG, the updated SB 32 thresholds discussed above, and evaluating the project's consistency with applicable plans, the City

[24] Flores, Areana, Bay Area Air Quality Management District. Personal communication [phone], Jacob Byrne, Senior Associate/Air Quality Technician, Raney Planning & Management. September 17, 2019.

would comply with Section 15064.4(b)(3) of the CEQA Guidelines, which suggests that lead agencies consider the extent that the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction of GHG emissions.

GHG Emissions Thresholds

Construction GHG emissions are a one-time release and are, therefore, not typically expected to generate a significant contribution to global climate change. Neither the City nor BAAQMD has an adopted threshold of significance for construction-related GHG emissions and does not require quantification. Nonetheless, the proposed project's construction GHG emissions, as well as operational emissions, have been estimated using CalEEMod under the same assumptions discussed in Section III, Air Quality, of this IS/MND (see Appendix A).

The emissions estimates prepared for the proposed project determined that unmitigated construction of the project would result in total GHG emissions of 552.91 $MTCO_2e$ over the entire construction period. In the analyses below, the construction GHG emissions are amortized over the anticipated 30-year lifetime of the proposed project.[25]

Compliance with AB 32 and SB 32

As shown in Table 5, the project's total unmitigated annual GHG emissions in the first year of project operation, 2023, including amortized construction-related emissions, were estimated to be approximately 459.83 $MTCO_2e$/yr, which falls below the BAAQMD's 1,100 $MTCO_2e$/yr threshold of significance for consistency with AB 32 and 660 $MTCO_2e$/yr threshold of significance for consistency with SB 32. Therefore, the proposed project would not conflict with the emissions reduction targets of AB 32 and SB 32.

Table 5
Unmitigated Annual Project GHG Emissions (2023)

Source	Annual GHG Emissions ($MTCO_2e$/yr)
Operational GHG Emissions:	441.40
Area	*5.80*
Energy	*61.44*
Mobile	*343.87*
Waste	*25.35*
Water	*4.95*
Amortized Construction GHG Emissions:	18.43
Total Annual GHG Emissions	**459.83**
BAAQMD AB 32 Threshold	**1,100.00**
Adjusted SB 32 Threshold	**660.00**
Exceeds Thresholds?	**NO**
Source: CalEEMod, May 2021 (see Appendix A).	

[25] South Coast Air Quality Management District. 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf. Accessed October 2020.

Consistency with 2017 Scoping Plan

Appendix B to the CARB's 2017 Scoping Plan provides examples of potentially feasible mitigation measures that could be considered to assess a project's compliance with the State's 2030 GHG emissions reductions goals. Thus, general compliance with the Local Actions within the 2017 Scoping Plan could be considered to demonstrate the project's compliance with SB 32. The project's consistency with the applicable Local Actions within the 2017 Scoping Plan is assessed in Table 6 below.

Table 6
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Construction	
Enforce idling time restrictions for construction vehicles.	CARB's In-Use Off-Road Vehicle Regulations include restrictions that limit idling time to five minutes under most situations. Construction fleets and all equipment operated as part of on-site construction activities would be subject to CARB's idling restrictions. As such, the proposed project would be required to comply with this measure.
Require construction vehicles to operate with the highest tier engines commercially available.	The project applicant has not committed to using construction equipment that complies with the highest tier engines commercially available. As such, compliance with this measure is unknown at this time. However, construction-related emissions would not exceed any applicable BAAQMD thresholds of significance, and neither the City nor BAAQMD require further mitigation related to construction equipment.
Divert and recycle construction and demolition waste, and use locally-sourced building materials with a high recycled material content to the greatest extent feasible.	The CALGreen Code requires the diversion of construction and demolition waste, and the proposed project would be required to comply with the most up-to-date CALGreen Code. The project applicant has not committed to using locally-sourced building materials or materials with a high recycled content, and, thus, compliance with this portion of the suggested measure is uncertain at this time.
Minimize tree removal, and mitigate indirect GHG emissions increases that occur due to vegetation removal, loss of sequestration, and soil disturbance.	Any tree removal associated with the proposed project would be subject to the regulations set forth in Section 9.1.1112 of the City's Municipal Code. As noted therein, any protected trees that are to be removed shall be replaced. Because the trees located on the project site are not considered a protected tree or heritage tree, the project would not be required to replace any removed trees.
Utilize existing grid power for electric energy rather than operating temporary gasoline/diesel powered generators.	The contractor would use existing grid electricity to the extent feasible. However, the possibility exists that temporary generators will be used for electricity in instances where grid electricity is not accessible. Overall, the project would be considered to generally comply with the suggested measure.
Increase use of electric and renewable fuel powered construction equipment and require renewable diesel fuel where commercially available.	The project applicant has not committed to the use of alternatively fueled construction equipment. Furthermore, the commercial availability of renewable diesel in the project area is currently unknown. Consequently, compliance with this suggested measure is uncertain at this time.

Table 6
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Require diesel equipment fleets to be lower emitting than any current emission standard.	The project applicant has not committed to using diesel equipment fleets that are lower emitting than any current emission standards. As such, compliance with this measure is unknown at this time. However, construction-related emissions would not exceed any applicable BAAQMD thresholds of significance, and neither the City nor BAAQMD require further mitigation related to construction equipment.
Operations	
Comply with lead agency's standards for mitigating transportation impacts under SB 743.	As noted in Section XVII, Transportation, of this IS/MND, implementation of the project would result in a less-than-significant impact to VMT. As such, the proposed project would comply with this measure.
Require on-site EV charging capabilities for parking spaces serving the project to meet jurisdiction-wide EV proliferation goals.	Per the 2019 CALGreen Code, residential projects are required to install a listed raceway to accommodate a dedicated 208/240-volt branch circuit for each unit, which would be suitable for EV charging. Compliance with the 2019 CALGreen Code would ensure that the proposed project provides sufficient EV charging infrastructure to comply with this suggested measure.
Dedicate on-site parking for shared vehicles.	This measure relates to multi-family residences and commercial land uses where separated parking areas are typically provided that would allow for the designation of preferential parking spaces. As such, the measure is not applicable to the proposed project.
Provide adequate, safe, convenient, and secure on-site bicycle parking and storage in multi-family residential projects and in non-residential projects.	The proposed project is a single-family residential development. Therefore, this measure does not apply.
Provide on- and off-site safety improvements for bike, pedestrian, and transit connections, and/or implement relevant improvements identified in an applicable bicycle and/or pedestrian master plan.	The proposed project would provide on-site pedestrian infrastructure which connects to the off-site pedestrian network. as well as frontage improvements along Sellers Avenue. Considering the project would provide pedestrian improvements, the proposed project would be generally consistent with the suggested measure.
Require on-site renewable energy generation.	The 2019 CBSC requires that residential structures that are three-stories or less in height be constructed with renewable energy systems sufficient to provide 100 percent of the electricity required for the residence. Future single-family residences would be subject to such requirements. Due to the CBSC's requirements regarding renewable energy systems for residential land uses, the proposed project would include on-site renewable energy generation and would comply with this measure.
Prohibit wood-burning fireplaces in new development, and require replacement of wood-burning fireplaces for renovations over a certain size development.	The proposed project would not include wood-burning fireplaces. Thus, the proposed project would comply with the suggested measure.
Require cool roofs and "cool parking" that promotes cool surface	The 2019 CBSC contains requirements for the thermal emittance, three-year aged reflectance, and Solar

Table 6
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
treatment for new parking facilities as well as existing surface lots undergoing resurfacing.	Reflectance Index (SRI) of roofing materials used in new construction and re-roofing projects. Such standards, with which the project would be required to comply, would help to reduce heating and cooling costs associated with the proposed project. In addition, the proposed project would include 42 garages, which reduces the amount of exposed pavement surfaces. Therefore, surface lot heat effects would be reduced compared to provision of all necessary parking spaces in uncovered surface lots. Therefore, the proposed project would generally comply with the suggested measure.
Require solar-ready roofs.	The 2019 CBSC requires that new residential structures under three stories generate 100 percent of electricity needs from on-site solar. Therefore, the proposed project would comply with this suggested measure.
Require organic collection in new developments.	Per Chapter 20, Solid Waste Collection and Regulations, of the Municipal Code, the proposed project would be required to subscribe to a solid waste collection service. In addition, the City's garbage provider offers green waste collection services. As such, future residents would have access to the organic collection service. Thus, the proposed project would include organic collection and the project would comply with the suggested measure.
Require low-water landscaping in new developments (see CALGreen Divisions 4.3 and 5.3 and the Model Water Efficient Landscape Ordinance [MWELO], which is referenced in CALGreen). Require water efficient landscape maintenance to conserve water and reduce landscape waste.	Landscaping within the project site would be required to comply with the CALGreen Code and all water efficiency measures therein, including the MWELO regulations adopted by the City of Oakley. Accordingly, the proposed project is anticipated to comply with this measure.
Achieve Zero Net Energy performance building standards prior to dates required by the Energy Code.	Through the CBSC requirements, future single-family residences are anticipated to achieve Zero Net Energy. Therefore, the proposed project is anticipated to comply with this measure.
Encourage new construction, including municipal building construction, to achieve third-party green building certifications, such as the GreenPoint Rated program, LEED rating system, or Living Building Challenge.	The project applicant has not committed to achieving third-party green building certification. Consequently, compliance with this suggested measure is uncertain at this time.
Require the design of bike lanes to connect to the regional bicycle network.	Marked bike lanes exist in the project vicinity. In addition, development of the proposed project would not conflict with existing or planned pedestrian, bicycle, or transit facilities as per the Contra Costa Countywide Bicycle and Pedestrian Plan (2018) and the City of Oakley 2020 General Plan. Considering the above, the proposed project would comply with the general intent of the suggested measure.

Table 6
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
Expand urban forestry and green infrastructure in new land development.	Landscaping improvements would be included throughout the project site. A variety of trees, shrubs, vines, and ground cover would be provided along all internal roadways and within each residential lot. As such, the development would expand upon urban forestry and green infrastructure, and would comply with this measure.
Require preferential parking spaces for park and ride to incentivize carpooling, vanpooling, commuter bus, electric vehicles, and rail service use.	The measure relates to multi-family residential development and commercial land uses, and the proposed project includes only single-family development. As a result, the measure does not apply to the proposed project.
Develop a rideshare program targeting commuters to major employment centers.	The project site would be developed with residences in the future and therefore, would not be considered a major employment center. Consequently, the measure does not apply to the proposed project.
Require gas outlets in residential backyards for use with outdoor cooking appliances such as gas barbeques if natural gas service is available.	The project applicant has not committed to providing natural gas service for outdoor cooking appliances. Accordingly, compliance with this measure is uncertain at this time.
Require the installation of electrical outlets on the exterior walls of both the front and back of residences to promote the use of electric landscape maintenance equipment.[2]	Pursuant to California Electrical Code, Article 210.52(E), the project would be required to include at least one electrical outlet to be located in the perimeter of a balcony, deck, or porch. The project applicant has not committed to providing additional exterior electrical outlets to promote the use of electric landscape maintenance equipment. Consequently, the project would partially comply with the suggested measure.
Require the design of the electric outlets and/or wiring in new residential unit garages to promote electric vehicle usage.	The CBSC requires that new residential unit garages be designed with wiring sufficient to provide future installation of electric vehicle charging infrastructure. Therefore, the proposed project would be required to comply with this measure.
Provide electric outlets to promote the use of electric landscape maintenance equipment to the extent feasible on parks and public/quasi-public lands.	The project applicant has not committed to providing electrical outlets in the landscaping areas proposed for the project site. Compliance with this measure is uncertain at this time.
Require each residential unit to be “solar ready,” including installing the appropriate hardware and proper structural engineering.	The CBSC requires all residences three-stories or less in height to include renewable energy systems. Future residences would be three-stories or less in height, and would thereby be required to generate 100 percent of project electricity needs from on-site solar. Thus, the proposed project would comply with this measure.
Require the installation of energy conserving appliances such as on-demand tank-less water heaters and whole-house fans.	The proposed project would be required to comply with the CBSC, which includes standards related to installation of energy-efficient appliances and building features such as water heaters and ventilation systems. Thus, the project would generally comply with the suggested measure.
Require each residential and commercial building equip buildings [sic] with energy efficient	The proposed project would be required to comply with the CBSC, which includes standards related to energy-

Table 6
Project Consistency with the 2017 Scoping Plan

Suggested Measure	Consistency Discussion
AC units and heating systems with programmable thermostats/timers.	efficient heating and cooling systems. Thus, the project would generally comply with the suggested measure.
Require large-scale residential developments and commercial buildings to report energy use, and set specific targets for per-capita energy use.	The project applicant has not committed to reporting energy use or setting specific energy use targets. Accordingly, compliance with this suggested measure is uncertain at this time.
Require each residential and commercial building to utilize low flow water fixtures such as low flow toilets and faucets (see CALGreen Divisions 4.3 and 5.3 as well as Appendices A4.3 and A5.3).	The proposed project would be required to comply with the residential water efficiency regulations within CALGreen. Thus, the proposed project would comply with this suggested measure.
Require the use of energy-efficient lighting for all street, parking, and area lighting.	All proposed exterior lighting would be LED type, consistent with the 2019 Building Energy Efficiency Standards. Thus, the proposed project would comply with the suggested measure.
Require the landscaping design for parking lots to utilize tree cover and compost/mulch.	The proposed single-family residential subdivision would not include parking lots. As a result, the suggested measure does not apply to the proposed project.
Incorporate water retention in the design of parking lots and landscaping, including using compost/mulch.	Parking areas are not proposed as part of the project. In addition, the proposed project would include the use of mulch on all exposed soil surfaces in landscaped areas and would include several bioretention basins to treat runoff from each drainage management area. Accordingly, water retention features are incorporated into the overall project design, and the proposed project would comply with the suggested measure.
Require the development project to propose an off-site mitigation project which should generate carbon credits equivalent to the anticipated GHG emission reductions. This would be implemented via an approved protocol for carbon credits from California Air Pollution Control Officers Association (CAPCOA), the California Air Resources Board, or other similar entities determined acceptable by the local air district. The project may alternatively purchase carbon credits from the CAPCOA GHG Reduction Exchange Program, American Carbon Registry (ACR), Climate Action Reserve (CAR) or other similar carbon credit registry determined to be acceptable by the local air district.	The suggested mitigation measures included in the 2017 Scoping Plan are not considered to be requirements for local projects under CEQA, but instead represent options for projects to demonstrate compliance with the 2017 Scoping Plan. The inclusion of GHG off-set mitigation projects or the purchase of carbon credits is typically dependent on a project's exceedance of the previously identified quantitative GHG thresholds. However, neither BAAQMD nor the City have identified quantitative thresholds that could be used to determine that the project's anticipated emissions would be such that an off-site mitigation project or purchase of GHG reduction credits would be required in order to comply with SB 32. Considering that the project has been shown to be generally consistent with the foregoing measures, the City, in its discretion as lead agency, has chosen not to require the project to implement an off-site mitigation project or purchase GHG reduction credits.

Source: California Air Resources Board. AB 32 Scoping Plan [Appendix B]. Accessible at: https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm. Accessed March 2021.

As shown in Table 6, the proposed project would comply with the majority of the suggested measures and, thus, the proposed project would be considered generally consistent with the 2017 Scoping Plan. Because the 2017 Scoping Plan is the CARB's strategy for meeting the State's 2030 emissions goals established by SB 32, the project would be considered to comply with the goals of SB 32.

Consistency with Plan Bay Area 2040

The San Francisco Bay Area's Plan Bay Area 2040 has been prepared jointly by the San Francisco Bay Area Metropolitan Transportation Commission (MTC) and the ABAG. Plan Bay Area 2040 is a regional plan intended to provide a strategy for the reduction of GHG emissions and air pollutants within the San Francisco Bay Area. The Plan Bay Area 2040 is a long-range plan that serves as a Regional Transportation Plan and Sustainable Communities Strategy (SCS). As an SCS, the Plan Bay Area 2040 is required to comply with regional targets for reducing GHG emissions through the integration of transportation and land use planning. ABAG has not provided a specified means of identifying an individual development project's compliance with the Plan Bay Area 2040. For the purposes of this analysis, the proposed project is compared to the overall goal of the Plan Bay Area 2040, which is to reduce regional GHG emissions through the reduction of transportation-related emissions.

The proposed project would include pedestrian infrastructure on-site as well as pedestrian and bicycle facility improvements along the Sellers Avenue frontage. Furthermore, as discussed in further detail in Section XVII, Transportation, the proposed project is not anticipated to contribute to a Citywide increase in VMT.

Because the project would not substantially contribute to an increase in regional VMT, the proposed project would be considered consistent with the Plan Bay Area 2040, and would not conflict with the regional GHG reduction targets included therein.

Conclusion

Based on the above, project emissions would be below the BAAQMD's threshold of significance and would not be considered to conflict with the emissions reductions required by AB 32 or SB 32. In addition, the project would be generally consistent with the 2017 Scoping Plan and the Plan Bay Area 2040. Therefore, the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, nor conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses. Thus, a ***less-than-significant*** impact would occur.

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?	☐	☐	✖	☐
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?	☐	✖	☐	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	☐	✖
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	✖	☐
g. Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires?	☐	☐	✖	☐

Discussion

a. A significant hazard to the public or the environment could result from the routine transport, use, or disposal of hazardous materials. Future operations on the project site could involve the use of 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 that could reasonably be used on the site, routine use of such products would not represent a substantial risk to public health or the environment. Therefore, the proposed 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 proposed residential uses would not involve any operations that could 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.

However, hazardous materials would be stored, used, and transported in varying amounts during construction of the proposed project. Construction activities associated with the proposed project would involve the use of various products such as concrete, paints, and adhesives. In addition, heavy-duty construction equipment operating on the project site would contain hydraulic fluid, diesel fuel, and other petroleum products. Small quantities of such potentially toxic substances 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 County ordinances regulating the handling, storage, and transportation of hazardous and toxic materials. Compliance with such regulations would ensure that the proposed project would not 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 during construction activities.

Lead-Based Paint and Asbestos-Containing Building Material

Lead-based paint (LBP) is defined as any paint, varnish, stain, or other applied coating that has one milligram per cubic centimeter or greater (5,000 micrograms per gram or 5,000 parts per million) of lead by federal guidelines. Lead is a highly toxic material that may cause a range of serious illnesses, and in some cases death. In buildings constructed after 1978, LBP is unlikely to be present. Structures built prior to 1978 and especially prior to the 1960s should be expected to contain LBP.

Asbestos is the name for a group of naturally occurring silicate minerals that are considered to be “fibrous” and, through processing, can be separated into smaller and smaller fibers. The fibers are strong, durable, chemical resistant, and resistant to heat and fire. They are also long, thin and flexible, so they can even be woven into cloth. Because of these qualities, asbestos was considered an ideal product and has been used in thousands of consumer, industrial, maritime, automotive, scientific and building products. However, later discoveries found that, when inhaled, the material caused serious illness.

For buildings constructed prior to 1980, the Code of Federal Regulations (29 CFR 1926.1101) states that all thermal system insulation (boiler insulation, pipe lagging, and related materials) and surface materials must be designated as “presumed asbestos-containing material” unless proven otherwise through sampling in accordance with the standards of the Asbestos Hazard Emergency Response Act. Asbestos-containing materials could include, but are not limited to, plaster, ceiling tiles, thermal systems insulation, floor tiles, vinyl sheet flooring, adhesives, and roofing materials.

The proposed project would include the demolition of the two on-site single-family residences and three outbuildings. As two of the existing structures were constructed prior to 1980, according to the Cultural Resources Report, the structures are presumed to contain LBP and asbestos. Therefore, demolition of the on-site structures could present a potential hazard risk.[26]

Based on the above, demolition activities associated with implementation of the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of

[26] Tom Origer & Associates. *Cultural Resources Report for the Oakley Village Project, Oakley, Contra Costa County, California.* August 11, 2021.

hazardous materials into the environment. As such, 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.

IX-1. *Prior to the issuance of a demolition permit for any on-site structures, the project applicant shall consult with certified Asbestos and/or Lead Risk Assessors to complete and submit for review to the City of Oakley Planning Division an asbestos and lead survey.*

If asbestos-containing materials or lead-containing materials are not discovered during the survey, further mitigation related to asbestos-containing materials or lead-containing materials shall not be required.

If asbestos-containing materials and/or lead-containing materials are discovered by the survey, the project applicant shall prepare a work plan to demonstrate how the on-site asbestos-containing materials and/or lead-containing materials shall be removed in accordance with current California Occupational Health and Safety (Cal-OSHA) Administration regulations and disposed of in accordance with all CalEPA regulations, prior to the demolition and/or removal of the on-site structures. The plan shall include the requirement that work shall be conducted by a Cal-OSHA registered asbestos and lead abatement contractor in accordance with Title 8 CCR 1529 and Title 8 CCR 1532.1 regarding asbestos and lead training, engineering controls, and certifications. The applicant shall submit the work plan to the City for review and approval. The City has the right to defer the work plan to the Contra Costa County Department of Environmental Health for additional review. Materials containing more than one (1) percent asbestos that is friable are also subject to BAAQMD regulations. Removal of materials containing more than one (1) percent friable asbestos shall be completed in accordance with BAAQMD Section 11-2-303.

c. The nearest school relative to the project site is Iron House Elementary School and Delta Vista Middle, which are located approximately 0.88-mile northwest of the site. Therefore, the proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, and a ***less-than-significant*** impact would occur.

d. Per the State Water Resources Control Board's (SWRCB) GeoTracker data management system, hazardous materials sites, including leaking underground storage tank (LUST) sites and Department of Toxic Substances Control (DTSC) cleanup sites, have not been identified on or within a 1,000-foot radius of the project area.[27] In addition, the project site is not located on or near any hazardous waste sites identified on the Envirostor's

[27] State Water Resources Control Board. *GeoTracker.* Available at: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=oakley+california. Accessed June 2021.

Hazardous Waste and Substance Site List, which is compiled pursuant to Government Code Section 65962.5.[28]

Based on the above, the proposed project would not be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such, a ***less-than-significant*** impact would occur.

e. The nearest airport to the project site is the Byron Airport, located approximately 12.7 miles southeast of the project site. Therefore, the project site is not located within two miles of any public airports and does not fall within an airport land use plan area. Accordingly, ***no impact*** would occur related to a safety hazard or excessive noise for people residing or working in the project area.

f. During operation, the proposed project would provide adequate access for emergency vehicles and would not interfere with potential evacuation or response routes used by emergency response teams. During construction of the proposed project, all construction equipment would be staged on-site so as to prevent obstruction of local and regional travel routes in the City that could be used as evacuation routes during emergency events. The proposed improvements to Sellers Avenue would improve emergency vehicle access to the project site by providing more road space, and the proposed project would not substantially alter the existing circulation system in the surrounding area. In addition, nine fire hydrants would be constructed throughout the project site to guarantee access to water supply in the event of a fire. As a result, the proposed project would have a ***less-than-significant*** impact with respect to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

g. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program, the project site is not located within a Very High or High Fire Hazard Severity Zone (FHSZ).[29] In addition, the site is located in an urbanized area of the City and is predominantly surrounded by existing development. Therefore, the proposed project would not expose people or structures to the risk of loss, injury or death involving wildland fires, and a ***less-than-significant*** impact would occur.

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[28] Department of Toxic Substances Control. *Hazardous Waste and Substances Site List*. Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29. Accessed June 2021.

[29] California Department of Forestry and Fire Protection. *Contra Costa County, Very High Fire Hazard Severity Zones in LRA*. November 7, 2007.

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?	☐	☐	✖	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	✖	☐
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;	☐	☐	✖	☐
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	✖	☐
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	☐	☐	✖	☐
iv. Impede or redirect flood flows?	☐	☐	☐	✖
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	✖
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	✖	☐

Discussion

a, ci-ciii. The following discussion provides a summary of the proposed project's potential to violate water quality standards/waste discharge requirements, alter the drainage pattern of the site resulting in erosion or siltation, increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or otherwise degrade water quality 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 with impervious surfaces and structures, the potential exists for wind and water to discharge sediment and/or urban pollutants into stormwater runoff, which could adversely affect water quality.

The SWRCB regulates stormwater discharges associated with construction activities where clearing, grading, or excavation results in 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 SWPPP to be prepared for the site. A SWPPP describes 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 and, with implementation of the required SWPPP and BMPs included therein, the proposed project would not result in a violation of water quality standards and/or degradation of water quality.

Furthermore, the proposed project would be required to submit an erosion and sediment control plan with submittal of the grading permit application to ensure water quality is not degraded. The plan would include erosion and sediment control measures that would be implemented during grading and would be approved by the City Engineer. Without submittal and approval of a SWPPP and erosion and sediment control plan, the proposed project could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality during construction.

Operations

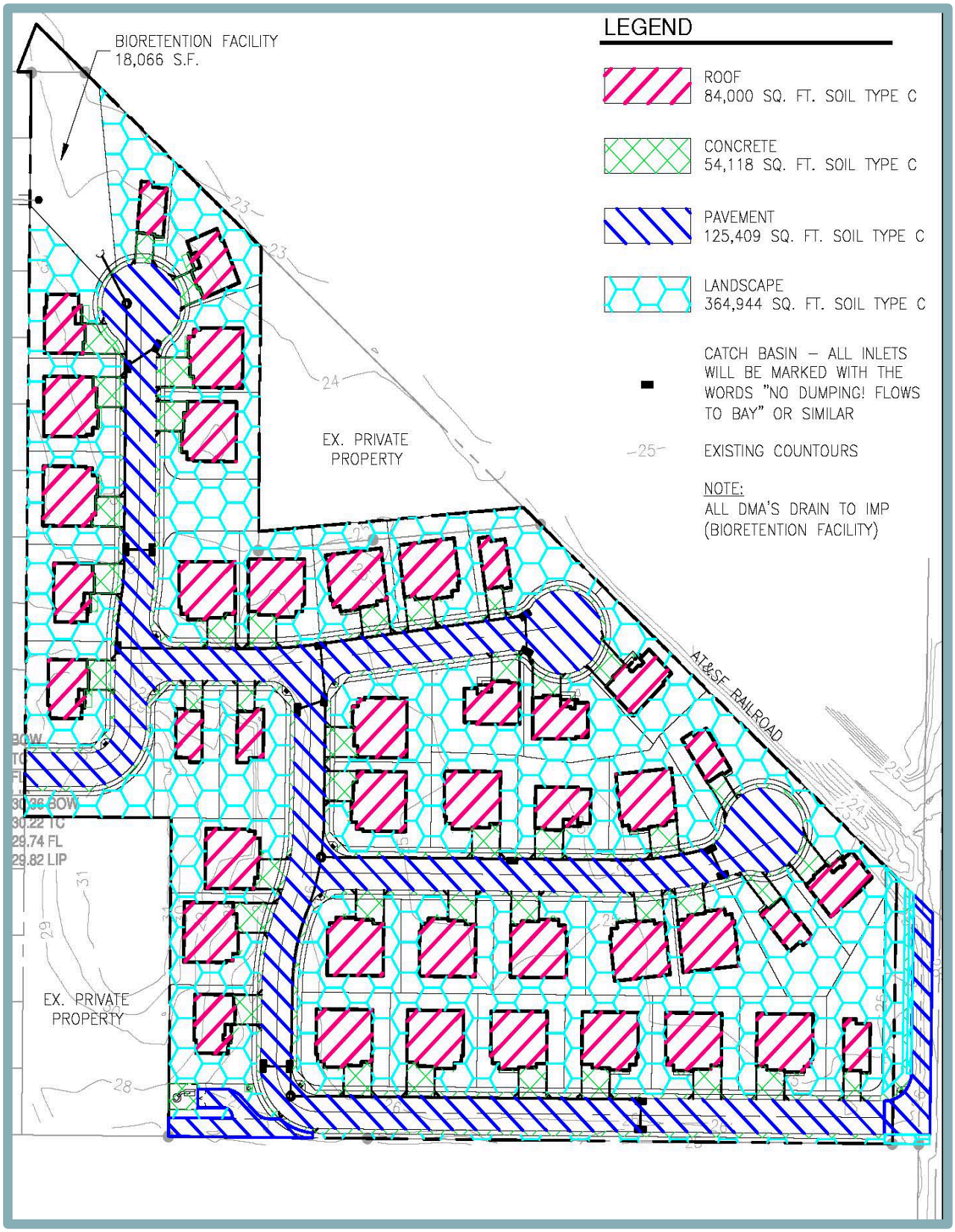
Following completion of project buildout, the site would be largely covered with impervious surfaces and landscaped areas, and topsoil would no longer be exposed. As such, the potential for erosion and associated impacts to water quality would be reduced. However, the addition of impervious surfaces on the site would result in the generation of urban runoff during project operations, 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 Oakley has adopted the County C.3 Stormwater Standards, which require new development and redevelopment projects that create or alter 10,000 sf or more of impervious area to contain and treat all stormwater runoff from the project site. The proposed project would include 125,409 sf of pavement and 54,118 sf of concrete, for a total of 179,527 sf of new impervious area; therefore, the proposed project would be subject to the County C.3 Stormwater Standards. The proposed project would also be subject to the requirements of the SWRCB and the Regional Water Quality Control Board (RWQCB), as well as the County C.3 Standards, which are included in the City's NPDES General Permit. In addition, the proposed project would adhere to Title 6, Chapter 11, of the Municipal Code, which establishes standards for stormwater management and discharge.[30] Prior to issuance of a building permit, the applicant would submit a Stormwater Control Plan (SWCP) that meets the criteria in the most recent version of the Contra Costa Clean Water Program *Stormwater C.3 Guidebook*. 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.

An SWCP has been prepared for the proposed project (see Figure 7). In compliance with the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook*, the proposed project would treat stormwater from the site via a bioretention facility located in the northwest corner of the project site. Runoff generated by impervious surfaces areas within

[30] City of Oakley. *Oakley Municipal Code* [Title 6, Chapter 11]. Updated February 23, 2021.

Figure 7
Stormwater Control Plan



the project site, such as roofs and driveways, would be collected by a series of roof and street gutters into new catch basins which would connect to a network of 18- and 24-inch stormwater lines. Runoff in the right-of-way (sidewalks and roadways) would also be directed to the gutters and the public storm drain system. This combined runoff would drain to the bioretention facility. In addition, the existing low-elevation area of the site would be filled in during construction so the stormwater would flow towards the bioretention facility.

The proposed bioretention facility would accommodate runoff from all 42 residential lots and the roadways on the site, and is designed according to the criteria in the Contra Costa County Clean Water Program *Stormwater C.3 Guidebook.* Runoff would enter the facility through a storm drain pipe, where the water would be treated before it enters into the public storm drain system in Kings Canyon Way. The stormwater would then be directed to an existing detention basin off-site. In addition, the bioretention facility would be designed to outfall into the existing storm drain system only when the basin is full.[31] In the event of a heavy storm, drainage in the existing storm drain system would be mostly gone before the water from the bioretention facility entered the existing system; therefore, development of the proposed project would not exceed the capacity of existing stormwater drainage systems.

Conclusion

As discussed in Section VII, Geology and Soils, of this IS/MND, the applicant for the project would be required to prepare a SWPPP. Pursuant to Section 6.11.212 of the Oakley Municipal Code, the applicant would be required to apply for a Water Discharger Identification (WDID) number from the State Water Board prior to the issuance of a grading permit and submit a SWPPP. In order to obtain a grading permit, the WDID number must be obtained and noted on the cover sheet of the grading plans. Furthermore, the applicant would be required to submit a stormwater control plan and implement conditions of approval that reduce stormwater pollutant charges. Prior to the issuance of grading permits, the applicant is required to prepare an interim and final erosion and sediment control plan, which would include a delineation and brief description of the measures to be undertaken to retain sediment on the site, as well as runoff and erosion control measures.

Based on the above, impacts related to water quality would not occur during project operations. The proposed project could violate water quality standards/waste discharge requirement, alter the drainage pattern of the site resulting in erosion or siltation, increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or otherwise degrade water quality during construction. However, the project would comply with BMPs outlined in Section 6.11.212 and, thus, a ***less-than-significant*** impact could occur.

b,e. Potable water service for the proposed project would be provided by the DWD. According to the DWD's Draft 2020 Urban Water Management Plan (UWMP), the primary water supply for distribution is surface water.[32] As a result, any increase in water demand associated with the proposed project would be primarily met through surface water supply.

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[31] O'Dell Engineering. *Preliminary Storm Drain Report.* April 15, 2021.
[32] Diablo Water District. *Draft 2020 Urban Water Management Plan.* May 2021.

It is noted that the DWD Draft 2020 UWMP has not yet been approved and is anticipated to be approved by the DWD Board of Directors and finalized in August 2021.

The DWD does operate a groundwater supply system that currently consists of groundwater extracted from two wells in Oakley, which is then conveyed in a dedicated well supply pipeline to a blending facility. According to the DWD Draft 2020 UWMP, the wells are connected to the East Contra Costa Subbasin underlying the City. The East Contra Costa Subbasin has been designated as a medium-priority basin by the Department of Water Resources, and is not in overdraft conditions. The project site represents a relatively small area compared to the overall surface area of the East Contra Costa Subbasin. In addition, runoff from the proposed impervious surfaces would be directed to a bioretention facility and, ultimately, to an off-site detention basin. At both locations, runoff water would percolate and recharge the East Contra Costa Subbasin. Therefore, any new impervious surfaces associated with the proposed project would not interfere substantially with groundwater recharge within the East Contra Costa Subbasin.

Based on the above, the project would not result in water quality impacts and, thus, would not conflict with or obstruct implementation of a water quality control plan. Therefore, the proposed project would result in a ***less-than-significant*** impact with respect to substantially decreasing groundwater supplies, interfering substantially with groundwater recharge, or conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan.

civ. According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the project site, the project site is located within an Area of Minimal Flood Hazard (Zone X).[33] The site is not classified as a Special Flood Hazard Area or otherwise located within a 100-year or 500-year floodplain. Therefore, development of the proposed project would not impede or redirect flood flows and ***no impact*** would result.

d. As discussed under question 'civ' above, the project site is not located within a flood hazard zone. 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 site is not located in proximity to a coastline and would not be affected by flooding risks associated with tsunamis. Furthermore, seiches do not pose a risk to the proposed project because the project site is not located adjacent to a large closed body of water. The project site is approximately 1,789 feet east of Marsh Creek; however, the creek is not a closed body of water and would not result in hazards related to seiches. Based on the above, the proposed project would not result in a risk related to the release of pollutants due to project inundation flooding, tsunami, or seiche, and ***no impact*** would occur.

[33] Federal Emergency Management Agency. *Flood Insurance Rate Map 06013C0355G.* Effective March 21, 2017.

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?	☐	☐	✖	☐
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?	☐	☐	✖	☐

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. Currently, the northern portion of the project site is developed with one single-family residence and the western portion of the project site is developed with one single-family residence, pool, and three outbuildings. The remaining project site area is undeveloped and consists of ruderal vegetation and limited trees. As a result, the proposed project would not physically divide an established community. In addition, future residences would be compatible with the existing single-family residences to the west. The proposed project would also involve the construction of an internal roadway network throughout the project site, which would connect to an existing stubbed street within the subdivision to the west. Furthermore, the proposed Sellers Avenue improvements would improve connectivity between future residences and surrounding uses in the project area. As such, the proposed project would not physically divide an established community and a ***less-than-significant*** impact would occur.

b. According to the City's General Plan, the project site is designated SM and the site is zoned R-10. The proposed project is consistent with the General Plan land use designation; therefore, single-family residential development has been anticipated at the project site. In addition, the proposed project would not conflict with City policies and regulations adopted for the purpose of avoiding or mitigating an environmental effect. For example, because the project would introduce new residents and increase the demand for recreational facilities, the project applicant would be required to pay the City's parks and recreation impact fees. Furthermore, in compliance with the ECCCHCP/NCCP, the proposed project would be subject to pay all applicable fees according to the Fee Zone Map of the ECCCHCP/NCP prior to construction and completion of pre-construction surveys for Swainson's hawk, golden eagle, and nesting and migratory birds (Mitigation Measures IV-1 through IV-4[b]).

Based on the above, the proposed project would not 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, and 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?	☐	☐	☐	✖
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?	☐	☐	☐	✖

Discussion

a,b. The City of Oakley General Plan EIR states that the only viable mineral resource currently mined in the City of Oakley is sand.[34] In addition, the General Plan does not identify any known mineral resource areas within the planning area, including the project site. Furthermore, because the site is located near residential development, the site would not be suitable for mining operations. Thus, the proposed project would not result in the loss of availability of a known mineral resource or a locally important mineral recovery site, and the proposed project would result in ***no impact*** related to mineral resources.

[34] City of Oakley. *City of Oakley 2020 General Plan Draft Environmental Impact Report* [pg. 278]. September 2002.

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?	☐	✖	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	✖	☐
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?	☐	☐	☐	✖

Discussion

The following discussion is based primarily on an Environmental Noise Assessment prepared for the proposed project by Saxelby Acoustics (see Appendix H).[35]

a. The following discussion presents information regarding sensitive noise receptors in proximity to the project site, the existing noise environment, and the potential for the proposed project to result in impacts during project construction and operation. The following terms are referenced in the sections below:

- Decibel (dB): A unit of sound energy intensity. An A-weighted decibel (dBA) is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels. All references to decibels in this report will be A-weighted unless noted otherwise.
- Day-Night Average Level (L_{dn}): The average sound level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours.
- Equivalent Sound Level (L_{eq}): The average sound level over a given time-period.
- Maximum Sound Level (L_{max}): The maximum sound level over a given time-period.
- Median Sound Level (L_{50}): The sound level exceeded 50 percent of the time over a given time-period.
- Community Noise Equivalent Level (CNEL): The 24-hour average noise level with noise occurring during evening (7:00 PM to 10:00 PM) hours weighted by a factor of three and nighttime hours weighted by a factor of ten prior to averaging.

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. The nearest sensitive uses include the single-

[35] Saxelby Acoustics. *Environmental Noise Assessment, Oakley Village Subdivision.* June 14, 2021.

family residences located north, east, and west of the project site boundary, with the closest located approximately 20 feet from the site boundary.

Existing Noise Environment

The ambient noise environment in the project vicinity is primarily defined by rail activity on the adjacent BNSF railroad line and by vehicle traffic on Sellers Avenue to the east of the project site. To quantify the ambient noise environment at the project site, Saxelby Acoustics conducted two continuous (24-hour) noise level measurements on the site (see Figure 8 for noise measurement locations). The long-term (24-hour) noise measurement sites were selected based upon the proximity to the primary noise generating source in the vicinity, which is the BNSF railroad tracks. Noise measurements were conducted on June 4, 2021 to June 7, 2021. Based upon the noise measurement data, an average of approximately 15 freight trains traveled this line during daytime (7:00 AM to 10:00 PM) and four during nighttime (10:00 PM to 7:00 AM). Table 7 below provides a summary of the noise measurement results.

Table 7
Summary of Existing Background Noise Measurement Data

Site	Location	L_{dn}	Average Measured Hourly Noise Levels (dB)					
			Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
			L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	Eastern Project Boundary	71	69	45	86	61	50	64
LT-2	Southeastern Project Boundary	73	71	56	94	65	44	84

Source: Saxelby Acoustics. 2021.

Standards of Significance

The City of Oakley General Plan Noise Element establishes a noise level standard of 60 dB as normally acceptable at residential land uses. Based upon General Plan Figure 9-1, an ambient noise level of 60 dBA L_{dn} is considered normally acceptable for single-family residential uses. Policy 9.1.6 in the City's General Plan is summarized in Table 8 and considers the following significance criteria for noise impacts:

- Where existing traffic noise levels are less than 60 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a 5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant;
- Where existing traffic noise levels range between 60 and 65 dB L_{dn} at the outdoor activity areas of noise-sensitive uses, a 3 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant; and
- Where existing traffic noise levels are greater than 65 dB L_{dn} at the outdoor activity areas of noise sensitive uses, a 1.5 dB L_{dn} increase in noise levels due to roadway improvement projects will be considered significant.

Per the City's General Plan, with regard to non-transportation noise, exterior noise levels at residences should not exceed 55 dBA during daytime hours (7:00 AM to 10:00 PM) and 45 dBA during nighttime hours (10:00 PM to 7:00 AM).

Figure 8
Noise Measurement Locations

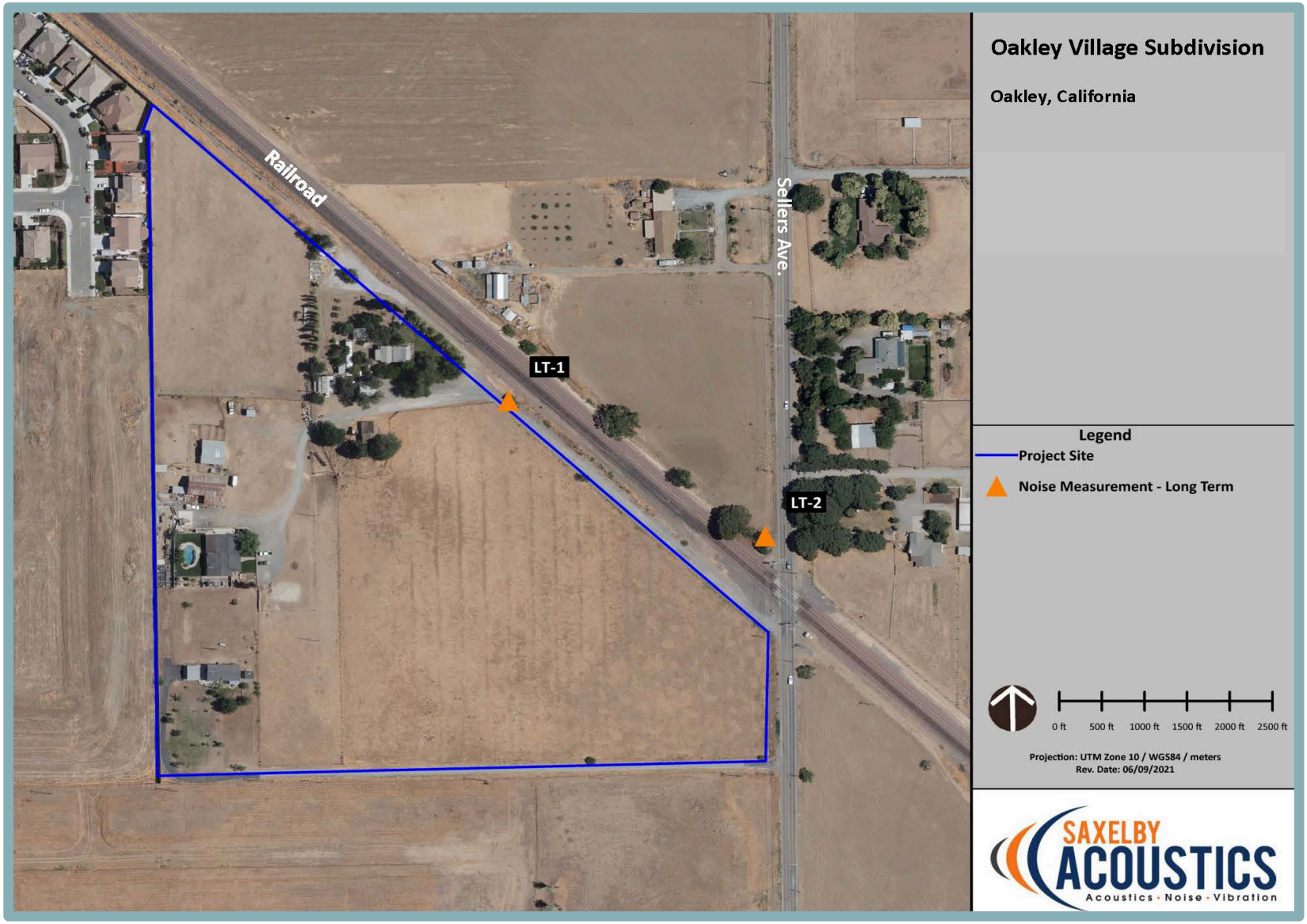


Table 8 **Significance of Changes in Noise Exposure**	
Ambient Noise Level Without Project, L_{dn}	**Increase Required for Significant Impact**
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more
Source: City of Oakley General Plan Noise Element, 2002.	

The following sections use the aforementioned thresholds of significance to determine if noise impacts associated with construction and operation of the proposed project would occur.

Construction Noise

During construction of the proposed project, heavy-duty equipment would be used for demolition, grading, excavation, paving, and building construction, which would result in temporary noise level increases. Standard construction equipment, such as backhoes, dozers, and dump trucks would be used on-site. Project haul truck traffic on local roadways would also result in a temporary noise level increase during construction activities. 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. Construction activities would be temporary in nature and are anticipated to occur during normal daytime hours. Section 4.2.208 of the Municipal Code restricts noise-producing construction activities to weekday hours between 7:30 AM and 7:00 PM Monday through Friday, and from 9:00 AM to 7:00 PM on weekends.

Table 9 shows the predicted construction noise levels for development of the proposed project. Based on the table, activities involved in typical construction would generate maximum noise levels up to 90 dB at a distance of 50 feet. The nearest single-family residences to the north, east, and west of the site are located within 20 feet of the proposed construction area. Therefore, a potentially significant impact could occur related to the generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance during construction.

Table 9 **Construction Equipment Noise**	
Type of Equipment	**Maximum Level, dB at 50 feet**
Auger Drill Rig	84
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: Federal Highway Administration, Roadway Construction Noise Model User's Guide, January 2006.	

Operational Noise

Noise generated during operations of the proposed project would be limited to residential noise and traffic noise, as discussed in further detail below.

Residential Noise

Operation of the proposed project would include typical residential noise which would be compatible with the adjacent existing residential uses. The proposed project is not anticipated to contribute a measurable operational noise level increase to the existing ambient noise environment at any sensitive receptor locations. Therefore, a less-than-significant impact would occur with regard to on-site operational noise.

Traffic Noise

Operations associated with the proposed project would generate noise associated with vehicle traffic on local roadways. As discussed in Section XVII, Transportation, of this IS/MND, the proposed project would generate approximately 397 average daily vehicle trips. Generally, a doubling in traffic volumes is required to increase traffic noise levels by 3.0 dB, which is considered to be the threshold for a significant increase per the Federal Interagency Committee on Noise (FICON). The proposed project would not double traffic volumes on local roadways and, thus, would not substantially increase traffic noise in the project vicinity.

Table 10 summarizes traffic noise levels along Sellers Avenue, in the project vicinity for the Existing and Existing Plus Project conditions.

Table 10
Existing Traffic Noise Level and Project-Related Traffic Noise Increase

Roadway	Segment	Predicted Exterior Noise Level (dB L_{dn}) at Closest Sensitive Receptors		
		Existing	Existing + Project	Change
Sellers Avenue	E Cypress Road to Delta Road	62.7	63.1	0.4

Source: Saxelby Acoustics, 2021.

Based upon the Table 8 criteria, where existing traffic noise levels are greater than 65 dB L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant. As shown in Table 10, the existing traffic noise level is 62.7 dB L_{dn} and is below 65 dBL_{dn}. In addition, the maximum increase in traffic noise at the nearest sensitive receptor is predicted to be 0.4 dBA under the proposed project. Therefore, as shown in the table, the proposed project would not result in traffic noise level increases along the area roadways, and therefore, the increase in traffic noise levels is not considered to be significant.

Noise at Proposed Sensitive Receptors

It should be noted that 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.).

Based on the above, for the purposes of the CEQA analysis, the relevant inquiry is not whether residents at the proposed single-family homes would be exposed to pre-existing environmental noise-related hazards, but instead whether project-generated noise will exacerbate the pre-existing conditions. Although the analysis of a project's existing noise environment is not required for CEQA purposes, such analysis is included in this document for compliance with applicable General Plan standards.

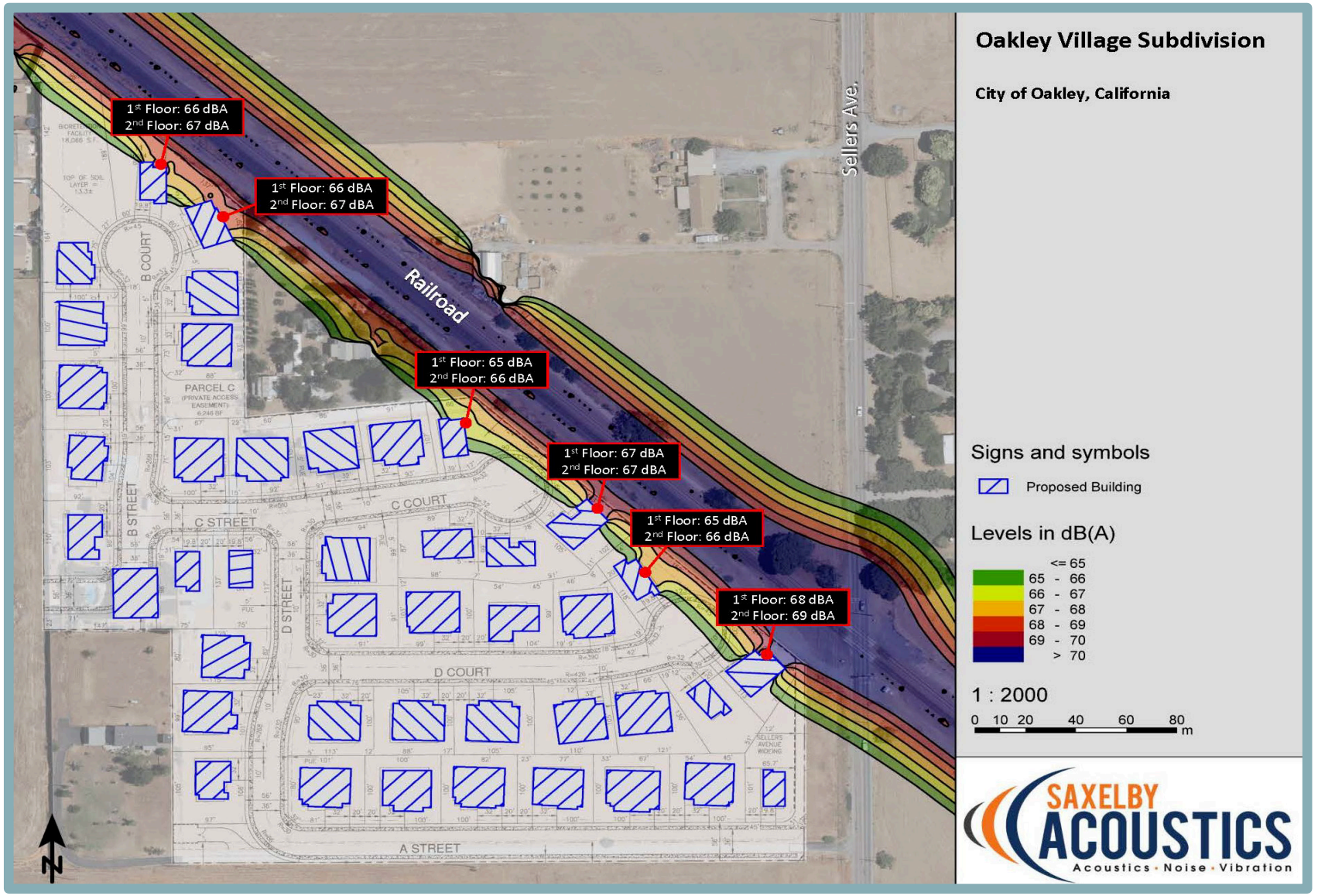
Based upon noise measurements along the east project boundary, the existing railroad tracks and roadway (Sellers Avenue) were found to generate noise levels of approximately 68 dBA L_{eq} to 69 dBA L_{eq}. As shown in Figure 9, the proposed project would be exposed to exterior noise levels of up to 68 dBA L_{eq} at the ground floor building facades closest to the BNSF railroad tracks; second floor locations would be exposed to noise levels up to 69 dBA L_{eq}. Such noise levels would exceed the City of Oakley's 65 dBA L_{eq} limit for outdoor activity areas of new residential uses.

However, standard construction practices would provide an exterior-to-interior noise level reduction of 25 dBA. Therefore, where exterior noise levels are 70 dBA L_{eq} or less, additional interior noise control measures are typically not required. It is anticipated that the proposed project's exterior noise levels would be up to 69 dBA L_{eq}, resulting in an interior noise level of 44 dBA L_{eq} based on typical building construction, which would comply with the City's 45 dBA L_{eq} interior noise level standard. In addition, the project will include construction of eight-foot-tall and 10-foot-tall sound walls to reduce exterior noise levels to less than 65 dBA, consistent with Goal 9.2, Policy 9.2.1, of the City's General Plan Noise Element. Therefore, additional noise control measures would not be required and a less-than-significant impact would occur related to exterior and interior noise.

Conclusion

Based on the above, operation of the proposed project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the City's General Plan and the Municipal Code. However, considering the potential for construction activities to result in temporary increases in noise levels in the project area in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, a ***potentially significant*** impact could occur.

Figure 9
Future (2042) Transportation Noise Contours (dBA L_{dn})



Mitigation Measure(s)

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

XIII-1. *Prior to approval of grading permits, the following criteria shall be established and noted on graded plans, subject to review and approval by the City of Oakley Planning Division:*

- *Construction activities shall be limited to between the daytime hours of 7:30 AM to 7:00 PM Monday through Friday, and 9:00 AM to 7:00 PM on Saturdays, Sundays, and holidays.*
- *Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.*
- *When not in use, motorized construction equipment shall not be left idling for more than five minutes.*
- *Stationary equipment (power generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.*

b. Similar to noise, vibration involves a source, a transmission path, and a receiver. However, 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 depends 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 is measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration 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. 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 11, which was developed by the California Department of Transportation (Caltrans), shows the vibration levels that would normally be required to result in damage to structures. As shown in the table, the threshold for architectural damage to structures is 0.20 in/sec PPV and continuous vibrations of 0.10 in/sec PPV, or greater, would likely cause annoyance to sensitive receptors.

Table 11
Effects of Vibration on People and Buildings

PPV		Human Reaction	Effect on Buildings
mm/sec	in/sec		
0.15 to 0.30	0.006 to 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 to 15	0.4 to 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: Caltrans. Transportation Related Earthborne Vibrations. TAV-02-01-R9601. February 20, 2002.

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and paving occur. Table 12 shows the typical vibration levels produced by construction equipment at various distances. The most substantial source of groundborne vibrations associated with project construction would be the use of vibratory compactors. Use of vibratory compactors/rollers could be required during construction of the proposed project.

Table 12
Vibration Levels for Various Construction Equipment

Type of Equipment	PPV at 25 feet (in/sec)	PPV at 50 feet (in/sec)
Large Bulldozer	0.089	0.031
Loaded Trucks	0.076	0.027
Small Bulldozer	0.003	0.001
Auger/drill Rigs	0.089	0.031
Jackhammer	0.035	0.012
Vibratory Hammer	0.070	0.025
Vibratory Compactor/roller	0.210 (less than 0.20 at 26 feet)	0.074

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006.

Based on Table 12, construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet or more. Sensitive receptors that could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located approximately 20 feet, or further, from the site boundaries. Furthermore, the proposed project would only cause elevated vibration levels during construction, as the proposed project would not involve any uses or operations that would generate substantial

groundborne vibration. Although noise and vibration associated with the construction phases of the project would add to the vibration environment in the immediate project vicinity, construction activities would be temporary in nature and are anticipated to occur during normal daytime working hours, consistent with Section 4.2.208 of the City's Municipal Code. Thus, construction vibrations are not anticipated to exceed acceptable levels.

Based on the above, the proposed project would not expose people to or generate excessive groundborne vibration or groundborne noise levels in the vicinity of the project in excess of standards established in the City's General Plan and the Municipal Code. Therefore, a ***less-than-significant*** impact could occur.

c. The nearest airport to the site is Byron Airport, located approximately 12.7 miles southeast of the site. The site is not covered by an existing airport land use plan. Given that the project site is not located within two miles of a public or private airport, the proposed project would not expose people residing or working in the project area to excessive noise levels associated with airports. Thus, ***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)?	☐	☐	✖	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	✖	☐

Discussion

a. The proposed project would include the development of 42 single-family residential units. Using the City of Oakley General Plan's average persons per household value for single-family uses of 3.26[36], the proposed project's addition of 42 single-family residences would generate approximately 137 (42 x 3.26 = 136.92) additional residents to the City's population. The Department of Finance estimates the 2021 population of Oakley, based on the 2010 Census, to be approximately 42,895.[37] Such an increase in population would constitute a 0.32 percent increase in the City's population, which is not considered substantial growth. Furthermore, as discussed in Section XIX, Utilities and Service Systems, of this IS/MND, adequate utility infrastructure would be available to support the proposed project. Finally, the population growth generated by the proposed project is not unplanned because the proposed project is consistent with the City of Oakley General Plan, which anticipated such development on the project site. As a result, the project would have a ***less-than-significant*** impact with respect to inducing substantial unplanned population growth in an area, either directly or indirectly.

b. The proposed project would require demolition of two existing single-family residences and three outbuildings. However, the removal of a single residence would not be considered to result in the displacement of a substantial number of existing people or housing. In addition, although one residence would be removed from the City's housing stock, the proposed project would involve the construction of 42 new residences in the future. As such, the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere, and a ***less-than-significant*** impact would occur.

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36 City of Oakley. *Oakley 2020 General Plan* [pg. 2-13]. December 16, 2002.

37 California Department of Finance. *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021, with 2010 Benchmark*. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed June 2021.

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?	☐	☐	✖	☐
b. Police protection?	☐	☐	✖	☐
c. Schools?	☐	☐	✖	☐
d. Parks?	☐	☐	✖	☐
e. Other Public Facilities?	☐	☐	✖	☐

Discussion

a. Fire protection services within the project area are provided by the East Contra Costa Fire Protection District (ECCFPD). The ECCFPD is a rural funded fire district that protects approximately 249 square miles and over 115,000 residents. The ECCFPD provides firefighting personnel and emergency medical services with three fire stations. Station 53 is the closest station to the project site, located approximately three miles to the northeast. The proposed project would be subject to the fire facilities impact fees established by the City of Oakley Municipal Code Section 9.2.502. Payment of the required impact fee would help account for any increased demands on fire services that may result from the proposed project, as well as ensure that the project conforms with the City of Oakley's General Plan Policy 4.4.2, which requires new developments to pay a fair share of costs for new fire protection facilities and services. Additionally, the proposed project would not include any alterations to the circulation system of the surrounding area which could conflict with the City of Oakley's General Plan Policy 4.4.4, or lead to a degradation in response times. The City of Oakley General Plan anticipated fire service would be adequate for buildout of the City upon the completion of a new fire station.[38] Station 53 was constructed in 2011 and replaced Station 93, which was built in the 1950's and was not large enough to accommodate ECCFPD staff and equipment. With the construction of Station 53, fire service for the City of Oakley was determined to be adequate. As the proposed project is consistent with the General Plan, the increased demand for fire services due to residential development was anticipated and the provision of fire services would be adequate for future development of residences.

   Given the payment of fees in accordance with the City of Oakley Municipal Code, the proposed project is not expected to cause significant degradation to response times or service ratios, which would induce the need for physically altered or expanded governmental facilities and the project would, therefore, result in a ***less-than-significant*** impact.

b. Police protection is provided to the City of Oakley by the Oakley Police Department. The Oakley Police Department currently employs 43 persons, including the Chief of Police, the Lieutenant, six Sergeants, five Detectives, 21 Police Officers, and nine Police Services

[38] City of Oakley. *Oakley 2020 General Plan* [pg. 4-19]. December 16, 2002.

Assistants.[39] As previously discussed, the proposed project would allow for future development of 42 single-family residences. As new residences typically generate a demand for police services, an increase in demand for police services would occur with implementation of the project. Nevertheless, the increase in police service demand from development of the project site has been included in City of Oakley's demand predictions based on anticipated General Plan buildout. In addition, development fees would be applied to the proposed project, as well as a Police Services levy to mitigate the financial impact to the City's police services budget. Based on the above, the proposed project would create a demand that was anticipated for the site and would not induce the need for physically altered or expanded governmental facilities, the construction of which could cause significant environmental impacts. Therefore, the proposed project would result in a ***less-than-significant*** impact.

c. The Oakley Union School District and the Antioch Unified School District provide public educational services to the City of Oakley. Given that the proposed project would include development of the project site with 42 single-family residences, the proposed project could increase the demand for schools in the area. Using a standard student generation rate of 0.52 students per dwelling unit, the proposed project's addition of 42 single-family residences would result in approximately 22 new K-12 students.[40] The City of Oakley General Plan includes goals and policies set forth to ensure adequate primary and secondary schools are developed in response to population growth. The City expects the General Plan to assist in the goal of providing an efficient and complete educational system for the citizens of Oakley. For example, Policy 4.65, set forth in the General Plan, ensures that school facility impacts fees are collected and requires that the City shall work with developers and school districts to establish mitigation measures to ensure the availability of adequate school facilities.

The proposed project would be subject to payment of School Impact Mitigation Development Fees to fund local school services. 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 are deemed to be "full and complete mitigation." In other words, payment of applicable development fees would be sufficient in reducing the impacts associated with an increase in students from the project. Therefore, the proposed project would result in a ***less-than-significant*** impact regarding an increase in demand for schools.

d,e. The City of Oakley Municipal Code Section 9.2.208 requires 7.02 acres of parkland per 1,000 residents. Based on the rate of 3.26 persons per single-family residence, the maximum buildout of the project site would result in an increase of approximately 137 new residents to the City. As a result, 0.99 acres of parkland would be required (0.0072 X 137 = 0.99). Oakley Resolution 19-03 requires subdividers of land within the City to dedicate land and/or pay fees in lieu of the dedication for the neighborhood and community parks and recreation programs. Because the proposed project would not include the dedication of parkland, the project applicant would be subject to the payment of in-lieu fees.

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[39] City of Oakley Police Department. *2017 Annual Report*. Available at: http://www.ci.oakley.ca.us/wp-content/uploads/2018/04/Annual-Report-2017-2-2.pdf. Accessed June 2021.

[40] City of Oakley. *Oakley 2020 General Plan* [pg. 4-19]. December 16, 2002.

The Oakley 2020 General Plan EIR also analyzed impacts of buildout of the General Plan on other public facilities, such as libraries. Oakley has a County branch library located in Freedom High School at 1050 Neroly Road. The Oakley Branch Library is open Tuesday through Saturday. Other libraries in close proximity to the City of Oakley include the Antioch Library and the Brentwood Branch Library. Future residents of the proposed project would have access to the aforementioned facilities. The Oakley 2020 General Plan EIR concluded that with implementation of the necessary General Plan policies, impacts related to public services would be reduced to a less-than-significant level.

Given that the proposed project would be required to pay the applicable park in-lieu fee, and the development of the site was anticipated by the City, the project would result in a ***less-than-significant*** impact on parks and other public facilities.

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?	☐	☐	✖	☐
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?	☐	☐	✖	☐

Discussion

a,b. As discussed in Section XIV, Population & Housing, the proposed project would allow for future development of 42 single-family residences, which are anticipated to serve approximately 137 residents. Thus, an increase in demand on recreational facilities would occur. The City of Oakley Municipal Code Section 9.2.204 mandates developments that include subdivision of land to either dedicate parkland or pay fees in lieu of the dedication for the neighborhood and community parks and recreation programs. The proposed project would not include dedication of any land to the City for recreational facilities; therefore, the project applicant would pay in-lieu fees required per the Municipal Code. The park impact fees imposed by the City are used to generate revenue to provide park and recreational services on a community wide level and to the area within which the proposed development will be located. Based on the above, the proposed project would result in a ***less-than-significant*** impact on recreation.

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?	☐	☐	✖	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	✖	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	✖	☐
d. Result in inadequate emergency access?	☐	☐	✖	☐

Discussion

a. The law has recently changed with respect to how transportation-related impacts may be addressed under CEQA. Traditionally, lead agencies used level of service (LOS) to assess the significance of such impacts, with greater levels of congestion considered to be more significant than lesser levels. Mitigation measures typically took the form of capacity-increasing improvements, which often had their own environmental impacts (e.g., to biological resources). Depending on circumstances, and an agency's tolerance for congestion (e.g., as reflected in its general plan), LOS D, E, or F often represented significant environmental effects. In 2013, however, the State Legislature passed legislation with the intention of ultimately doing away with LOS in most instances as a basis for environmental analysis under CEQA. Enacted as part of SB 743 (2013), PRC Section 21099, subdivision (b)(1), directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated. The office may also establish criteria for models used to analyze transportation impacts to ensure the models are accurate, reliable, and consistent with the intent of this section."

Subdivision (b)(2) of Section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion *shall not be considered a significant impact on the environment* pursuant to [CEQA], except in locations specifically identified in the guidelines, if any." (Italics added.)

Pursuant to SB 743, the Natural Resources Agency promulgated CEQA Guidelines Section 15064.3 in late 2018. It became effective in early 2019. Subdivision (a) of that section provides that "[g]enerally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact."[41]

Please refer to question 'b' for a discussion of VMT.

Project Trip Generation

The *Traffic Memorandum* prepared by TJKM identified the proposed project's potential trip generation increase (see Appendix I). Project vehicle trip generation rates were obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition). Based on the ITE rates, the proposed project is estimated to generate 397 daily vehicle trips, including 32 AM peak hour and 42 PM peak hour trips.[42] According to the City of Oakley Traffic Impact Analysis Guidelines, a traffic impact study is required for projects that generate 100 or more net new peak hour trips to the roadway system. As the proposed project would generate fewer trips than the 100 peak hour trip threshold, a traffic impact study is not required for the proposed project, and the proposed project would not conflict with any General Plan Standards related to roadway operations.

Consistency with the City of Oakley General Plan Policies – Pedestrian, Bicycle, and Transit Facilities

The proposed project's potential impacts related to pedestrian, bicycle, and transit facilities are discussed below.

Pedestrian Facilities

Pedestrian facilities are comprised of crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities. Sidewalks are provided throughout the single-family residences west of the project site, with the closest sidewalk network on Kings Canyon Way beginning approximately 0.11-mile west of the project site. The proposed project would include construction of sidewalks throughout the project site which would connect to the sidewalk network on Kings Canyon Way. Sidewalks are not currently located along Sellers Avenue; however, the proposed project would add new sidewalks along the project frontage on Sellers Avenue.

Considering the above, the proposed project would include the provision of pedestrian infrastructure, and therefore, would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing pedestrian facilities and a less-than-significant impact would occur related to pedestrian facilities.

Bicycle Facilities

The City of Oakley 2020 General Plan (September 2002), City of Oakley Parks, Recreation, and Trails Master Plan 2020 (Summer 2007), and the Contra Costa County

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41 Subdivision (b)(2) of Section 15064.3 ("transportation projects") provides that "[t]ransportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a lead agency may tier from that analysis as provided in Section 15152.

42 TJKM. *City of Oakley, Oakley Village Subdivision Project Traffic Memorandum.* June 9, 2020.

Bicycle and Pedestrian Plan (October 2009) propose several new bicycle facilities, including a trunk line bikeway network passing through Main Street and Laurel Road, and a local multi-use trail on E. Cypress Road and Sellers Avenue in the vicinity of the project area. Bicycle facilities currently exist at the following locations in the project vicinity:

- Main Street- Class II bicycle facilities are provided between Cypress Road and Simoni Ranch Road on both sides;
- Laurel Road- Class II bicycle facilities are provided between Harvest Drive and Main Street on both sides;
- Delta Road- Class II bicycle facilities are provided between Looza Way and Eden Plains Road on both sides; and
- Marsh Creek Regional Trail- Class I bicycle facility provided along Marsh Creek which can be accessed through Delta Road, approximately 0.4-mile west of the project site.

Considering several bicycle facilities exits in the project vicinity, and development of the project would not preclude construction of any planned bicycle trails, the proposed project would not result in the creation of a conflict with any adopted programs, plans, ordinances, or policies addressing bicycle facilities and a less-than-significant impact would occur related to bicycle facilities.

Transit Facilities

Tri-Delta Transit provides transit services in the City of Oakley, with three lines connecting Brentwood and the Pittsburg/Bay Point Bay Area Rapid Transit (BART) station. Due to COVID-19 conditions, some of the routes and schedules may not currently be in full operation. The following Tri-Delta Transit Routes currently operate in the project vicinity:

- *Route 300,* the Pittsburg BART/Brentwood Park & Ride route, is a weekday express route connecting Brentwood to the Pittsburg/Bay Point BART station via Oakley and Antioch. Route 300 travels along Main Street, operating from 4:15 AM to approximately 10:00 PM with 15- to 30-minute headways.
- *Route 383,* the Oakley/Antioch/Freedom High School route, connects Oakley to Antioch and Freedom High School in Oakley. Route 383, in both clockwise and counterclockwise directions, provides only weekday service. The counterclockwise route runs with approximate one-hour headways, and the clockwise route runs twice during the AM peak hour period only.
- *Route 391,* the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekday service to most East County cities. Route 391 operates from 4:00 AM to 1:15 AM with 30 to 60-minute headways.
- *Route 393*, the BART/Pittsburg/Antioch/Oakley/Brentwood route, provides weekend service to Route 391. Route 393 operates from 5:20 AM to 2:00 AM with approximately 60-minute headways.

At the project site, the nearest bus stops are located at the intersections of Laurel Road/Main Street (1.2 miles northwest of the project site), Laurel Road/Rose Avenue (1.4 miles west of the project site), West Cypress Road/Fall Lane (2 miles northwest of the project site), and Bolton East Road/Main Street and Bolton West Road/Main Street (2 miles southwest of the project site) served by Routes 383, 391, and 393.

The proposed project is consistent with the General Plan land use designation for the site; therefore, impacts related to transit were already anticipated and evaluated in the General Plan EIR. The project would not conflict with any existing or planned transit facilities. Thus, the proposed project would not conflict with a program, plan, ordinance, or policy addressing transit service and a less-than-significant impact would occur.

Conclusion

Based on the above, a ***less-than-significant*** impact would occur related to conflicting with a program, plan, ordinance, or policy addressing the circulation system, including transit, bicycle, and pedestrian facilities.

b. Section 15064.3 of the CEQA Guidelines provides specific considerations for evaluating a project's transportation impacts. Pursuant to Section 15064.3, analysis of VMT attributable to a project is the most appropriate measure of transportation impacts. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Although the City of Oakley has not yet established any standards or thresholds regarding VMT, pursuant to Section 15064.3(b)(3), a lead agency may analyze a project's VMT qualitatively based on the availability of transit, proximity to destinations, etc. While changes to driving conditions that increase intersection delay are an important consideration for traffic operations and management, the method of analysis does not fully describe environmental effects associated with fuel consumption, emissions, and public health. Section 15064.3(3) changes the focus of transportation impact analysis in CEQA from measuring impact to drivers to measuring the impact of driving.

The Contra Costa Transportation Authority (CCTA) considers residential projects to have a significant impact on VMT if the project generated home-based VMT per resident is higher than the following:

- 85 percent of the home-based VMT per resident in the municipality; or
- 85 percent of the existing County-wide average home-based VMT per resident.

For a separate development project in the City, TJKM calculated that the home-based VMT per capita for the City of Oakley is 26.76.[43] For a project to result in a less-than-significant VMT impact, the project must produce VMT that is equal to or less than the 85 percent threshold, which equates to 22.75 VMT per resident. Based on the project-specific trip rates provided by TJKM and the default trip lengths for the project region and proposed land use type, the proposed project is anticipated to generate approximately 897,399 total annual VMT (see Appendix A). Considering the proposed project would generate approximately 137 residents (refer to Section XIV, Population and Housing, of this Initial Study), the estimated VMT per resident is 17.95. Because the project-generated VMT per resident would be below the applicable 22.75 VMT per resident threshold, impacts related to VMT would be considered less than significant.

In addition, the Contra Costa County Transportation Analysis Guidelines require Cumulative VMT impacts to be evaluated for consistency with the Contra Costa County General Plan (Envision 2040).[44] As the proposed project is consistent with the Contra Costa County General Plan, and the General Plan is consistent with the VMT projections

[43] TJKM. *Burroughs Residential Development Draft Traffic Impact Analysis*. January 13, 2021.
[44] Contra Costa County. *Transportation Analysis Guidelines.* June 23, 2020.

as originally analyzed, the proposed project's cumulative impacts related to VMT would be less-than-significant.

Furthermore, as noted in question 'a' above, the project site would be served by the Tri-Delta Transit system, with bus stops provided to the north, west, and south of the project site. In addition, development of the proposed project would increase connectivity to the nearby neighborhoods and include pedestrian and bicycle infrastructure within the project site. For example, the proposed project would include construction of sidewalks throughout the project site which would connect to the sidewalk network on Kings Canyon Way. By providing pedestrian and bicycle connectivity between the proposed residential units and surrounding neighborhood, and providing convenient access to public transit, VMT associated with the proposed project would be minimized.

Based on the above, the proposed project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3(b), and a ***less-than-significant*** impact would occur.

c,d. Access to the project site is proposed from Sellers Avenue. In addition, the proposed internal roadway network would connect to an existing stubbed street to the west to provide secondary access. Per the site plan, each street within the proposed internal roadway network would be 56 feet wide. The roadway widths are expected to accommodate on-street parking as well as emergency vehicle access. In addition, Sellers Avenue would be widened during construction and would be designed and constructed to meet currently applicable codes and requirements and to ensure that the roadway would not result in any increased hazards.

The proposed project would not alter the existing transportation network nor increase hazards due to a geometrical design feature. In addition, the proposed buildings are sufficiently set back from Sellers Avenue such that visibility for motorists would not be hindered.

During project construction, public roads in the vicinity would remain open and available for use by emergency vehicles and other traffic. In addition, the new internal roadway would provide two points of access to the project site, which would be adequate for emergency vehicle access. All interior drive aisles and parking stalls would comply with City design standards, and, thus, on-site circulation would be expected to function acceptably for emergency response vehicles. As such, the new street connections would improve emergency access and response times to the project site.

Implementation of the proposed project would introduce additional vehicle traffic along Sellers Avenue. However, the proposed project would be consistent with the General Plan land use designation for the site and impacts related to hazards and emergency access associated with the proposed project were already analyzed and anticipated in the General Plan EIR.

Conclusion

Based on the above, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses, or result in inadequate emergency access, and a ***less-than-significant*** impact would occur.

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).	☐	✖	☐	☐
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.	☐	✖	☐	☐

Discussion

a,b. As discussed in Section V, Cultural Resources, of this IS/MND, a records search of CHRIS was performed on June 7, 2021 by the NWIC for cultural resource sit records and survey reports within the project site. The CHRIS search indicated a moderate to high potential of identifying Native American archaeological resources and a high potential of identifying historic-period archaeological resources in the project area. In addition, a records search of the NAHC SLF was requested on June 2, 2021. Per the NAHC SLF, the site does not contain known tribal cultural resources. In addition, the field survey conducted by Tom Origer & Associates did not identify any indications of such resources.

In compliance with AB 52 (PRC Section 21080.3.1), a project notification letter was distributed to the chairpersons of the following tribes on July 9, 2021: Amah Mutsun Tribal Band of Mission San Juan Bautista, Chicken Ranch Rancheria of Me-Wuk Indians, Guidiville Indian Rancheria, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the SF Bay Area, Nashville Enterprise Miwok-Maidu-Nishinam Tribe, North Valley Yokuts Tribe, The Ohline Indian Tribe, Tule River Indian Tribe, Wilton Rancheria, and The Confederated Villages of Lisjan.

A request for consultation was received from The Confederated Villages of Lisjan Chairperson Corrina Gould on August 25, 2021, to which a response was given, explaining that the proposed project does not include residential development. Additionally, the response to Gould noted that as part of compliance with AB 52 requirements, all tribes that have requested to be notified of future development applications requiring evaluation under CEQA would be apprised of such projects, including those that occur in the CR-A Districts. A meeting with Chairperson Gould occurred on September 22, 2021. Additional comments were not received from Chairperson Gould subsequent to the foregoing meeting. As such, consultation was concluded on October 5, 2021.

Based on the history of disturbance at the project site and former agricultural uses, as well as the lack of identified tribal cultural resources at the site, tribal cultural resources are not expected to occur within the site. Nevertheless, the possibility exists that development of the proposed project could result in a substantial adverse change in the significance of a tribal cultural resource if previously unknown tribal cultural resources are uncovered during grading or other ground-disturbing activities. Thus, a ***potentially significant*** impact related to tribal cultural resources could occur.

Mitigation Measure(s)

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

XVIII-1. Implement Mitigation Measures V-1 and V-2.

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?	☐	☐	✖	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	✖	☐

Discussion

a-c. Electricity, natural gas, telecommunications, water, and sanitary sewer services would be provided by way of new connections to existing infrastructure in the immediate project area. Electricity and natural gas services for the proposed project would be provided by PG&E. Brief discussions of water, sewer service, stormwater drainage, electrical, natural gas, and telecommunications that would serve the proposed project are included below.

Water

Water service for the proposed project would be provided by the DWD. Per the DWD's Draft 2020 UWMP, DWD's primary water supply for the distribution system is treated surface water from the United States Bureau of Reclamation's Central Valley Project (CVP) purchased from the CCWD. CVP water is conveyed through the Contra Costa Canal and Los Vaqueros system, and treated at the Randall-Bold Water Treatment Plant in Oakley, which is jointly owned by DWD and CCWD.[45] According to the DWD Draft 2020 UWMP, the DWD has a baseline per capita demand of 177 gallons.[46] The proposed project would allow for future development of 42 single-family residences. Based on the City of Oakey's estimate of 3.26 persons per household, the proposed project would add approximately 137 residents to the area. Thus, the project is projected to increase demand by 24,249 gallons per day (177 gallons x 137 residents), or 27.18 acre-feet per year. The

[45] Diablo Water District. *Draft 2020 Urban Water Management Plan.* May 2021.
[46] Diablo Water District. *Draft 2020 Urban Water Management Plan* [pg. 3-5]. May 2021.

2020 UWMP indicates that total water supply in the City is anticipated to increase from 12,883 acre-feet in 2020 to 19,042 acre-feet in 2040.
According to the DWD Draft 2020 UWMP, the DWD's projected water supply exceeds the water demand for normal, single-dry, and multiple-dry years until at least 2040.[47] For example, during a normal year in 2025, the anticipated supply exceeds the anticipated demand by 4,965 acre-feet per year. Therefore, the DWD would have sufficient water supply to accommodate the 27.18 acre-feet per year increase associated with the proposed project.

Although the proposed project would result in additional demand to the DWD's current demand, the project site has been anticipated for development by the City of Oakley's General Plan. The DWD's demand estimates consider increases in demand due to buildout of the City's General Plan;[48] consequently, the DWD has anticipated some level of increased water demand due to development of the project site. Thus, while the proposed project would result in increased water consumption at the project site, this increase in demand has been captured in DWD's demand projections. Even in the event that DWD has not anticipated the increased demand, DWD maintains an anticipated surplus in future water supplies, which would be more than sufficient to accommodate increased demand from the project site. Thus, given the relatively small increase in water demand due to the project and DWD's anticipated water surplus, adequate long-term water supply exists.

Wastewater

Sanitary sewer services would be provided to the project site by ISD. The wastewater system is composed of collection, treatment, and effluent recycling facilities. ISD operates and maintains the sewer system, which collects wastewater flows from individual developments within the City and conveys them to ISD's Water Recycling Facility. Wastewater is ultimately treated and stored either on-site in a large 76 million gallon holding pond, or the treated water is conveyed to an outfall pipe in the San Joaquin River. The Water Recycling Facility has an average daily flow of 2.3 million gallons per day (MGD). The facility has a treatment capacity of approximately 4.3 MGD.[49]

The proposed project would include construction of new eight- and ten-inch sanitary sewer lines throughout the project site and a sewer lift station in Parcel B. The proposed sanitary sewer lines within the project site would direct wastewater to the proposed sewer lift station, along a force main, and ultimately into the existing wastewater main in Kings Canyon Way. Using standard industry assumptions that (1) domestic water use represents 40 percent of consumption; and (2) wastewater generation represents 90 percent of domestic water use, the proposed project would generate 21,824 gallons of effluent on a daily basis. The addition of wastewater from the proposed project would represent less than two percent of the Water Recycling Facility's available capacity; therefore, future development of 42 residences would not require the construction of new or expansion of existing wastewater treatment facilities, as the Water Recycling Facility has adequate capacity to serve the proposed project.

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47 Diablo Water District. *Draft 2020 Urban Water Management Plan* [pg. 5-5 to 5-6]. May 2021.
48 Diablo Water District. *Draft 2020 Urban Water Management Plan* [pg. 2-2]. May 2021.
49 Ironhouse Sanitary District. *Sewer System Management Plan* [pg. I-3]. April 2017.

Furthermore, given that the project is consistent with the site's current General Plan land use and zoning designations, the type and intensity of growth that would be induced by the proposed project has been considered in the General Plan and associated wastewater generation has been analyzed in the General Plan EIR. The General Plan EIR determined that impacts related to wastewater treatment capacity would be less than significant. Therefore, given the available capacity within the wastewater facility, the proposed project would not result in inadequate capacity to serve the project's projected demand in addition to the existing commitments.

Stormwater

As discussed above in Section X, Hydrology, of this IS/MND, stormwater generated by impervious surfaces would be directed to and treated at the 18,066-sf bioretention facility in the northwest corner of the project site. The proposed project not significantly increase stormwater flows into ISD's existing system. As discussed in Section X, Hydrology and Water Quality, the proposed on-site drainage systems would be required to comply with the City's SWPPP and erosion and sediment control plan, as well as the County C.3 standards. Additionally, because the site has been anticipated for development by the City's General Plan, impacts to stormwater systems resulting from development of the site have been analyzed in the City's General Plan EIR.

Electricity, Natural Gas, and Telecommunications

Electricity, natural gas, and telecommunications utilities would be provided by way of connections to existing infrastructure located within the immediate project vicinity. PG&E would provide electricity and natural gas services to the project site, while AT&T would provide telecommunication services. The proposed project would not require major upgrades to, or extension of, existing infrastructure. Thus, impacts to electricity, natural gas, and telecommunications infrastructure would be less than significant.

Conclusion

Based on the above, the type and intensity of growth that would be induced by the proposed project was generally considered in the City's General Plan and associated wastewater generation and water use has been analyzed in the General Plan EIR. Thus, the increase in water demand and wastewater generation associated with the proposed project would not be considered substantial. In addition, the project is located within a developed urban area and would not require major expansion or extension of existing water, wastewater, electrical, or telecommunications facilities in the project area.

Therefore, the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater, electric power, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects. Sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years. Furthermore, adequate wastewater capacity would be available to serve the project's projected demand in addition to ISD's existing commitments. Thus, a ***less-than-significant*** impact would occur.

d,e. Solid waste, recyclable materials, and compostable material from the City of Oakley is hauled to Potrero Hills Landfill, located in Solano County. The landfill has a maximum permitted throughput of 4,330 tons per day. According to the California Department of Resources Recycling and Recovery (CalRecycle), the Potrero Hills Landfill has a

remaining capacity of 13,872,000 cubic yards out of a total permitted capacity of 83,100,000 cubic yards, or 17 percent of the landfill's remaining capacity.[50] Due to the substantial amount of available capacity remaining at Potrero Hills Landfill, sufficient capacity would be available to accommodate the project's solid waste disposal needs. Additionally, because the site has been anticipated for development by the City General Plan, impacts related to solid waste resulting from development of the site have been generally analyzed in the City's General Plan EIR. Therefore, a ***less-than-significant*** impact related to solid waste would occur as a result of the proposed project.

[50] California Department of Resources Recycling and Recovery (CalRecycle). *Facility/Site Summary: Potrero Hill Landfill (48-AA-0075)*. Available at: https://www2.calrecycle.ca.gov/SolidWaste/Site/Summary/3591. Accessed June 2021.

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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	✖	☐
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?	☐	☐	✖	☐

Discussion

a-d. According to CALFIRE Fire and Resource Assessment Program, the project site is not located within a Very High or High FHSZ.[51] In addition, the project site is located near existing development and is bound by railroad tracks and roadways. The presence of urban development and paved areas would preclude the uncontrolled spread of wildfire. Thus, the proposed project would not result in substantial risks or hazards related to wildfires, and a ***less-than-significant*** impact would occur.

[51] 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?	☐	✖	☐	☐
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)?	☐	✖	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	✖	☐	☐

Discussion

a. As discussed in Section IV, Biological Resources, of this IS/MND, while a limited potential exists for Swainson's hawk, golden eagle, and nesting raptors and migratory birds protected by the MBTA to occur on-site, the proposed project would comply with the ECCCHCP/NCCP requirements including avoidance and minimization measures.

In addition, the project site does not contain any eligible historical on-site structures or known historic or prehistoric resources. Implementation of the proposed project is not anticipated to result in impacts related to historic or prehistoric resources. Nevertheless, Mitigation Measures V-1 and V-2 would ensure that in the event that prehistoric resources are discovered within the project site, such resources would be protected in compliance with the requirements of CEQA and other State standards.

Considering the above, the proposed project would not degrade the quality of the environment, substantially reduce or impact the habitat of fish or wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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. Therefore, with implementation of the mitigation measures identified herein, a ***less-than-significant*** impact would occur.

b. The proposed project, in conjunction with other development within the City of Oakley, could incrementally contribute to cumulative impacts in the area. However, as demonstrated in this IS/MND, all potential environmental impacts that could occur as a result of project implementation would be reduced to a less-than-significant level through compliance with the mitigation measures included in this IS/MND, as well as applicable

General Plan policies, Municipal Code standards, and other applicable local and State regulations.

All cumulative impacts related to air quality, noise, and transportation are either less than significant after mitigation or less than significant and do not require mitigation. Given the scope of the project, any incremental effects would not be considerable relative to the effects of all past, current, and probably future projects. In addition, buildout of the site was anticipated for residential uses. As such, the proposed project is within the realm of what has been anticipated for the site and potential impacts resulting from development of the project have been analyzed in the General Plan EIR. Therefore, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, with the implementation of mitigation, development of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts, and the project's incremental contribution to cumulative impacts would be ***less than significant***.

c. As described in this IS/MND, the proposed project would comply with all applicable General Plan policies, Municipal Code standards, other applicable local and State regulations, and mitigation measures included herein. In addition, as discussed in Section VII, Geology and Soils, Section IX, Hazards and Hazardous Materials, and Section XIII, Noise, of this IS/MND, the proposed project would not cause substantial effects to human beings, including effects related to exposure to hazardous materials and noise. For example, Mitigation Measure IX-1 would require an analysis of on-site asbestos-containing materials or lead-based paint in existing structures that may be scheduled for demolition. Therefore, with implementation of the required mitigation measures, the proposed project would result in a ***less-than-significant*** impact.

Appendix A
Air Quality and Greenhouse Gas Emissions – CalEEMod Results

Oakley Village Subdivision Project

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	42.00	Dwelling Unit	14.82	75,600.00	120

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor adjusted based on PG&E's RPS projections.

Land Use - Lot acreage adjusted to match site plan.

Construction Phase - Demolition phase reduced to represent minor demolition required, as noted on AQ Questionnaire.

Demolition -

Vehicle Trips - Trip rate adjusted consistent with project-specific traffic memo prepared by TJKM.

Woodstoves - Units would include natural gas fireplaces only.

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - Title 24 exceedance applied to reflect compliance with 2019 CBSC.

Water Mitigation - Water conservation strategy applied to reflect compliance with 2019 CalGreen Code and MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	4/13/2023	3/6/2023
tblConstructionPhase	PhaseEndDate	2/16/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	10/28/2021	10/7/2021
tblConstructionPhase	PhaseEndDate	12/23/2021	12/2/2021
tblConstructionPhase	PhaseEndDate	3/16/2023	12/30/2021
tblConstructionPhase	PhaseEndDate	11/11/2021	10/21/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	1/11/2022
tblConstructionPhase	PhaseStartDate	12/24/2021	12/31/2021
tblConstructionPhase	PhaseStartDate	11/12/2021	10/22/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	12/3/2021
tblConstructionPhase	PhaseStartDate	10/29/2021	10/8/2021
tblFireplaces	NumberGas	10.50	42.00
tblFireplaces	NumberNoFireplace	3.36	0.00
tblFireplaces	NumberWood	18.06	0.00
tblLandUse	LotAcreage	13.64	14.82
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1056	1.1177	0.7911	1.5100e-003	0.2261	0.0512	0.2773	0.1050	0.0471	0.1521	0.0000	132.4423	132.4423	0.0411	0.0000	133.4697
2022	0.7066	2.2648	2.4184	4.1800e-003	0.0218	0.1158	0.1376	5.8900e-003	0.1095	0.1154	0.0000	362.0228	362.0228	0.0752	0.0000	363.9035
2023	0.1178	0.3170	0.3670	6.4000e-004	3.3700e-003	0.0153	0.0187	9.1000e-004	0.0145	0.0154	0.0000	55.2585	55.2585	0.0112	0.0000	55.5392
Maximum	**0.7066**	**2.2648**	**2.4184**	**4.1800e-003**	**0.2261**	**0.1158**	**0.2773**	**0.1050**	**0.1095**	**0.1521**	**0.0000**	**362.0228**	**362.0228**	**0.0752**	**0.0000**	**363.9035**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1056	1.1177	0.7911	1.5100e-003	0.2261	0.0512	0.2773	0.1050	0.0471	0.1521	0.0000	132.4421	132.4421	0.0411	0.0000	133.4696
2022	0.7066	2.2648	2.4184	4.1800e-003	0.0218	0.1158	0.1376	5.8900e-003	0.1095	0.1154	0.0000	362.0224	362.0224	0.0752	0.0000	363.9031
2023	0.1178	0.3170	0.3670	6.4000e-004	3.3700e-003	0.0153	0.0187	9.1000e-004	0.0145	0.0154	0.0000	55.2584	55.2584	0.0112	0.0000	55.5391
Maximum	**0.7066**	**2.2648**	**2.4184**	**4.1800e-003**	**0.2261**	**0.1158**	**0.2773**	**0.1050**	**0.1095**	**0.1521**	**0.0000**	**362.0224**	**362.0224**	**0.0752**	**0.0000**	**363.9031**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**10-1-2021**	**12-31-2021**	1.2207	1.2207
2	**1-1-2022**	**3-31-2022**	0.7203	0.7203
3	**4-1-2022**	**6-30-2022**	0.7465	0.7465
4	**7-1-2022**	**9-30-2022**	0.7547	0.7547
5	**10-1-2022**	**12-31-2022**	0.7552	0.7552
6	**1-1-2023**	**3-31-2023**	0.4326	0.4326
		Highest	1.2207	1.2207

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3693	9.7300e-003	0.4124	3.7000e-004		0.0182	0.0182		0.0182	0.0182	2.1524	5.7527	7.9050	0.0107	1.0000e-004	8.2000
Energy	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	104.8614	104.8614	5.7200e-003	2.1200e-003	105.6359
Mobile	0.0902	0.3993	1.0243	3.8100e-003	0.3408	3.1200e-003	0.3439	0.0915	2.9100e-003	0.0944	0.0000	350.0411	350.0411	0.0122	0.0000	350.3450
Waste						0.0000	0.0000		0.0000	0.0000	10.2307	0.0000	10.2307	0.6046	0.0000	25.3462
Water						0.0000	0.0000		0.0000	0.0000	0.8682	2.4365	3.3047	0.0894	2.1600e-003	6.1850
Total	**0.4660**	**0.4653**	**1.4607**	**4.5400e-003**	**0.3408**	**0.0258**	**0.3666**	**0.0915**	**0.0256**	**0.1171**	**13.2513**	**463.0917**	**476.3429**	**0.7226**	**4.3800e-003**	**495.7121**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3584	8.1200e-003	0.3139	5.0000e-005		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	5.7527	5.7527	5.9000e-004	1.0000e-004	5.7961
Energy	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
Mobile	0.0895	0.3954	1.0093	3.7400e-003	0.3340	3.0700e-003	0.3370	0.0896	2.8600e-003	0.0925	0.0000	343.5670	343.5670	0.0120	0.0000	343.8665
Waste						0.0000	0.0000		0.0000	0.0000	10.2307	0.0000	10.2307	0.6046	0.0000	25.3462
Water						0.0000	0.0000		0.0000	0.0000	0.6945	1.9492	2.6437	0.0716	1.7300e-003	4.9480
Total	**0.4541**	**0.4563**	**1.3456**	**4.1300e-003**	**0.3340**	**9.4200e-003**	**0.3434**	**0.0896**	**9.2100e-003**	**0.0988**	**10.9253**	**412.3468**	**423.2721**	**0.6899**	**2.9500e-003**	**441.3977**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.55**	**1.94**	**7.88**	**9.03**	**2.00**	**63.54**	**6.34**	**2.00**	**64.07**	**15.59**	**17.55**	**10.96**	**11.14**	**4.52**	**32.65**	**10.96**

3.0 Construction Detail

Construction Phase

Oakley Village Subdivision Project - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2021	10/7/2021	5	5	
2	Site Preparation	Site Preparation	10/8/2021	10/21/2021	5	10	
3	Grading	Grading	10/22/2021	12/2/2021	5	30	
4	Paving	Paving	12/3/2021	12/30/2021	5	20	
5	Building Construction	Building Construction	12/31/2021	2/23/2023	5	300	
6	Architectural Coating	Architectural Coating	1/11/2022	3/6/2023	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 153,090; Residential Outdoor: 51,030; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8000e-004	0.0000	9.8000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0786	0.0539	1.0000e-004		3.8800e-003	3.8800e-003		3.6000e-003	3.6000e-003	0.0000	8.5002	8.5002	2.3900e-003	0.0000	8.5600
Total	**7.9100e-003**	**0.0786**	**0.0539**	**1.0000e-004**	**9.8000e-004**	**3.8800e-003**	**4.8600e-003**	**1.5000e-004**	**3.6000e-003**	**3.7500e-003**	**0.0000**	**8.5002**	**8.5002**	**2.3900e-003**	**0.0000**	**8.5600**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3404	0.3404	2.0000e-005	0.0000	0.3409
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	8.4000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2505	0.2505	1.0000e-005	0.0000	0.2506
Total	**1.6000e-004**	**1.2900e-003**	**1.1000e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.5909**	**0.5909**	**3.0000e-005**	**0.0000**	**0.5915**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8000e-004	0.0000	9.8000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0786	0.0539	1.0000e-004		3.8800e-003	3.8800e-003		3.6000e-003	3.6000e-003	0.0000	8.5002	8.5002	2.3900e-003	0.0000	8.5600
Total	**7.9100e-003**	**0.0786**	**0.0539**	**1.0000e-004**	**9.8000e-004**	**3.8800e-003**	**4.8600e-003**	**1.5000e-004**	**3.6000e-003**	**3.7500e-003**	**0.0000**	**8.5002**	**8.5002**	**2.3900e-003**	**0.0000**	**8.5600**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3404	0.3404	2.0000e-005	0.0000	0.3409
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	8.4000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2505	0.2505	1.0000e-005	0.0000	0.2506
Total	**1.6000e-004**	**1.2900e-003**	**1.1000e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.5909**	**0.5909**	**3.0000e-005**	**0.0000**	**0.5915**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	1.9000e-004	2.0200e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6012	0.6012	1.0000e-005	0.0000	0.6015
Total	**2.8000e-004**	**1.9000e-004**	**2.0200e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6012**	**0.6012**	**1.0000e-005**	**0.0000**	**0.6015**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7425	81.7425	0.0264	0.0000	82.4034
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7425**	**81.7425**	**0.0264**	**0.0000**	**82.4034**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0629	0.6960	0.4632	9.3000e-004		0.0298	0.0298		0.0274	0.0274	0.0000	81.7424	81.7424	0.0264	0.0000	82.4033
Total	**0.0629**	**0.6960**	**0.4632**	**9.3000e-004**	**0.1301**	**0.0298**	**0.1599**	**0.0540**	**0.0274**	**0.0814**	**0.0000**	**81.7424**	**81.7424**	**0.0264**	**0.0000**	**82.4033**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.2000e-004	6.4000e-004	6.7300e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0040	2.0040	4.0000e-005	0.0000	2.0051
Total	**9.2000e-004**	**6.4000e-004**	**6.7300e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0040**	**2.0040**	**4.0000e-005**	**0.0000**	**2.0051**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**4.6000e-004**	**3.2000e-004**	**3.3600e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0020**	**1.0020**	**2.0000e-005**	**0.0000**	**1.0026**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**4.6000e-004**	**3.2000e-004**	**3.3600e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**1.0020**	**1.0020**	**2.0000e-005**	**0.0000**	**1.0026**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-004	8.7200e-003	8.2900e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.5000e-004	4.5000e-004	0.0000	1.1582	1.1582	2.8000e-004	0.0000	1.1652
Total	**9.5000e-004**	**8.7200e-003**	**8.2900e-003**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.1582**	**1.1582**	**2.8000e-004**	**0.0000**	**1.1652**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.1000e-004	5.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0519	0.0519	0.0000	0.0000	0.0519
Worker	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0501	0.0501	0.0000	0.0000	0.0501
Total	**3.0000e-005**	**2.3000e-004**	**2.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1020**	**0.1020**	**0.0000**	**0.0000**	**0.1021**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.5000e-004	8.7200e-003	8.2900e-003	1.0000e-005		4.8000e-004	4.8000e-004		4.5000e-004	4.5000e-004	0.0000	1.1582	1.1582	2.8000e-004	0.0000	1.1652
Total	**9.5000e-004**	**8.7200e-003**	**8.2900e-003**	**1.0000e-005**		**4.8000e-004**	**4.8000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**1.1582**	**1.1582**	**2.8000e-004**	**0.0000**	**1.1652**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.1000e-004	5.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0519	0.0519	0.0000	0.0000	0.0519
Worker	2.0000e-005	2.0000e-005	1.7000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0501	0.0501	0.0000	0.0000	0.0501
Total	**3.0000e-005**	**2.3000e-004**	**2.2000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1020**	**0.1020**	**0.0000**	**0.0000**	**0.1021**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2428	301.2428	0.0722	0.0000	303.0471
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2428**	**301.2428**	**0.0722**	**0.0000**	**303.0471**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5400e-003	0.0514	0.0128	1.4000e-004	3.4100e-003	1.0000e-004	3.5100e-003	9.9000e-004	1.0000e-004	1.0800e-003	0.0000	13.3537	13.3537	6.3000e-004	0.0000	13.3695
Worker	5.5800e-003	3.7000e-003	0.0402	1.4000e-004	0.0154	1.0000e-004	0.0155	4.1000e-003	9.0000e-005	4.1900e-003	0.0000	12.5483	12.5483	2.6000e-004	0.0000	12.5548
Total	**7.1200e-003**	**0.0551**	**0.0529**	**2.8000e-004**	**0.0188**	**2.0000e-004**	**0.0190**	**5.0900e-003**	**1.9000e-004**	**5.2700e-003**	**0.0000**	**25.9019**	**25.9019**	**8.9000e-004**	**0.0000**	**25.9243**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2218	2.0300	2.1272	3.5000e-003		0.1052	0.1052		0.0990	0.0990	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.2218**	**2.0300**	**2.1272**	**3.5000e-003**		**0.1052**	**0.1052**		**0.0990**	**0.0990**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5400e-003	0.0514	0.0128	1.4000e-004	3.4100e-003	1.0000e-004	3.5100e-003	9.9000e-004	1.0000e-004	1.0800e-003	0.0000	13.3537	13.3537	6.3000e-004	0.0000	13.3695
Worker	5.5800e-003	3.7000e-003	0.0402	1.4000e-004	0.0154	1.0000e-004	0.0155	4.1000e-003	9.0000e-005	4.1900e-003	0.0000	12.5483	12.5483	2.6000e-004	0.0000	12.5548
Total	**7.1200e-003**	**0.0551**	**0.0529**	**2.8000e-004**	**0.0188**	**2.0000e-004**	**0.0190**	**5.0900e-003**	**1.9000e-004**	**5.2700e-003**	**0.0000**	**25.9019**	**25.9019**	**8.9000e-004**	**0.0000**	**25.9243**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0307	0.2805	0.3168	5.3000e-004		0.0136	0.0136		0.0128	0.0128	0.0000	45.2019	45.2019	0.0108	0.0000	45.4708
Total	**0.0307**	**0.2805**	**0.3168**	**5.3000e-004**		**0.0136**	**0.0136**		**0.0128**	**0.0128**	**0.0000**	**45.2019**	**45.2019**	**0.0108**	**0.0000**	**45.4708**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	5.9500e-003	1.7100e-003	2.0000e-005	5.1000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.5000e-004	0.0000	1.9469	1.9469	8.0000e-005	0.0000	1.9489
Worker	7.8000e-004	5.0000e-004	5.5500e-003	2.0000e-005	2.3100e-003	1.0000e-005	2.3300e-003	6.1000e-004	1.0000e-005	6.3000e-004	0.0000	1.8102	1.8102	4.0000e-005	0.0000	1.8110
Total	**9.5000e-004**	**6.4500e-003**	**7.2600e-003**	**4.0000e-005**	**2.8200e-003**	**2.0000e-005**	**2.8500e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**3.7571**	**3.7571**	**1.2000e-004**	**0.0000**	**3.7600**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0307	0.2805	0.3168	5.3000e-004		0.0136	0.0136		0.0128	0.0128	0.0000	45.2019	45.2019	0.0108	0.0000	45.4707
Total	**0.0307**	**0.2805**	**0.3168**	**5.3000e-004**		**0.0136**	**0.0136**		**0.0128**	**0.0128**	**0.0000**	**45.2019**	**45.2019**	**0.0108**	**0.0000**	**45.4707**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.7000e-004	5.9500e-003	1.7100e-003	2.0000e-005	5.1000e-004	1.0000e-005	5.2000e-004	1.5000e-004	1.0000e-005	1.5000e-004	0.0000	1.9469	1.9469	8.0000e-005	0.0000	1.9489
Worker	7.8000e-004	5.0000e-004	5.5500e-003	2.0000e-005	2.3100e-003	1.0000e-005	2.3300e-003	6.1000e-004	1.0000e-005	6.3000e-004	0.0000	1.8102	1.8102	4.0000e-005	0.0000	1.8110
Total	**9.5000e-004**	**6.4500e-003**	**7.2600e-003**	**4.0000e-005**	**2.8200e-003**	**2.0000e-005**	**2.8500e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**3.7571**	**3.7571**	**1.2000e-004**	**0.0000**	**3.7600**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0260	0.1789	0.2303	3.8000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	32.4263	32.4263	2.1100e-003	0.0000	32.4791
Total	**0.4766**	**0.1789**	**0.2303**	**3.8000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**32.4263**	**32.4263**	**2.1100e-003**	**0.0000**	**32.4791**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0900e-003	7.2000e-004	7.8500e-003	3.0000e-005	3.0100e-003	2.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4517	2.4517	5.0000e-005	0.0000	2.4530
Total	**1.0900e-003**	**7.2000e-004**	**7.8500e-003**	**3.0000e-005**	**3.0100e-003**	**2.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.4517**	**2.4517**	**5.0000e-005**	**0.0000**	**2.4530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4506					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0260	0.1789	0.2303	3.8000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	32.4263	32.4263	2.1100e-003	0.0000	32.4791
Total	**0.4766**	**0.1789**	**0.2303**	**3.8000e-004**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**32.4263**	**32.4263**	**2.1100e-003**	**0.0000**	**32.4791**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0900e-003	7.2000e-004	7.8500e-003	3.0000e-005	3.0100e-003	2.0000e-005	3.0300e-003	8.0000e-004	2.0000e-005	8.2000e-004	0.0000	2.4517	2.4517	5.0000e-005	0.0000	2.4530
Total	**1.0900e-003**	**7.2000e-004**	**7.8500e-003**	**3.0000e-005**	**3.0100e-003**	**2.0000e-005**	**3.0300e-003**	**8.0000e-004**	**2.0000e-005**	**8.2000e-004**	**0.0000**	**2.4517**	**2.4517**	**5.0000e-005**	**0.0000**	**2.4530**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0816					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4100e-003	0.0300	0.0417	7.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	5.8725	5.8725	3.5000e-004	0.0000	5.8813
Total	**0.0860**	**0.0300**	**0.0417**	**7.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**5.8725**	**5.8725**	**3.5000e-004**	**0.0000**	**5.8813**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.3100e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4270	0.4270	1.0000e-005	0.0000	0.4272
Total	**1.8000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4270**	**0.4270**	**1.0000e-005**	**0.0000**	**0.4272**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0816					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4100e-003	0.0300	0.0417	7.0000e-005		1.6300e-003	1.6300e-003		1.6300e-003	1.6300e-003	0.0000	5.8725	5.8725	3.5000e-004	0.0000	5.8813
Total	**0.0860**	**0.0300**	**0.0417**	**7.0000e-005**		**1.6300e-003**	**1.6300e-003**		**1.6300e-003**	**1.6300e-003**	**0.0000**	**5.8725**	**5.8725**	**3.5000e-004**	**0.0000**	**5.8813**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.2000e-004	1.3100e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4270	0.4270	1.0000e-005	0.0000	0.4272
Total	**1.8000e-004**	**1.2000e-004**	**1.3100e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4270**	**0.4270**	**1.0000e-005**	**0.0000**	**0.4272**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0895	0.3954	1.0093	3.7400e-003	0.3340	3.0700e-003	0.3370	0.0896	2.8600e-003	0.0925	0.0000	343.5670	343.5670	0.0120	0.0000	343.8665
Unmitigated	0.0902	0.3993	1.0243	3.8100e-003	0.3408	3.1200e-003	0.3439	0.0915	2.9100e-003	0.0944	0.0000	350.0411	350.0411	0.0122	0.0000	350.3450

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	396.48	396.48	396.48	915,713	897,399
Total	396.48	396.48	396.48	915,713	897,399

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	39.7184	39.7184	4.4700e-003	9.2000e-004	40.1057
NaturalGas Mitigated	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
NaturalGas Unmitigated	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	65.1430	65.1430	1.2500e-003	1.1900e-003	65.5301

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.22073e+006	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	65.1430	65.1430	1.2500e-003	1.1900e-003	65.5301
Total		**6.5800e-003**	**0.0563**	**0.0239**	**3.6000e-004**		**4.5500e-003**	**4.5500e-003**		**4.5500e-003**	**4.5500e-003**	**0.0000**	**65.1430**	**65.1430**	**1.2500e-003**	**1.1900e-003**	**65.5301**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.14456e+006	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
Total		**6.1700e-003**	**0.0527**	**0.0224**	**3.4000e-004**		**4.2600e-003**	**4.2600e-003**		**4.2600e-003**	**4.2600e-003**	**0.0000**	**61.0780**	**61.0780**	**1.1700e-003**	**1.1200e-003**	**61.4409**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	339804	39.7184	4.4700e-003	9.2000e-004	40.1057
Total		**39.7184**	**4.4700e-003**	**9.2000e-004**	**40.1057**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3584	8.1200e-003	0.3139	5.0000e-005		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	5.7527	5.7527	5.9000e-004	1.0000e-004	5.7961
Unmitigated	0.3693	9.7300e-003	0.4124	3.7000e-004		0.0182	0.0182		0.0182	0.0182	2.1524	5.7527	7.9050	0.0107	1.0000e-004	8.2000

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0114	6.1300e-003	0.1005	3.5000e-004		0.0164	0.0164		0.0164	0.0164	2.1524	5.2433	7.3956	0.0102	1.0000e-004	7.6783
Landscaping	9.4000e-003	3.6000e-003	0.3119	2.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	0.5094	0.5094	4.9000e-004	0.0000	0.5217
Total	**0.3693**	**9.7300e-003**	**0.4124**	**3.7000e-004**		**0.0182**	**0.0182**		**0.0182**	**0.0182**	**2.1524**	**5.7527**	**7.9050**	**0.0107**	**1.0000e-004**	**8.2000**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.3000e-004	4.5300e-003	1.9300e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2433	5.2433	1.0000e-004	1.0000e-004	5.2744
Landscaping	9.4000e-003	3.6000e-003	0.3119	2.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	0.5094	0.5094	4.9000e-004	0.0000	0.5217
Total	**0.3584**	**8.1300e-003**	**0.3139**	**5.0000e-005**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**5.7527**	**5.7527**	**5.9000e-004**	**1.0000e-004**	**5.7961**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.6437	0.0716	1.7300e-003	4.9480
Unmitigated	3.3047	0.0894	2.1600e-003	6.1850

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	2.73647 / 1.72517	3.3047	0.0894	2.1600e-003	6.1850
Total		**3.3047**	**0.0894**	**2.1600e-003**	**6.1850**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	2.18918 / 1.38013	2.6437	0.0716	1.7300e-003	4.9480
Total		**2.6437**	**0.0716**	**1.7300e-003**	**4.9480**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.2307	0.6046	0.0000	25.3462
Unmitigated	10.2307	0.6046	0.0000	25.3462

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	50.4	10.2307	0.6046	0.0000	25.3462
Total		**10.2307**	**0.6046**	**0.0000**	**25.3462**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	50.4	10.2307	0.6046	0.0000	25.3462
Total		**10.2307**	**0.6046**	**0.0000**	**25.3462**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Village Subdivision Project

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	42.00	Dwelling Unit	14.82	75,600.00	120

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor adjusted based on PG&E's RPS projections.

Land Use - Lot acreage adjusted to match site plan.

Construction Phase - Demolition phase reduced to represent minor demolition required, as noted on AQ Questionnaire.

Demolition -

Vehicle Trips - Trip rate adjusted consistent with project-specific traffic memo prepared by TJKM.

Woodstoves - Units would include natural gas fireplaces only.

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - Title 24 exceedance applied to reflect compliance with 2019 CBSC.

Water Mitigation - Water conservation strategy applied to reflect compliance with 2019 CalGreen Code and MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	4/13/2023	3/6/2023
tblConstructionPhase	PhaseEndDate	2/16/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	10/28/2021	10/7/2021
tblConstructionPhase	PhaseEndDate	12/23/2021	12/2/2021
tblConstructionPhase	PhaseEndDate	3/16/2023	12/30/2021
tblConstructionPhase	PhaseEndDate	11/11/2021	10/21/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	1/11/2022
tblConstructionPhase	PhaseStartDate	12/24/2021	12/31/2021
tblConstructionPhase	PhaseStartDate	11/12/2021	10/22/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	12/3/2021
tblConstructionPhase	PhaseStartDate	10/29/2021	10/8/2021
tblFireplaces	NumberGas	10.50	42.00
tblFireplaces	NumberNoFireplace	3.36	0.00
tblFireplaces	NumberWood	18.06	0.00
tblLandUse	LotAcreage	13.64	14.82
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2555	46.4374	31.3697	0.0636	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,165.4353	6,165.4353	1.9463	0.0000	6,214.0939
2022	5.5241	17.4462	18.6761	0.0324	0.1749	0.8924	1.0674	0.0470	0.8445	0.8915	0.0000	3,087.5606	3,087.5606	0.6383	0.0000	3,103.5185
2023	5.3712	16.0179	18.5134	0.0323	0.1749	0.7718	0.9467	0.0470	0.7304	0.7774	0.0000	3,079.9527	3,079.9527	0.6317	0.0000	3,095.7449
Maximum	**5.5241**	**46.4374**	**31.3697**	**0.0636**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,165.4353**	**6,165.4353**	**1.9463**	**0.0000**	**6,214.0939**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2555	46.4374	31.3697	0.0636	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,165.4353	6,165.4353	1.9463	0.0000	6,214.0938
2022	5.5241	17.4462	18.6761	0.0324	0.1749	0.8924	1.0674	0.0470	0.8445	0.8915	0.0000	3,087.5606	3,087.5606	0.6383	0.0000	3,103.5185
2023	5.3712	16.0179	18.5134	0.0323	0.1749	0.7718	0.9467	0.0470	0.7304	0.7774	0.0000	3,079.9527	3,079.9527	0.6317	0.0000	3,095.7449
Maximum	**5.5241**	**46.4374**	**31.3697**	**0.0636**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,165.4353**	**6,165.4353**	**1.9463**	**0.0000**	**6,214.0938**

Oakley Village Subdivision Project - Bay Area AQMD Air District, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.1394	1.0054	13.1693	0.0359		1.6114	1.6114		1.6114	1.6114	225.3141	1,043.8863	1,269.2004	1.0792	0.0190	1,301.8490
Energy	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060
Mobile	0.5701	2.1273	5.8612	0.0222	1.9453	0.0171	1.9624	0.5204	0.0160	0.5364		2,242.3856	2,242.3856	0.0741		2,244.2377
Total	**3.7455**	**3.4409**	**19.1616**	**0.0600**	**1.9453**	**1.6535**	**3.5988**	**0.5204**	**1.6523**	**2.1728**	**225.3141**	**3,679.7397**	**3,905.0538**	**1.1608**	**0.0262**	**3,941.8927**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1090	0.8528	3.8117	5.3700e-003		0.0849	0.0849		0.0849	0.0849	0.0000	1,043.8863	1,043.8863	0.0259	0.0190	1,050.2025
Energy	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
Mobile	0.5665	2.1072	5.7681	0.0217	1.9064	0.0168	1.9232	0.5100	0.0157	0.5257		2,200.8554	2,200.8554	0.0730		2,202.6795
Total	**2.7093**	**3.2490**	**9.7028**	**0.0290**	**1.9064**	**0.1251**	**2.0315**	**0.5100**	**0.1240**	**0.6340**	**0.0000**	**3,613.6564**	**3,613.6564**	**0.1059**	**0.0258**	**3,623.9891**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**27.67**	**5.58**	**49.36**	**51.77**	**2.00**	**92.43**	**43.55**	**2.00**	**92.50**	**70.82**	**100.00**	**1.80**	**7.46**	**90.87**	**1.72**	**8.06**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2021	10/7/2021	5	5	
2	Site Preparation	Site Preparation	10/8/2021	10/21/2021	5	10	
3	Grading	Grading	10/22/2021	12/2/2021	5	30	
4	Paving	Paving	12/3/2021	12/30/2021	5	20	
5	Building Construction	Building Construction	12/31/2021	2/23/2023	5	300	
6	Architectural Coating	Architectural Coating	1/11/2022	3/6/2023	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 153,090; Residential Outdoor: 51,030; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Oakley Village Subdivision Project - Bay Area AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3937**	**1.5513**	**1.9451**	**0.0596**	**1.4411**	**1.5007**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0140	0.4763	0.1004	1.4100e-003	0.0315	1.4900e-003	0.0329	8.6200e-003	1.4300e-003	0.0101		151.1838	151.1838	7.5000e-003		151.3713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0623**	**0.5045**	**0.4689**	**2.6000e-003**	**0.1547**	**2.2700e-003**	**0.1569**	**0.0413**	**2.1400e-003**	**0.0435**		**269.9777**	**269.9777**	**0.0102**		**270.2316**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3937**	**1.5513**	**1.9451**	**0.0596**	**1.4411**	**1.5007**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0140	0.4763	0.1004	1.4100e-003	0.0315	1.4900e-003	0.0329	8.6200e-003	1.4300e-003	0.0101		151.1838	151.1838	7.5000e-003		151.3713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0623**	**0.5045**	**0.4689**	**2.6000e-003**	**0.1547**	**2.2700e-003**	**0.1569**	**0.0413**	**2.1400e-003**	**0.0435**		**269.9777**	**269.9777**	**0.0102**		**270.2316**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0579	0.0338	0.4421	1.4300e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		142.5527	142.5527	3.1900e-003		142.6324
Total	**0.0579**	**0.0338**	**0.4421**	**1.4300e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**142.5527**	**142.5527**	**3.1900e-003**		**142.6324**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0643	0.0376	0.4913	1.5900e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		158.3919	158.3919	3.5400e-003		158.4804
Total	**0.0643**	**0.0376**	**0.4913**	**1.5900e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**158.3919**	**158.3919**	**3.5400e-003**		**158.4804**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0482**	**0.0282**	**0.3685**	**1.1900e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**118.7939**	**118.7939**	**2.6600e-003**		**118.8603**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.4134	0.0975	1.0900e-003	0.0271	9.0000e-004	0.0280	7.7900e-003	8.6000e-004	8.6500e-003		115.5834	115.5834	5.4200e-003		115.7190
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0606**	**0.4416**	**0.4659**	**2.2800e-003**	**0.1503**	**1.6800e-003**	**0.1520**	**0.0405**	**1.5700e-003**	**0.0421**		**234.3774**	**234.3774**	**8.0800e-003**		**234.5794**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.4134	0.0975	1.0900e-003	0.0271	9.0000e-004	0.0280	7.7900e-003	8.6000e-004	8.6500e-003		115.5834	115.5834	5.4200e-003		115.7190
Worker	0.0482	0.0282	0.3685	1.1900e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		118.7939	118.7939	2.6600e-003		118.8603
Total	**0.0606**	**0.4416**	**0.4659**	**2.2800e-003**	**0.1503**	**1.6800e-003**	**0.1520**	**0.0405**	**1.5700e-003**	**0.0421**		**234.3774**	**234.3774**	**8.0800e-003**		**234.5794**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3918	0.0917	1.0800e-003	0.0271	7.8000e-004	0.0279	7.7900e-003	7.4000e-004	8.5400e-003		114.4578	114.4578	5.1900e-003		114.5875
Worker	0.0449	0.0253	0.3395	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		114.4343	114.4343	2.3800e-003		114.4939
Total	**0.0565**	**0.4170**	**0.4312**	**2.2300e-003**	**0.1503**	**1.5400e-003**	**0.1518**	**0.0405**	**1.4400e-003**	**0.0419**		**228.8921**	**228.8921**	**7.5700e-003**		**229.0814**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.3918	0.0917	1.0800e-003	0.0271	7.8000e-004	0.0279	7.7900e-003	7.4000e-004	8.5400e-003		114.4578	114.4578	5.1900e-003		114.5875
Worker	0.0449	0.0253	0.3395	1.1500e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		114.4343	114.4343	2.3800e-003		114.4939
Total	**0.0565**	**0.4170**	**0.4312**	**2.2300e-003**	**0.1503**	**1.5400e-003**	**0.1518**	**0.0405**	**1.4400e-003**	**0.0419**		**228.8921**	**228.8921**	**7.5700e-003**		**229.0814**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.6700e-003	0.3028	0.0825	1.0500e-003	0.0271	3.4000e-004	0.0274	7.7900e-003	3.3000e-004	8.1200e-003		111.2380	111.2380	4.4300e-003		111.3488
Worker	0.0419	0.0227	0.3131	1.1000e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		110.0473	110.0473	2.1400e-003		110.1009
Total	**0.0506**	**0.3255**	**0.3957**	**2.1500e-003**	**0.1503**	**1.0800e-003**	**0.1514**	**0.0405**	**1.0100e-003**	**0.0415**		**221.2853**	**221.2853**	**6.5700e-003**		**221.4496**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	8.6700e-003	0.3028	0.0825	1.0500e-003	0.0271	3.4000e-004	0.0274	7.7900e-003	3.3000e-004	8.1200e-003		111.2380	111.2380	4.4300e-003		111.3488
Worker	0.0419	0.0227	0.3131	1.1000e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		110.0473	110.0473	2.1400e-003		110.1009
Total	**0.0506**	**0.3255**	**0.3957**	**2.1500e-003**	**0.1503**	**1.0800e-003**	**0.1514**	**0.0405**	**1.0100e-003**	**0.0415**		**221.2853**	**221.2853**	**6.5700e-003**		**221.4496**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**3.7524**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9800e-003	5.0600e-003	0.0679	2.3000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		22.8869	22.8869	4.8000e-004		22.8988
Total	**8.9800e-003**	**5.0600e-003**	**0.0679**	**2.3000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6800e-003**		**22.8869**	**22.8869**	**4.8000e-004**		**22.8988**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**3.7524**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9800e-003	5.0600e-003	0.0679	2.3000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		22.8869	22.8869	4.8000e-004		22.8988
Total	**8.9800e-003**	**5.0600e-003**	**0.0679**	**2.3000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6800e-003**		**22.8869**	**22.8869**	**4.8000e-004**		**22.8988**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**3.7395**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.3800e-003	4.5500e-003	0.0626	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6700e-003		22.0095	22.0095	4.3000e-004		22.0202
Total	**8.3800e-003**	**4.5500e-003**	**0.0626**	**2.2000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6700e-003**		**22.0095**	**22.0095**	**4.3000e-004**		**22.0202**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.7395**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.3800e-003	4.5500e-003	0.0626	2.2000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6700e-003		22.0095	22.0095	4.3000e-004		22.0202
Total	**8.3800e-003**	**4.5500e-003**	**0.0626**	**2.2000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6700e-003**		**22.0095**	**22.0095**	**4.3000e-004**		**22.0202**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5665	2.1072	5.7681	0.0217	1.9064	0.0168	1.9232	0.5100	0.0157	0.5257		2,200.8554	2,200.8554	0.0730		2,202.6795
Unmitigated	0.5701	2.1273	5.8612	0.0222	1.9453	0.0171	1.9624	0.5204	0.0160	0.5364		2,242.3856	2,242.3856	0.0741		2,244.2377

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	396.48	396.48	396.48	915,713	897,399
Total	396.48	396.48	396.48	915,713	897,399

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
NaturalGas Unmitigated	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3344.48	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060
Total		**0.0361**	**0.3082**	**0.1312**	**1.9700e-003**		**0.0249**	**0.0249**		**0.0249**	**0.0249**		**393.4678**	**393.4678**	**7.5400e-003**	**7.2100e-003**	**395.8060**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.13578	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
Total		**0.0338**	**0.2890**	**0.1230**	**1.8400e-003**		**0.0234**	**0.0234**		**0.0234**	**0.0234**		**368.9148**	**368.9148**	**7.0700e-003**	**6.7600e-003**	**371.1071**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1090	0.8528	3.8117	5.3700e-003		0.0849	0.0849		0.0849	0.0849	0.0000	1,043.8863	1,043.8863	0.0259	0.0190	1,050.2025
Unmitigated	3.1394	1.0054	13.1693	0.0359		1.6114	1.6114		1.6114	1.6114	225.3141	1,043.8863	1,269.2004	1.0792	0.0190	1,301.8490

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2916					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.1255	0.9655	9.7034	0.0357		1.5922	1.5922		1.5922	1.5922	225.3141	1,037.6471	1,262.9612	1.0732	0.0190	1,295.4599
Landscaping	0.1044	0.0400	3.4658	1.8000e-004		0.0192	0.0192		0.0192	0.0192		6.2392	6.2392	6.0000e-003		6.3892
Total	**3.1394**	**1.0054**	**13.1693**	**0.0359**		**1.6114**	**1.6114**		**1.6114**	**1.6114**	**225.3141**	**1,043.8863**	**1,269.2004**	**1.0792**	**0.0190**	**1,301.8490**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2916					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0951	0.8128	0.3459	5.1900e-003		0.0657	0.0657		0.0657	0.0657	0.0000	1,037.6471	1,037.6471	0.0199	0.0190	1,043.8133
Landscaping	0.1044	0.0400	3.4658	1.8000e-004		0.0192	0.0192		0.0192	0.0192		6.2392	6.2392	6.0000e-003		6.3892
Total	**2.1090**	**0.8528**	**3.8117**	**5.3700e-003**		**0.0849**	**0.0849**		**0.0849**	**0.0849**	**0.0000**	**1,043.8863**	**1,043.8863**	**0.0259**	**0.0190**	**1,050.2025**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Village Subdivision Project

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	42.00	Dwelling Unit	14.82	75,600.00	120

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	257.69	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor adjusted based on PG&E's RPS projections.

Land Use - Lot acreage adjusted to match site plan.

Construction Phase - Demolition phase reduced to represent minor demolition required, as noted on AQ Questionnaire.

Demolition -

Vehicle Trips - Trip rate adjusted consistent with project-specific traffic memo prepared by TJKM.

Woodstoves - Units would include natural gas fireplaces only.

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - Title 24 exceedance applied to reflect compliance with 2019 CBSC.

Water Mitigation - Water conservation strategy applied to reflect compliance with 2019 CalGreen Code and MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	300.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	4/13/2023	3/6/2023
tblConstructionPhase	PhaseEndDate	2/16/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	10/28/2021	10/7/2021
tblConstructionPhase	PhaseEndDate	12/23/2021	12/2/2021
tblConstructionPhase	PhaseEndDate	3/16/2023	12/30/2021
tblConstructionPhase	PhaseEndDate	11/11/2021	10/21/2021
tblConstructionPhase	PhaseStartDate	3/17/2023	1/11/2022
tblConstructionPhase	PhaseStartDate	12/24/2021	12/31/2021
tblConstructionPhase	PhaseStartDate	11/12/2021	10/22/2021
tblConstructionPhase	PhaseStartDate	2/17/2023	12/3/2021
tblConstructionPhase	PhaseStartDate	10/29/2021	10/8/2021
tblFireplaces	NumberGas	10.50	42.00
tblFireplaces	NumberNoFireplace	3.36	0.00
tblFireplaces	NumberWood	18.06	0.00
tblLandUse	LotAcreage	13.64	14.82
tblProjectCharacteristics	CO2IntensityFactor	641.35	257.69
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2593	46.4463	31.3381	0.0635	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,152.9508	6,152.9508	1.9461	0.0000	6,201.6033
2022	5.5281	17.4563	18.6619	0.0322	0.1749	0.8924	1.0674	0.0470	0.8445	0.8915	0.0000	3,073.8198	3,073.8198	0.6385	0.0000	3,089.7832
2023	5.3751	16.0258	18.4973	0.0322	0.1749	0.7718	0.9467	0.0470	0.7304	0.7774	0.0000	3,066.7425	3,066.7425	0.6318	0.0000	3,082.5381
Maximum	**5.5281**	**46.4463**	**31.3381**	**0.0635**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,152.9508**	**6,152.9508**	**1.9461**	**0.0000**	**6,201.6033**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2593	46.4463	31.3381	0.0635	18.2141	2.0454	20.2595	9.9699	1.8818	11.8517	0.0000	6,152.9508	6,152.9508	1.9461	0.0000	6,201.6033
2022	5.5281	17.4563	18.6619	0.0322	0.1749	0.8924	1.0674	0.0470	0.8445	0.8915	0.0000	3,073.8198	3,073.8198	0.6385	0.0000	3,089.7832
2023	5.3751	16.0258	18.4973	0.0322	0.1749	0.7718	0.9467	0.0470	0.7304	0.7774	0.0000	3,066.7425	3,066.7425	0.6318	0.0000	3,082.5380
Maximum	**5.5281**	**46.4463**	**31.3381**	**0.0635**	**18.2141**	**2.0454**	**20.2595**	**9.9699**	**1.8818**	**11.8517**	**0.0000**	**6,152.9508**	**6,152.9508**	**1.9461**	**0.0000**	**6,201.6033**

Oakley Village Subdivision Project - Bay Area AQMD Air District, Winter

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.1394	1.0054	13.1693	0.0359		1.6114	1.6114		1.6114	1.6114	225.3141	1,043.8863	1,269.2004	1.0792	0.0190	1,301.8490
Energy	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060
Mobile	0.4906	2.2364	5.8885	0.0207	1.9453	0.0172	1.9625	0.5204	0.0161	0.5365		2,100.0970	2,100.0970	0.0754		2,101.9831
Total	**3.6660**	**3.5500**	**19.1889**	**0.0586**	**1.9453**	**1.6536**	**3.5989**	**0.5204**	**1.6524**	**2.1728**	**225.3141**	**3,537.4510**	**3,762.7652**	**1.1622**	**0.0262**	**3,799.6381**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1090	0.8528	3.8117	5.3700e-003		0.0849	0.0849		0.0849	0.0849	0.0000	1,043.8863	1,043.8863	0.0259	0.0190	1,050.2025
Energy	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
Mobile	0.4870	2.2141	5.8057	0.0204	1.9064	0.0169	1.9233	0.5100	0.0158	0.5258		2,061.1186	2,061.1186	0.0744		2,062.9780
Total	**2.6298**	**3.3558**	**9.7403**	**0.0276**	**1.9064**	**0.1252**	**2.0316**	**0.5100**	**0.1241**	**0.6341**	**0.0000**	**3,473.9197**	**3,473.9197**	**0.1073**	**0.0258**	**3,484.2876**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**28.26**	**5.47**	**49.24**	**52.96**	**2.00**	**92.43**	**43.55**	**2.00**	**92.49**	**70.82**	**100.00**	**1.80**	**7.68**	**90.76**	**1.72**	**8.30**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2021	10/7/2021	5	5	
2	Site Preparation	Site Preparation	10/8/2021	10/21/2021	5	10	
3	Grading	Grading	10/22/2021	12/2/2021	5	30	
4	Paving	Paving	12/3/2021	12/30/2021	5	20	
5	Building Construction	Building Construction	12/31/2021	2/23/2023	5	300	
6	Architectural Coating	Architectural Coating	1/11/2022	3/6/2023	5	300	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 153,090; Residential Outdoor: 51,030; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Oakley Village Subdivision Project - Bay Area AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	15.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411		3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3937**	**1.5513**	**1.9451**	**0.0596**	**1.4411**	**1.5007**		**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0144	0.4874	0.1078	1.3900e-003	0.0315	1.5200e-003	0.0330	8.6200e-003	1.4500e-003	0.0101		148.6279	148.6279	7.8700e-003		148.8246
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0655**	**0.5222**	**0.4525**	**2.4900e-003**	**0.1547**	**2.3000e-003**	**0.1570**	**0.0413**	**2.1600e-003**	**0.0435**		**258.0584**	**258.0584**	**0.0104**		**258.3170**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3937	0.0000	0.3937	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	3.1651	31.4407	21.5650	0.0388		1.5513	1.5513		1.4411	1.4411	0.0000	3,747.9449	3,747.9449	1.0549		3,774.3174
Total	**3.1651**	**31.4407**	**21.5650**	**0.0388**	**0.3937**	**1.5513**	**1.9451**	**0.0596**	**1.4411**	**1.5007**	**0.0000**	**3,747.9449**	**3,747.9449**	**1.0549**		**3,774.3174**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0144	0.4874	0.1078	1.3900e-003	0.0315	1.5200e-003	0.0330	8.6200e-003	1.4500e-003	0.0101		148.6279	148.6279	7.8700e-003		148.8246
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0655**	**0.5222**	**0.4525**	**2.4900e-003**	**0.1547**	**2.3000e-003**	**0.1570**	**0.0413**	**2.1600e-003**	**0.0435**		**258.0584**	**258.0584**	**0.0104**		**258.3170**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**		**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**3.8882**	**40.4971**	**21.1543**	**0.0380**	**18.0663**	**2.0445**	**20.1107**	**9.9307**	**1.8809**	**11.8116**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0613	0.0418	0.4137	1.3200e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		131.3166	131.3166	2.9700e-003		131.3909
Total	**0.0613**	**0.0418**	**0.4137**	**1.3200e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**131.3166**	**131.3166**	**2.9700e-003**		**131.3909**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265		6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.1912	46.3998	30.8785	0.0620		1.9853	1.9853		1.8265	1.8265	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**4.1912**	**46.3998**	**30.8785**	**0.0620**	**8.6733**	**1.9853**	**10.6587**	**3.5965**	**1.8265**	**5.4230**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0681	0.0464	0.4596	1.4600e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		145.9073	145.9073	3.3000e-003		145.9899
Total	**0.0681**	**0.0464**	**0.4596**	**1.4600e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**145.9073**	**145.9073**	**3.3000e-003**		**145.9899**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0511**	**0.0348**	**0.3447**	**1.1000e-003**	**0.1232**	**7.8000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**109.4305**	**109.4305**	**2.4800e-003**		**109.4924**

3.6 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0131	0.4169	0.1120	1.0600e-003	0.0271	9.3000e-004	0.0280	7.7900e-003	8.9000e-004	8.6800e-003		112.6509	112.6509	5.8700e-003		112.7976
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0642**	**0.4517**	**0.4568**	**2.1600e-003**	**0.1503**	**1.7100e-003**	**0.1520**	**0.0405**	**1.6000e-003**	**0.0421**		**222.0814**	**222.0814**	**8.3500e-003**		**222.2900**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.6 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0131	0.4169	0.1120	1.0600e-003	0.0271	9.3000e-004	0.0280	7.7900e-003	8.9000e-004	8.6800e-003		112.6509	112.6509	5.8700e-003		112.7976
Worker	0.0511	0.0348	0.3447	1.1000e-003	0.1232	7.8000e-004	0.1240	0.0327	7.1000e-004	0.0334		109.4305	109.4305	2.4800e-003		109.4924
Total	**0.0642**	**0.4517**	**0.4568**	**2.1600e-003**	**0.1503**	**1.7100e-003**	**0.1520**	**0.0405**	**1.6000e-003**	**0.0421**		**222.0814**	**222.0814**	**8.3500e-003**		**222.2900**

3.6 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0123	0.3947	0.1053	1.0500e-003	0.0271	8.0000e-004	0.0279	7.7900e-003	7.7000e-004	8.5600e-003		111.5356	111.5356	5.6100e-003		111.6757
Worker	0.0477	0.0312	0.3163	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.4188	105.4188	2.2200e-003		105.4742
Total	**0.0599**	**0.4259**	**0.4217**	**2.1100e-003**	**0.1503**	**1.5600e-003**	**0.1519**	**0.0405**	**1.4700e-003**	**0.0419**		**216.9544**	**216.9544**	**7.8300e-003**		**217.1500**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.6 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0123	0.3947	0.1053	1.0500e-003	0.0271	8.0000e-004	0.0279	7.7900e-003	7.7000e-004	8.5600e-003		111.5356	111.5356	5.6100e-003		111.6757
Worker	0.0477	0.0312	0.3163	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.4188	105.4188	2.2200e-003		105.4742
Total	**0.0599**	**0.4259**	**0.4217**	**2.1100e-003**	**0.1503**	**1.5600e-003**	**0.1519**	**0.0405**	**1.4700e-003**	**0.0419**		**216.9544**	**216.9544**	**7.8300e-003**		**217.1500**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.3042	0.0935	1.0200e-003	0.0271	3.6000e-004	0.0274	7.7900e-003	3.4000e-004	8.1400e-003		108.4264	108.4264	4.7600e-003		108.5454
Worker	0.0447	0.0281	0.2905	1.0200e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		101.3817	101.3817	1.9800e-003		101.4313
Total	**0.0539**	**0.3323**	**0.3841**	**2.0400e-003**	**0.1503**	**1.1000e-003**	**0.1514**	**0.0405**	**1.0200e-003**	**0.0415**		**209.8081**	**209.8081**	**6.7400e-003**		**209.9767**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.2100e-003	0.3042	0.0935	1.0200e-003	0.0271	3.6000e-004	0.0274	7.7900e-003	3.4000e-004	8.1400e-003		108.4264	108.4264	4.7600e-003		108.5454
Worker	0.0447	0.0281	0.2905	1.0200e-003	0.1232	7.4000e-004	0.1240	0.0327	6.8000e-004	0.0334		101.3817	101.3817	1.9800e-003		101.4313
Total	**0.0539**	**0.3323**	**0.3841**	**2.0400e-003**	**0.1503**	**1.1000e-003**	**0.1514**	**0.0405**	**1.0200e-003**	**0.0415**		**209.8081**	**209.8081**	**6.7400e-003**		**209.9767**

3.7 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**3.7524**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.5400e-003	6.2400e-003	0.0633	2.1000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.0838	21.0838	4.4000e-004		21.0949
Total	**9.5400e-003**	**6.2400e-003**	**0.0633**	**2.1000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6800e-003**		**21.0838**	**21.0838**	**4.4000e-004**		**21.0949**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**3.7524**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.5400e-003	6.2400e-003	0.0633	2.1000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6800e-003		21.0838	21.0838	4.4000e-004		21.0949
Total	**9.5400e-003**	**6.2400e-003**	**0.0633**	**2.1000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6800e-003**		**21.0838**	**21.0838**	**4.4000e-004**		**21.0949**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**3.7395**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9300e-003	5.6100e-003	0.0581	2.0000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6700e-003		20.2763	20.2763	4.0000e-004		20.2863
Total	**8.9300e-003**	**5.6100e-003**	**0.0581**	**2.0000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6700e-003**		**20.2763**	**20.2763**	**4.0000e-004**		**20.2863**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.5479					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**3.7395**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9300e-003	5.6100e-003	0.0581	2.0000e-004	0.0246	1.5000e-004	0.0248	6.5400e-003	1.4000e-004	6.6700e-003		20.2763	20.2763	4.0000e-004		20.2863
Total	**8.9300e-003**	**5.6100e-003**	**0.0581**	**2.0000e-004**	**0.0246**	**1.5000e-004**	**0.0248**	**6.5400e-003**	**1.4000e-004**	**6.6700e-003**		**20.2763**	**20.2763**	**4.0000e-004**		**20.2863**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4870	2.2141	5.8057	0.0204	1.9064	0.0169	1.9233	0.5100	0.0158	0.5258		2,061.1186	2,061.1186	0.0744		2,062.9780
Unmitigated	0.4906	2.2364	5.8885	0.0207	1.9453	0.0172	1.9625	0.5204	0.0161	0.5365		2,100.0970	2,100.0970	0.0754		2,101.9831

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	396.48	396.48	396.48	915,713	897,399
Total	396.48	396.48	396.48	915,713	897,399

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.578638	0.038775	0.193686	0.110919	0.015677	0.005341	0.018293	0.026358	0.002641	0.002200	0.005832	0.000891	0.000749

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
NaturalGas Unmitigated	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3344.48	0.0361	0.3082	0.1312	1.9700e-003		0.0249	0.0249		0.0249	0.0249		393.4678	393.4678	7.5400e-003	7.2100e-003	395.8060
Total		**0.0361**	**0.3082**	**0.1312**	**1.9700e-003**		**0.0249**	**0.0249**		**0.0249**	**0.0249**		**393.4678**	**393.4678**	**7.5400e-003**	**7.2100e-003**	**395.8060**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	3.13578	0.0338	0.2890	0.1230	1.8400e-003		0.0234	0.0234		0.0234	0.0234		368.9148	368.9148	7.0700e-003	6.7600e-003	371.1071
Total		**0.0338**	**0.2890**	**0.1230**	**1.8400e-003**		**0.0234**	**0.0234**		**0.0234**	**0.0234**		**368.9148**	**368.9148**	**7.0700e-003**	**6.7600e-003**	**371.1071**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1090	0.8528	3.8117	5.3700e-003		0.0849	0.0849		0.0849	0.0849	0.0000	1,043.8863	1,043.8863	0.0259	0.0190	1,050.2025
Unmitigated	3.1394	1.0054	13.1693	0.0359		1.6114	1.6114		1.6114	1.6114	225.3141	1,043.8863	1,269.2004	1.0792	0.0190	1,301.8490

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2916					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	1.1255	0.9655	9.7034	0.0357		1.5922	1.5922		1.5922	1.5922	225.3141	1,037.6471	1,262.9612	1.0732	0.0190	1,295.4599
Landscaping	0.1044	0.0400	3.4658	1.8000e-004		0.0192	0.0192		0.0192	0.0192		6.2392	6.2392	6.0000e-003		6.3892
Total	**3.1394**	**1.0054**	**13.1693**	**0.0359**		**1.6114**	**1.6114**		**1.6114**	**1.6114**	**225.3141**	**1,043.8863**	**1,269.2004**	**1.0792**	**0.0190**	**1,301.8490**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2916					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6178					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0951	0.8128	0.3459	5.1900e-003		0.0657	0.0657		0.0657	0.0657	0.0000	1,037.6471	1,037.6471	0.0199	0.0190	1,043.8133
Landscaping	0.1044	0.0400	3.4658	1.8000e-004		0.0192	0.0192		0.0192	0.0192		6.2392	6.2392	6.0000e-003		6.3892
Total	**2.1090**	**0.8528**	**3.8117**	**5.3700e-003**		**0.0849**	**0.0849**		**0.0849**	**0.0849**	**0.0000**	**1,043.8863**	**1,043.8863**	**0.0259**	**0.0190**	**1,050.2025**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Oakley Village Subdivision Project

Bay Area AQMD Air District, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	No Change	0	1	No Change	0.00
Excavators	Diesel	No Change	0	5	No Change	0.00
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	No Change	0	1	No Change	0.00
Forklifts	Diesel	No Change	0	3	No Change	0.00
Graders	Diesel	No Change	0	1	No Change	0.00
Pavers	Diesel	No Change	0	2	No Change	0.00
Rollers	Diesel	No Change	0	2	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	6	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	No Change	0	9	No Change	0.00
Generator Sets	Diesel	No Change	0	1	No Change	0.00
Paving Equipment	Diesel	No Change	0	2	No Change	0.00
Scrapers	Diesel	No Change	0	2	No Change	0.00
Welders	Diesel	No Change	0	1	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	3.03800E-002	2.08850E-001	2.71980E-001	4.50000E-004	1.20100E-002	1.20100E-002	0.00000E+000	3.82988E+001	3.82988E+001	2.46000E-003	0.00000E+000	3.83604E+001
Concrete/Industrial Saws	9.60000E-004	7.59000E-003	9.19000E-003	2.00000E-005	4.30000E-004	4.30000E-004	0.00000E+000	1.34414E+000	1.34414E+000	8.00000E-005	0.00000E+000	1.34609E+000
Cranes	4.86000E-002	5.43190E-001	2.47420E-001	7.60000E-004	2.25700E-002	2.07600E-002	0.00000E+000	6.65386E+001	6.65386E+001	2.15200E-002	0.00000E+000	6.70766E+001
Excavators	8.59000E-003	8.07500E-002	1.22690E-001	1.90000E-004	3.92000E-003	3.60000E-003	0.00000E+000	1.70162E+001	1.70162E+001	5.50000E-003	0.00000E+000	1.71538E+001
Forklifts	5.05000E-002	4.69320E-001	5.18680E-001	6.90000E-004	3.08500E-002	2.83800E-002	0.00000E+000	6.04311E+001	6.04311E+001	1.95400E-002	0.00000E+000	6.09197E+001
Generator Sets	4.90400E-002	4.35210E-001	5.51270E-001	9.90000E-004	2.16800E-002	2.16800E-002	0.00000E+000	8.47811E+001	8.47811E+001	3.99000E-003	0.00000E+000	8.48809E+001
Graders	6.79000E-003	8.88700E-002	2.65100E-002	1.00000E-004	2.82000E-003	2.59000E-003	0.00000E+000	8.73189E+000	8.73189E+000	2.82000E-003	0.00000E+000	8.80249E+000
Pavers	4.92000E-003	5.19000E-002	5.81000E-002	9.00000E-005	2.51000E-003	2.31000E-003	0.00000E+000	8.25649E+000	8.25649E+000	2.67000E-003	0.00000E+000	8.32324E+000
Paving Equipment	3.84000E-003	3.88100E-002	5.08300E-002	8.00000E-005	1.92000E-003	1.76000E-003	0.00000E+000	7.15688E+000	7.15688E+000	2.31000E-003	0.00000E+000	7.21475E+000
Rollers	3.79000E-003	3.84800E-002	3.76100E-002	5.00000E-005	2.35000E-003	2.16000E-003	0.00000E+000	4.61011E+000	4.61011E+000	1.49000E-003	0.00000E+000	4.64739E+000
Rubber Tired Dozers	3.66200E-002	3.84000E-001	1.41320E-001	3.00000E-004	1.86400E-002	1.71500E-002	0.00000E+000	2.62697E+001	2.62697E+001	8.50000E-003	0.00000E+000	2.64821E+001
Scrapers	2.78800E-002	3.21080E-001	2.10140E-001	4.50000E-004	1.24900E-002	1.14900E-002	0.00000E+000	3.99500E+001	3.99500E+001	1.29200E-002	0.00000E+000	4.02730E+001
Tractors/Loaders/Backhoes	7.35600E-002	7.47700E-001	9.93890E-001	1.38000E-003	4.03700E-002	3.71400E-002	0.00000E+000	1.21268E+002	1.21268E+002	3.92200E-002	0.00000E+000	1.22248E+002
Welders	4.10900E-002	2.18630E-001	2.54040E-001	3.80000E-004	9.42000E-003	9.42000E-003	0.00000E+000	2.82331E+001	2.82331E+001	3.34000E-003	0.00000E+000	2.83166E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	3.03800E-002	2.08850E-001	2.71980E-001	4.50000E-004	1.20100E-002	1.20100E-002	0.00000E+000	3.82988E+001	3.82988E+001	2.46000E-003	0.00000E+000	3.83603E+001
Concrete/Industrial Saws	9.60000E-004	7.59000E-003	9.19000E-003	2.00000E-005	4.30000E-004	4.30000E-004	0.00000E+000	1.34414E+000	1.34414E+000	8.00000E-005	0.00000E+000	1.34609E+000
Cranes	4.86000E-002	5.43180E-001	2.47420E-001	7.60000E-004	2.25700E-002	2.07600E-002	0.00000E+000	6.65385E+001	6.65385E+001	2.15200E-002	0.00000E+000	6.70765E+001
Excavators	8.59000E-003	8.07500E-002	1.22690E-001	1.90000E-004	3.92000E-003	3.60000E-003	0.00000E+000	1.70162E+001	1.70162E+001	5.50000E-003	0.00000E+000	1.71538E+001
Forklifts	5.05000E-002	4.69320E-001	5.18680E-001	6.90000E-004	3.08500E-002	2.83800E-002	0.00000E+000	6.04310E+001	6.04310E+001	1.95400E-002	0.00000E+000	6.09196E+001
Generator Sets	4.90400E-002	4.35210E-001	5.51270E-001	9.90000E-004	2.16800E-002	2.16800E-002	0.00000E+000	8.47810E+001	8.47810E+001	3.99000E-003	0.00000E+000	8.48808E+001
Graders	6.79000E-003	8.88700E-002	2.65100E-002	1.00000E-004	2.82000E-003	2.59000E-003	0.00000E+000	8.73188E+000	8.73188E+000	2.82000E-003	0.00000E+000	8.80248E+000
Pavers	4.92000E-003	5.19000E-002	5.81000E-002	9.00000E-005	2.51000E-003	2.31000E-003	0.00000E+000	8.25648E+000	8.25648E+000	2.67000E-003	0.00000E+000	8.32323E+000
Paving Equipment	3.84000E-003	3.88100E-002	5.08300E-002	8.00000E-005	1.92000E-003	1.76000E-003	0.00000E+000	7.15688E+000	7.15688E+000	2.31000E-003	0.00000E+000	7.21474E+000
Rollers	3.79000E-003	3.84800E-002	3.76100E-002	5.00000E-005	2.35000E-003	2.16000E-003	0.00000E+000	4.61011E+000	4.61011E+000	1.49000E-003	0.00000E+000	4.64738E+000
Rubber Tired Dozers	3.66200E-002	3.83990E-001	1.41320E-001	3.00000E-004	1.86400E-002	1.71500E-002	0.00000E+000	2.62696E+001	2.62696E+001	8.50000E-003	0.00000E+000	2.64820E+001
Scrapers	2.78800E-002	3.21080E-001	2.10140E-001	4.50000E-004	1.24900E-002	1.14900E-002	0.00000E+000	3.99500E+001	3.99500E+001	1.29200E-002	0.00000E+000	4.02730E+001
Tractors/Loaders/Backhoes	7.35600E-002	7.47700E-001	9.93890E-001	1.38000E-003	4.03700E-002	3.71400E-002	0.00000E+000	1.21267E+002	1.21267E+002	3.92200E-002	0.00000E+000	1.22248E+002
Welders	4.10900E-002	2.18630E-001	2.54040E-001	3.80000E-004	9.42000E-003	9.42000E-003	0.00000E+000	2.82331E+001	2.82331E+001	3.34000E-003	0.00000E+000	2.83166E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.30552E-006	1.30552E-006	0.00000E+000	0.00000E+000	1.30343E-006
Concrete/Industrial Saws	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	0.00000E+000	1.84098E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.20231E-006	1.20231E-006	0.00000E+000	0.00000E+000	1.19267E-006
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17535E-006	1.17535E-006	0.00000E+000	0.00000E+000	1.16592E-006
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15834E-006	1.15834E-006	0.00000E+000	0.00000E+000	1.31320E-006
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.17951E-006	1.17951E-006	0.00000E+000	0.00000E+000	1.17812E-006
Graders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.14523E-006	1.14523E-006	0.00000E+000	0.00000E+000	1.13604E-006
Pavers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.21117E-006	1.21117E-006	0.00000E+000	0.00000E+000	1.20146E-006
Paving Equipment	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.38605E-006
Rollers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	2.15175E-006
Rubber Tired Dozers	0.00000E+000	2.60417E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.52267E-006	1.52267E-006	0.00000E+000	0.00000E+000	1.13284E-006
Scrapers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.25156E-006	1.25156E-006	0.00000E+000	0.00000E+000	9.93221E-007
Tractors/Loaders/Backhoes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.15447E-006	1.15447E-006	0.00000E+000	0.00000E+000	1.14521E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.06258E-006	1.06258E-006	0.00000E+000	0.00000E+000	1.41260E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction		PM2.5 Reduction			
No	Replace Ground Cover of Area Disturbed	PM10 Reduction		PM2.5 Reduction			
No	Water Exposed Area	PM10 Reduction		PM2.5 Reduction		Frequency (per day)	

No	Unpaved Road Mitigation	Moisture Content %		Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.02	0.01	0.02	0.01	0.00	0.00
Demolition	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.13	0.05	0.13	0.05	0.00	0.00
Grading	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.09	0.05	0.09	0.05	0.00	0.00
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	100.00
Hearth	95.34	26.10	98.08	91.43	97.75	97.75	100.00	0.00	29.10	99.02	0.00	31.31
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.71	0.97	1.47	1.84	1.60	1.72	0.00	1.85	1.85	1.40	0.00	1.85
Natural Gas	6.23	6.24	6.27	5.56	6.37	6.37	0.00	6.24	6.24	6.40	5.88	6.24
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	20.00	20.00	20.00	19.91	20.00
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting: Suburban Center

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	-0.01	0.13		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

Yes	Neighborhood Enhancements	Improve Pedestrian Network	2.00	Project Site and Connecting Off-Site		
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.02			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.02			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"	4.50			
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	
No	Commute	Provide Ride Sharing Program	10.00			
	Commute	Commute Subtotal	0.00			

No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.02			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
Yes	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	100.00
No	Use Low VOC Paint (Residential Exterior)	150.00
No	Use Low VOC Paint (Non-residential Interior)	100.00
No	Use Low VOC Paint (Non-residential Exterior)	150.00
No	Use Low VOC Paint (Parking)	150.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	7.00	
No	Install High Efficiency Lighting		
Yes	On-site Renewable		100.00

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Apply Water Conservation on Strategy	20.00	20.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Mitigation Measures	Input Value

Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Oakley Village Subdivision Project

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	42.00	Dwelling Unit	14.82	75,600.00	120

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	175	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity factor adjusted based on PG&E's RPS projections.

Land Use - Lot acreage adjusted to match site plan.

Construction Phase - Demolition phase reduced to represent minor demolition required, as noted on AQ Questionnaire.

Demolition -

Vehicle Trips - Trip rate adjusted consistent with project-specific traffic memo prepared by TJKM.

Woodstoves - Units would include natural gas fireplaces only.

Mobile Land Use Mitigation -

Area Mitigation -

Energy Mitigation - Title 24 exceedance applied to reflect compliance with 2019 CBSC.

Water Mitigation - Water conservation strategy applied to reflect compliance with 2019 CalGreen Code and MWELO.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	5.00
tblFireplaces	NumberGas	10.50	42.00
tblFireplaces	NumberNoFireplace	3.36	0.00
tblFireplaces	NumberWood	18.06	0.00
tblLandUse	LotAcreage	13.64	14.82
tblProjectCharacteristics	CO2IntensityFactor	641.35	175
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	8.0600e-003	0.0799	0.0550	1.0000e-004	1.3600e-003	3.8800e-003	5.2400e-003	2.5000e-004	3.6100e-003	3.8600e-003	0.0000	9.0911	9.0911	2.4200e-003	0.0000	9.1515
Maximum	**8.0600e-003**	**0.0799**	**0.0550**	**1.0000e-004**	**1.3600e-003**	**3.8800e-003**	**5.2400e-003**	**2.5000e-004**	**3.6100e-003**	**3.8600e-003**	**0.0000**	**9.0911**	**9.0911**	**2.4200e-003**	**0.0000**	**9.1515**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	8.0600e-003	0.0799	0.0550	1.0000e-004	1.3600e-003	3.8800e-003	5.2400e-003	2.5000e-004	3.6100e-003	3.8600e-003	0.0000	9.0911	9.0911	2.4200e-003	0.0000	9.1515
Maximum	**8.0600e-003**	**0.0799**	**0.0550**	**1.0000e-004**	**1.3600e-003**	**3.8800e-003**	**5.2400e-003**	**2.5000e-004**	**3.6100e-003**	**3.8600e-003**	**0.0000**	**9.0911**	**9.0911**	**2.4200e-003**	**0.0000**	**9.1515**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3692	9.7200e-003	0.4115	3.7000e-004		0.0182	0.0182		0.0182	0.0182	2.1524	5.7527	7.9050	0.0107	1.0000e-004	8.1998
Energy	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	92.1162	92.1162	5.7200e-003	2.1200e-003	92.8906
Mobile	0.0634	0.3286	0.7051	3.1800e-003	0.3406	2.1100e-003	0.3427	0.0914	1.9700e-003	0.0933	0.0000	294.0427	294.0427	9.3100e-003	0.0000	294.2755
Waste						0.0000	0.0000		0.0000	0.0000	10.2307	0.0000	10.2307	0.6046	0.0000	25.3462
Water						0.0000	0.0000		0.0000	0.0000	0.8682	1.6547	2.5228	0.0894	2.1600e-003	5.4032
Total	**0.4392**	**0.3945**	**1.1405**	**3.9100e-003**	**0.3406**	**0.0248**	**0.3654**	**0.0914**	**0.0247**	**0.1160**	**13.2513**	**393.5662**	**406.8175**	**0.7197**	**4.3800e-003**	**426.1154**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3583	8.1100e-003	0.3130	5.0000e-005		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	5.7527	5.7527	5.9000e-004	1.0000e-004	5.7960
Energy	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
Mobile	0.0629	0.3259	0.6944	3.1300e-003	0.3337	2.0800e-003	0.3358	0.0895	1.9300e-003	0.0915	0.0000	288.6481	288.6481	9.1700e-003	0.0000	288.8774
Waste						0.0000	0.0000		0.0000	0.0000	10.2307	0.0000	10.2307	0.6046	0.0000	25.3462
Water						0.0000	0.0000		0.0000	0.0000	0.6945	1.3237	2.0183	0.0716	1.7300e-003	4.3226
Total	**0.4274**	**0.3868**	**1.0298**	**3.5200e-003**	**0.3337**	**8.4400e-003**	**0.3422**	**0.0895**	**8.2900e-003**	**0.0978**	**10.9253**	**356.8024**	**367.7277**	**0.6871**	**2.9500e-003**	**385.7831**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.68**	**1.96**	**9.70**	**9.97**	**2.00**	**66.01**	**6.35**	**2.00**	**66.42**	**15.70**	**17.55**	**9.34**	**9.61**	**4.53**	**32.65**	**9.47**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2021	10/7/2021	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8000e-004	0.0000	9.8000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0786	0.0539	1.0000e-004		3.8800e-003	3.8800e-003		3.6000e-003	3.6000e-003	0.0000	8.5002	8.5002	2.3900e-003	0.0000	8.5600
Total	**7.9100e-003**	**0.0786**	**0.0539**	**1.0000e-004**	**9.8000e-004**	**3.8800e-003**	**4.8600e-003**	**1.5000e-004**	**3.6000e-003**	**3.7500e-003**	**0.0000**	**8.5002**	**8.5002**	**2.3900e-003**	**0.0000**	**8.5600**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3404	0.3404	2.0000e-005	0.0000	0.3409
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	8.4000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2505	0.2505	1.0000e-005	0.0000	0.2506
Total	**1.6000e-004**	**1.2900e-003**	**1.1000e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.5909**	**0.5909**	**3.0000e-005**	**0.0000**	**0.5915**

3.2 Demolition - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8000e-004	0.0000	9.8000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9100e-003	0.0786	0.0539	1.0000e-004		3.8800e-003	3.8800e-003		3.6000e-003	3.6000e-003	0.0000	8.5002	8.5002	2.3900e-003	0.0000	8.5600
Total	**7.9100e-003**	**0.0786**	**0.0539**	**1.0000e-004**	**9.8000e-004**	**3.8800e-003**	**4.8600e-003**	**1.5000e-004**	**3.6000e-003**	**3.7500e-003**	**0.0000**	**8.5002**	**8.5002**	**2.3900e-003**	**0.0000**	**8.5600**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.0000e-005	1.2100e-003	2.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.3404	0.3404	2.0000e-005	0.0000	0.3409
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	8.0000e-005	8.4000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2505	0.2505	1.0000e-005	0.0000	0.2506
Total	**1.6000e-004**	**1.2900e-003**	**1.1000e-003**	**0.0000**	**3.8000e-004**	**0.0000**	**3.8000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.5909**	**0.5909**	**3.0000e-005**	**0.0000**	**0.5915**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0629	0.3259	0.6944	3.1300e-003	0.3337	2.0800e-003	0.3358	0.0895	1.9300e-003	0.0915	0.0000	288.6481	288.6481	9.1700e-003	0.0000	288.8774
Unmitigated	0.0634	0.3286	0.7051	3.1800e-003	0.3406	2.1100e-003	0.3427	0.0914	1.9700e-003	0.0933	0.0000	294.0427	294.0427	9.3100e-003	0.0000	294.2755

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	396.48	396.48	396.48	915,713	897,399
Total	396.48	396.48	396.48	915,713	897,399

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.585795	0.036515	0.193581	0.106455	0.012789	0.005274	0.019465	0.028415	0.002699	0.001789	0.005626	0.000921	0.000676

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Percent of Electricity Use Generated with Renewable Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	26.9732	26.9732	4.4700e-003	9.2000e-004	27.3605
NaturalGas Mitigated	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
NaturalGas Unmitigated	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	65.1430	65.1430	1.2500e-003	1.1900e-003	65.5301

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.22073e+006	6.5800e-003	0.0563	0.0239	3.6000e-004		4.5500e-003	4.5500e-003		4.5500e-003	4.5500e-003	0.0000	65.1430	65.1430	1.2500e-003	1.1900e-003	65.5301
Total		**6.5800e-003**	**0.0563**	**0.0239**	**3.6000e-004**		**4.5500e-003**	**4.5500e-003**		**4.5500e-003**	**4.5500e-003**	**0.0000**	**65.1430**	**65.1430**	**1.2500e-003**	**1.1900e-003**	**65.5301**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	1.14456e+006	6.1700e-003	0.0527	0.0224	3.4000e-004		4.2600e-003	4.2600e-003		4.2600e-003	4.2600e-003	0.0000	61.0780	61.0780	1.1700e-003	1.1200e-003	61.4409
Total		**6.1700e-003**	**0.0527**	**0.0224**	**3.4000e-004**		**4.2600e-003**	**4.2600e-003**		**4.2600e-003**	**4.2600e-003**	**0.0000**	**61.0780**	**61.0780**	**1.1700e-003**	**1.1200e-003**	**61.4409**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	339804	26.9732	4.4700e-003	9.2000e-004	27.3605
Total		**26.9732**	**4.4700e-003**	**9.2000e-004**	**27.3605**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3583	8.1100e-003	0.3130	5.0000e-005		2.1000e-003	2.1000e-003		2.1000e-003	2.1000e-003	0.0000	5.7527	5.7527	5.9000e-004	1.0000e-004	5.7960
Unmitigated	0.3692	9.7200e-003	0.4115	3.7000e-004		0.0182	0.0182		0.0182	0.0182	2.1524	5.7527	7.9050	0.0107	1.0000e-004	8.1998

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0114	6.1300e-003	0.1005	3.5000e-004		0.0164	0.0164		0.0164	0.0164	2.1524	5.2433	7.3956	0.0102	1.0000e-004	7.6783
Landscaping	9.3000e-003	3.5900e-003	0.3110	2.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	0.5094	0.5094	4.9000e-004	0.0000	0.5215
Total	**0.3692**	**9.7200e-003**	**0.4115**	**3.7000e-004**		**0.0182**	**0.0182**		**0.0182**	**0.0182**	**2.1524**	**5.7527**	**7.9050**	**0.0107**	**1.0000e-004**	**8.1998**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0532					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2953					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.3000e-004	4.5300e-003	1.9300e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.2433	5.2433	1.0000e-004	1.0000e-004	5.2744
Landscaping	9.3000e-003	3.5900e-003	0.3110	2.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	0.5094	0.5094	4.9000e-004	0.0000	0.5215
Total	**0.3583**	**8.1200e-003**	**0.3130**	**5.0000e-005**		**2.1000e-003**	**2.1000e-003**		**2.1000e-003**	**2.1000e-003**	**0.0000**	**5.7527**	**5.7527**	**5.9000e-004**	**1.0000e-004**	**5.7960**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.0183	0.0716	1.7300e-003	4.3226
Unmitigated	2.5228	0.0894	2.1600e-003	5.4032

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	2.73647 / 1.72517	2.5228	0.0894	2.1600e-003	5.4032
Total		**2.5228**	**0.0894**	**2.1600e-003**	**5.4032**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	2.18918 / 1.38013	2.0183	0.0716	1.7300e-003	4.3226
Total		**2.0183**	**0.0716**	**1.7300e-003**	**4.3226**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.2307	0.6046	0.0000	25.3462
Unmitigated	10.2307	0.6046	0.0000	25.3462

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	50.4	10.2307	0.6046	0.0000	25.3462
Total		**10.2307**	**0.6046**	**0.0000**	**25.3462**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	50.4	10.2307	0.6046	0.0000	25.3462
Total		**10.2307**	**0.6046**	**0.0000**	**25.3462**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B
Planning Survey Report

Application Form and Planning Survey Report

To Comply With and Receive Permit Coverage Under The East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan

Please complete this application to apply for take authorization under the state and federal East Contra Costa County HCP/NCCP incidental take permits. The East Contra Costa County Habitat Conservancy ("Conservancy") or local jurisdiction (City of Brentwood, City of Clayton, City of Oakley, City of Pittsburg, and Contra Costa County) may request more information in order to deem the application complete.

I. PROJECT OVERVIEW

PROJECT INFORMATION	
PROJECT NAME: Oakley Sellers Village	
PROJECT TYPE: ☒ Residential ☐ Commercial ☐ Transportation ☐ Utility ☐ Other	
PROJECT DESCRIPTION (BRIEF): Construction of a 42 lot residential subdivision. A detailed project description is included in Attachment A.	
PROJECT ADDRESS/LOCATION: West side of Sellers Road just south of the AT & SF Railroad Tracks, in Oakley, Contra Costa County, California.	
PARCEL/PROJECT SIZE (ACRES): 14.86+/- acres (13.75+/- acre project site and 0.11 acres of off-site improvements)	
PROJECT APN(S): 033-150-011 & 033-150-018	
APPLICATION SUBMITTAL DATE: October 2020	**FINAL PSR DATE:** (City/County/Conservancy use)
LEAD PLANNER: Joshua McMurray	
JURISDICTION: ☐ City of Brentwood ☐ City of Clayton ☒ City of Oakley ☐ City of Pittsburg ☐ Contra Costa County ☐ Participating Special Entity*	
*Participating Special Entities are organizations not subject to the authority of a local jurisdiction. Such organizations may include school districts, irrigation districts, transportation agencies, local park districts, geological hazard abatement districts, or other utilities or special districts that own land or provide public services.	
DEVELOPMENT FEE ZONE: ☒ Zone I ☐ Zone II ☐ Zone III ☐ Zone IV	
See figure 9-1 of the HCP/NCCP at www.cocohcp.org for a generalized development fee zone map. Detailed development fee zone maps by jurisdiction are available from the jurisdiction.	

PROJECT APPLICANT INFORMATION	
APPLICANT'S NAME: Edgemont Station, LLC	
AUTHORIZED AGENT'S NAME AND TITLE: Shahriar Monfared, Managing Partner and President	
PHONE NO.: (916) 267-3861	**APPLICANT'S E-MAIL:** smonfared@edgemontstation.com
MAILING ADDRESS: 1100 N. St. Suite 2B, Sacramento, California 95826	

BIOLOGIST INFORMATION[1]	
BIOLOGICAL/ENVIRONMENTAL FIRM: Moore Biological Consultants	
CONTACT NAME AND TITLE: Diane S. Moore, M.S.	
PHONE NO.: (209) 745-1159	**CONTACT'S E-MAIL:** moorebio@softcom.net
MAILING ADDRESS: Moore Biological Consultants, 10330 Twin Cities Rd., Ste. 30, Galt, California 95632	

[1] A USFWS/CDFW-approved biologist (project-specific) is required to conduct the surveys. Please submit biologist(s) approval request to the Conservancy.

[2] For PSEs and city or county public works projects, please also identify permanent and temporary impact areas by overlaying crosshatching (permanent impacts) and

II. PROJECT DETAILS

Please complete and/or provide the following attachments:

1) **Project Description**
Attach as **Attachment A: Project Description**. Provide a detailed written description that concisely and completely describes the project and location. Include the following information:
   - All activities proposed for the site or project, including roads utilized, construction staging areas, and the installation of underground facilities, to ensure the entire project is covered by the HCP/NCCP permit
   - Proposed construction dates, including details on construction phases, if applicable
   - Reference a City/County application number for the project, if applicable
   - General Best Management Practices, if applicable
   - If the project will have temporary impacts, please provide a restoration plan describing how the site will be restored to pre-project conditions, including revegetation seed mixes or plantings and timing

2) **Project Vicinity Map**
Provide a project vicinity map. Attach as **Figure 1** in **Attachment B: Figures**.

3) **Project Site Plans**
Provide any project site plans for the project. Attach as **Figure 2** in **Attachment B: Figures**.

4) **CEQA Document**
Indicate the status of CEQA documents prepared for the project. Provide additional comments below table if necessary.

Type of Document	Status	Date Completed
☒ Initial Study	Not yet initiated	
☐ Notice of Preparation		
☐ Draft EIR		
☐ Final EIR		
☐ Notice of Categorical Exemption		
☐ Notice of Statutory Exemption		
☐ Other (describe)		

III. EXISTING CONDITIONS AND IMPACTS

Please complete and/or provide the following attachments:

1) **Field-Verified Land Cover Map**[2]
Attach a field-verified land cover map in **Attachment B: Figures** and label as **Figure 3**. The map should contain all land cover types present on-site overlaid on aerial/satellite imagery. Map colors for the land cover types should conform to the HCP/NCCP (see *Figure 3-3: Landcover in the Inventory Area* for land cover type legend).

2) **Photographs of the Project Site**
Attach representative photos of the project site in **Attachment B: Figures** and label as **Figure 4**. Please provide captions for each photo.

[2] For PSEs and city or county public works projects, please also identify permanent and temporary impact areas by overlaying crosshatching (permanent impacts) and hatching (temporary impacts) on the land cover map.

3) Land Cover Types and Impacts and Supplemental Tables

- For all terrestrial land cover types please provide calculations to the nearest **hundredth of an acre (0.01)**. For aquatic land cover types please provide calculations to the nearest **thousandth of an acre (0.001)**.
- **Permanent Impacts** are broadly defined in the ECCC HCP/NCCP to include all areas removed from an undeveloped or habitat-providing state and includes land in the same parcel or project that is not developed, graded, physically altered, or directly affected in any way but is isolated from natural areas by the covered activity. Unless such undeveloped land is dedicated to the Preserve System or is a deed-restricted creek setback, the development mitigation fee will apply (if proposed, would require Conservancy approval).
- **Temporary Impacts** are broadly defined in the ECCC HCP/NCCP as any impact on vegetation or habitat that does not result in permanent habitat removal (i.e. vegetation can eventually recover).
- If **wetland (riparian woodland/scrub, wetland, or aquatic)** land cover types are present on the parcel but will not be impacted please discuss in the following section 4) Jurisdictional Wetlands and Waters. Wetland impact fees will only be charged if wetland features are impacted. However, development fees will apply to the entire parcel.
- **Stream** land cover type is considered a linear feature where impacts are calculated based on length impacted. The acreage within a stream, below Top of Bank (TOB), must be assigned to the adjacent land cover type(s). Insert area of impact to stream below TOB in parentheses after the Land Cover acreage number (e.g., Riparian Woodland/Scrub: 10 (0.036) – where 10 is the total impacted acreage including 0.036 acre, which is the acreage within stream TOB). Complete following supplemental **Stream Feature Detail** table to provide information for linear feet.
- **Total Impacts** acreage should be the total parcel acreage (development project) or project footprint acreage (rural infrastructure or utility project).

Table 1: Land Cover Types and Impacts

Land Cover Type	Permanent Impacts	Temporary Impacts	*Proposed for HCP/NCCP Dedication on the Parcel (Requires Conservancy Approval)* *Stream Setback*	*Preserve System Dedication*
Grassland				
Annual Grassland				
Alkali Grassland				
Ruderal	13.45			
Shrubland				
Chaparral and Scrub				
Woodland				
Oak Savannah				
Oak Woodland				
Riparian				
Riparian Woodland/Scrub				
Wetland				
Permanent Wetland				
Seasonal Wetland				
Alkali Wetland				
Aquatic				
Aquatic (Reservoir/Open Water)				
Slough/Channel				
Pond				
Stream (in linear feet)	-	-	-	-
Irrigated Agriculture				
Pasture				
Cropland				
Orchard				
Vineyard				
Other				
Nonnative woodland				
Wind turbines				
Developed (not counted toward Fees)				
Urban	1.41			
Aqueduct				
Turf				
Landfill				
TOTAL IMPACTS	14.86			

Identify any uncommon vegetation and uncommon landscape features[3]:

Supplemental to Table 1: Uncommon Vegetation and Landscape Features

	Permanent Impacts	Temporary Impacts
Uncommon Grassland Alliances		
Purple Needlegrass Grassland		
Blue Wildrye Grassland		
Creeping Ryegrass Grassland		
Wildflower Fields		
Squirreltail Grassland		
One-sided Bluegrass Grassland		
Serpentine Bunchgrass Grassland		
Saltgrass Grassland		
Alkali Sacaton Bunchgrass Grassland		
☐ Other		
Uncommon Landscape Features		
Rock Outcrops		
Caves		
Springs and seeps		
Scalds		
Sand Deposits		
☐ Mines[4]		
☐ Buildings (bat roosts)[3]		
☒ Potential nest sites (trees or cliffs)[3]	11 trees	

Please provide details of impacts to stream features:

Stream Name: None

Watershed:

Supplemental to Table 1: Stream Feature Detail[5]

Stream Width	Stream Type[6]	Permanent Impacts (linear feet)[7]	Temporary Impacts (linear feet)[7]
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		
☐ ≤ 25 feet wide ☐ > 25 feet wide	☐ Perennial ☐ Intermittent ☐ Ephemeral, 3rd or higher order ☐ Ephemeral, 1st or 2nd order		

[3] These acreages are for Conservancy tracking purposes. Impacts to these uncommon vegetation and landscape features should be accounted for within the land cover types in Table 1 (e.g., x acres of purple needlegrass in this supplemental table should be accounted for within annual grassland in Table 1).

[4] Insert amount/number, not acreage. Provide additional information on these features in Attachment A: Project Description.

[5] Use more than 1 row as necessary to describe impacts to streams on site.

[6] See glossary (Appendix A) for definition of stream type and order.

[7] Stream length is measured along stream centerline, based on length of impact to any part of the stream channel, TOB to TOB.

4) Summary of Land Cover Types

Please provide a written summary of descriptions for land cover types found on site including characteristic vegetation.

Ruderal Grassland: The project site consists primarily of ruderal grassland fields separated by a few livestock fences. Grasslands in the site have been highly disturbed by past agricultural use, grazing, development on the site and surrounding parcels, and other human activities (Figures 3, 4a, 4b, and 4c). The on-site grasslands are periodically disked and/or mowed for weed abatement and are also heavily grazed by goats and other livestock. Dominant grassland species in the site include oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), prickly lettuce (*Lactuca serriola*), black mustard (*Brassica nigra*), telegraph weed (*Heterotheca grandiflora*), long-beaked stork's fill (*Erodium botrys*), and Russian thistle (*Salsola iberica*).

There are a total off 11 trees in the project site. Six of the trees are associated with the home site in the west part of the site and three are situated at the north part of the large grassland field in the site. There are two small trees located along the south edge of the site. Trees in the site include mulberry (*Morus alba*), pines (*Pinus* sp.), almond (*Prunus dulcis*), weeping willow (*Salix babylonica*), date palm (*Phoenix dactylifera*), and other ornamental varieties.

Urban/Developed: The developed areas in the site are primarily roads associated with the home in the west part of the site and include the driveway leading to the house and the home and associated structures. There is a residence adjacent to the southwest corner of the site and the driveway leading to this house is on-site and considered urban (Figures 3, 4d and 4e).

5) Jurisdictional Wetlands and Waters

If wetlands and waters are present on the project site, project proponents must conduct a delineation of jurisdictional wetlands and waters. Jurisdictional wetlands and waters are defined on pages 1-18 and 1-19 of the ECCC HCP/NCCP as the following land cover types: permanent wetland, seasonal wetland, alkali wetland, aquatic, pond, slough/channel, and stream. It should be noted that these features differ for federal and state jurisdictions. If you have identified any of these land cover types in Table 1, complete the section below.

a) Attach the wetland delineation report as **Attachment E: Wetland Delineation.** If a wetland delineation has not been completed, please explain below in section 4c.

b) Please check the following permits the project may require. Please submit copies of these permits to the Conservancy prior to the start of construction:

☐ CWA Section 404 Permit[8] ☐ CWA Section 401 Water Quality Certification

☐ Waste Discharge Requirements ☐ Lake and Streambed Alteration Agreement

c) Provide any additional information on impacts to jurisdictional wetland and waters below, including status of the permit(s):

An assessment of potentially jurisdictional Waters of the U.S. or wetlands in the site was undertaken on September 2, 2020. There are no potentially jurisdictional Waters of the U.S. or wetlands of any type in the site. The site consists of areas of highly disturbed ruderal grassland and a home site with a few associated structures. The grasslands are dominated by upland grasses and weeds and soils in the site appear well draining.

[8] The USACE Sacramento District issued a Regional General Permit 1 (RGP) related to ECCC HCP/NCCP covered activities. The RGP is designed to streamline wetland permitting in the entire ECCC HCP/NCCP Plan Area by coordinating the avoidance, minimization, and mitigation measures in the Plan with the Corps' wetland permitting requirement. Applicants seeking authorization under this RGP shall notify the Corps in accordance with RGP general condition number 18 (Notification).

6) Species-Specific Planning Survey Requirements

Based on the land cover types found on-site and identified in Table 1, check the applicable boxes in Table 2a.

Table 2a. Species –Specific Planning Survey Requirements

Land Cover Type in Project Area	Required Survey Species	Habitat Element in Project Area	Planning Survey Requirement[9]	Info in HCP
☒ Grasslands, oak savannah, agriculture, or ruderal	☐ San Joaquin kit fox	Assumed if within modeled range of species	If within modeled range of species, identify and map potential breeding or denning habitat within the project site and a 250-ft radius around the project footprint.	pp. 6-37 to 6-38
	☒ Western burrowing owl	Assumed	Identify and map potential breeding habitat within the project site and a 500-ft radius around the project footprint. Please note the HCP requires buffers for occupied burrows. Surveys may need to encompass an area larger than the project footprint.	pp. 6-39 to 6-41
☐ Aquatic (ponds, wetlands, streams, sloughs, channels, and marshes)	☐ Giant garter snake	Aquatic habitat accessible from the San Joaquin River	Identify and map potential habitat.	pp. 6-43 to 6-45
	☐ California tiger salamander	Ponds and wetlands Vernal pools Reservoirs Small lakes	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	pp. 6-45
	☐ California red-legged frog	Slow-moving streams, ponds and wetlands	Identify and map potential breeding habitat. Document habitat quality and features. Provide the Conservancy with photo-documentation and report.	p. 6-46
	☐ Covered shrimp	Seasonal wetlands Vernal pools Sandstone rock outcrops Sandstone depressions	Identify and map potential habitat. Please note the HCP requires a 50 foot non-disturbance buffer from seasonal wetlands that may be occupied by covered shrimp. Surveys may need to encompass an area larger than the project footprint.	pp. 6-46 to 6-48
☒ Any	☐ Townsend's big-eared bat	Rock formations with caves Mines Abandoned buildings outside urban area	Map and document potential breeding or roosting habitat.	pp. 6-36 to 6-37
	☒ Swainson's hawk	Potential nest sites within 1,000 feet of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-41 to 6-43
	☒ Golden Eagle	Potential nest sites with ½ mile of project	Inspect large trees for presence of nest sites. Document and map.	pp. 6-38 to 6-39
Surveys for all covered species must be conducted by a qualified biologist (USFWS/CDFW project-specific approved). Please submit biologist approval request to the East Contra Costa County Habitat Conservancy. Surveys for all covered species must be conducted according to the respective USFWS or CDFW survey protocols, as identified in Chapter 6.4.3 in the HCP/NCCP.				

7) Planning Survey Species Habitat Maps

Provide Planning Survey Species Habitat Maps as required in Table 2a, attach as **Figure 5** in **Attachment B: Figures**.

[9] The planning survey requirements in this table are not comprehensive. Please refer to Chapter 6.4.3 in the ECCC HCP/NCCP for more detail.

8) Results of Species Specific Surveys

Provide a written summary describing the results of the planning surveys. Please discuss the location, quantity, and quality of suitable habitat for specified covered wildlife species on the project site.

General Setting: The project site is located in Oakley, in Contra Costa County, California (Figure 1). The site is within Sections 31 and 32 in Township 2 North, Range 3 East of the USGS 7.5-minute Brentwood topographic quadrangle (Figure 1). The site is situated at an elevation of approximately 25 feet above mean sea level. Land uses in this portion of Oakley are primarily residential and agricultural. Sellers Avenue bounds a portion of the east edge of the site and a railroad track bounds the remainder of the east edge of the site. A residential subdivision bounds the site to the west and there is an open grassland field to the south of the site. There is a residence and some associated structures in the west part of the site.

Western Burrowing Owl: The body of the site contains ruderal grassland and is within the range of western burrowing owl (*Athene cunnicularia*). California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB, 2020) does not contain any records of western burrowing owl within 500 feet of the site (Figure 5b) The nearest record of burrowing owl in the CNDDB (2020) search area is approximately 0.5 miles northwest of the project site. The site was inspected for burrowing owls and ground squirrel burrows with evidence of burrowing owl occupancy (i.e., white wash, pellets, feathers). Comprehensive inspection of potential burrowing owl habitat was accomplished by walking meandering transects throughout the property. No western burrowing owls or burrows with evidence of burrowing owl occupancy were observed. Very few ground squirrel burrows were observed in the project site.

Swainson's Hawk: The site contains areas of ruderal grassland and is along the western edge of the range of Swainson's hawks (*Buteo swainsoni*). There are 11 trees in the site that are potentially suitable for nesting Swainson's hawks, as well as several potential nest trees near and visible from the site. Trees i3n the site and visible from the site were inspected for raptor stick nests. No raptor stick nests were observed in the on-site trees or in trees visible from the site. No Swainson's hawks were observed during the field survey, which was conducted just outside of the nesting season of this species. CDFW's CNDDB contains no occurrences of Swainson's hawk within 1,000 feet of the site and only 3 records within the larger geographical area depicted in Figure 5b.

Golden Eagle: The site contains ruderal grassland and is within the range of golden eagles (*Aquila chrysaetos*). CDFW's CNDDB contains no occurrences of golden eagle within 0.5 miles of the site or within the larger geographical area depicted in Figure 5b. There are 11 trees in the site that are potentially suitable for nesting golden eagles and only a few potential nest trees near and visible from the site. Trees on the site and visible from the site were inspected for raptor stick nests. No raptor stick nests were observed in the trees on site or any of the off-site trees visible from the site. No golden eagles were observed and this species nests more often on cliffs in remote natural areas than in trees near urban areas.

9) Covered and No-Take Plants

Please check the applicable boxes in Table 2b based on the land cover types found in the project area. If suitable land cover types are present on site, surveys must be conducted using approved CDFW/USFWS methods during the appropriate season for identification of covered and no-take species (see page 6-9 of the ECCC HCP/NCCP). Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted. In order to complete all the necessary covered and no-take plant surveys, spring, summer, and fall surveys may be required.

Table 2b. Covered and No-Take Plant Species

Plant Species	Covered (C) or No-Take (N)	Associated Land Cover Type	Typical Habitat or Physical Conditions, if Known	Typical Blooming Period	Suitable Land Cover Type Present
Adobe navarretia (*Navarretia nigelliformis* ssp. *radians*) [a]	C	Annual Grassland	Generally found on clay barrens in Annual Grassland [b]	Apr–Jun	☐ Yes ☒ No
Alkali milkvetch (*Astragalus tener* ssp. *tener*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernally moist habitat in soils with a slight to strongly elevated pH	Mar–Jun	☐ Yes ☒ No
Big tarplant (*Blepharizonia plumosa*)	C	Annual grassland	Elevation below 1500 feet [d] most often on Altamont Series or Complex soils	Jul–Oct	☐ Yes ☒ No
Brewer's dwarf flax (*Hesperolinon breweri*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Generally, restricted to grassland areas within a 500+ buffer from oak woodland and/or chaparral/scrub [d]	May–Jul	☐ Yes ☒ No
Brittlescale (*Atriplex depressa*)	C	Alkali grassland Alkali wetland	Restricted to soils of the Pescadero or Solano soil series; generally found in southeastern region of plan area [d]	May–Oct	☐ Yes ☒ No
Caper-fruited tropidocarpum (*Tropidocarpum capparideum)*	N	Alkali grassland		Mar–Apr	☐ Yes ☒ No
Contra Costa goldfields (*Lasthenia conjugens*)	N	Alkali grassland Alkali wetland Annual grassland Seasonal wetland	Generally found in vernal pools	Mar–Jun	☐ Yes ☒ No
Diablo Helianthella (*Helianthella castanea*)	C	Chaparral and scrub Oak savanna Oak woodland	Elevations generally above 650 feet [d]	Mar–Jun	☐ Yes ☒ No
Diamond-petaled poppy (*Eschscholzia rhombipetala*)	N	Annual grassland		Mar–Apr	☐ Yes ☒ No
Large-flowered fiddleneck (*Amsinckia grandiflora*)	N	Annual grassland	Generally on clay soil	Apr–May	☐ Yes ☒ No
Mount Diablo buckwheat (*Eriogonum truncatum*)	N	Annual grassland Chaparral and scrub	Ecotone of grassland and chaparral/scrub	Apr–Sep	☐ Yes ☒ No
Mount Diablo fairy-lantern (*Calochortus pulchellus*)	C	Annual grassland Chaparral and scrub Oak savanna Oak woodland	Elevations generally between 650 and 2,600 [d]	Apr–Jun	☐ Yes ☒ No
Mount Diablo Manzanita (*Arctostaphylos auriculata*)	C	Chaparral and scrub	Elevations generally between 700 and 1,860 feet; restricted to the eastern and northern flanks of Mt. Diablo [d] and the vicinity of Black Diamond Mines	Jan–Mar	☐ Yes ☒ No
Recurved larkspur (*Delphinium recurvatum*)	C	Alkali grassland Alkali wetland		Mar–Jun	☐ Yes ☒ No
Round-leaved filaree (*California macrophylla*) [c]	C	Annual grassland		Mar–May	☐ Yes ☒ No
San Joaquin spearscale (*Extriplex joaquiniana*) [e]	C	Alkali grassland Alkali wetland		Apr–Oct	☐ Yes ☒ No
Showy madia (*Madia radiata*)	C	Annual grassland Oak savanna Oak woodland	Primarily occupies open grassland or grassland on edge of oak woodland	Mar–May	☐ Yes ☒ No

[a] The species *Navarretia nigelliformis* subsp. *nigelliformis* is no longer considered to occur within Contra Costa County based on specimen annotations at the UC and Jepson Herbaria at the University of California Berkeley as well as the opinions of experts in the genus. This taxon is now recognized as *Navarretia nigelliformis* subsp. *radians.* Any subspecies of *Navarretia nigelliformis* encountered as a part of botanical surveys in support of a PSR should be considered as covered under this HCP/NCCP.

[b] Habitat for the *Navarretia nigelliformis* subspecies that occurs within the inventory are is inaccurately described in the HCP/NCCP as vernal pools. The entity within the Inventory generally occupies clay barrens within Annual Grassland habitat, which is an upland habitat type.

[c] From California Native Plant Society. 2007. *Inventory of Rare and Endangered Plants* (online edition, v7-07d). Sacramento, CA. Species may be identifiable outside of the typical blooming period; a professional botanist shall determine if a covered or no take plant occurs on the project site. Reference population of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant is visible and detectable at the time surveys are conducted.

[d] See Species Profiles in Appendix D of the Final HCP/NCCP. Reference populations of covered and no-take plants should be visited, where possible, prior to conducting surveys to confirm that the plant species is visible and detectable at the time surveys are conducted.

[e] In the recent update to the Jepson eflora (JFP 2013) *Atriplex joaquinana* has been circumscribed and segregated into a new genus called *Extriplex* based on the work of Elizabeth Zacharias and Bruce Baldwin (2010). The etymology of the genus *Extriplex* means, "beyond or outside Atriplex".

10) Results of Covered and No-Take Plant Species

Provide a written summary describing the results of the planning surveys conducted as required in Table 2b. Describe the methods used to survey the site for all covered and no-take plants, including the dates and times of all surveys conducted (see Tables 3-8 and 6-5 of the ECCC HCP/NCCP for covered and no-take plants), including reference populations visited prior to conducting surveys.

If any covered or no-take plant species were found, include the following information in the results summary:

- Description and number of occurrences and their rough population size.
- Description of the "health" of each occurrence, as defined on pages 5-49 and 5-50 of the HCP/NCCP.
- A map of all the occurrences.
- Justification of surveying time window, if outside of the plant's blooming period.
- The CNDDB form(s) submitted to CDFW (if this is a new occurrence).
- A description of the anticipated impacts that the covered activity will have on the occurrence and how the project will avoid impacts to all covered and no-take plant species. If impacts to covered plant species cannot be avoided and plants will be removed by covered activity, the Conservancy must be notified and has the option to salvage the covered plants. All projects must demonstrate avoidance of all six no-take plants (see table 6-5 of the HCP/NCCP).

Survey Methods

A survey to assess potentially suitable habitat for special-status plants was undertaken on September 2, 2020. The site was systematically searched by walking throughout the site.

Survey Results and Discussion

The site is ruderal grassland that is periodically mowed and/or disked. Due to an absence of potentially suitable habitat for special-status plants, focused surveys during the blooming period of each species in Table 2b were not warranted.

IV. SPECIES-SPECIFIC AVOIDANCE AND MINIMIZATION REQUIREMENTS

Please complete and/or provide the following attachments:

1) Species-Specific Avoidance and Minimization for Selected Covered Wildlife

Complete the following table and check the applicable box for covered species determined by the planning surveys.

Table 3. Summary of Applicable Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring Requirements[10]

Species	Preconstruction Survey Requirements	Avoidance and Minimization Requirements	Construction Monitoring Required	Info in HCP
☐ San Joaquin kit fox	• On project footprint and 250-ft radius, map all dens (>5 in. diameter) and determine status • Provide written survey results to USFWS within 5 working days after surveying	• Monitor dens • Destroy unoccupied dens • Discourage use of occupied (non-natal) dens	• Establish exclusion zones (>50 ft for potential dens, and >100 ft for known dens) • Notify USFWS of occupied natal dens	pp. 6-37 to 6-38
☒ Western burrowing owl	• On project footprint and 500-ft radius, identify and map all owls and burrows, and determine status • Document use of habitat (e.g. breeding, foraging)	• Avoid occupied nests during breeding season (Feb-Sep) • Avoid occupied burrows during nonbreeding season (Sep – Feb) • Install one-way doors in occupied burrow (if avoidance not possible) • Monitor burrows with doors installed	• Establish buffer zones (250 ft around nests) • Establish buffer zones (160 ft around burrows)	pp. 6-39 to 6-41

[10] The requirements in this table are not comprehensive; they are detailed in the next section on the following page.

☐ Giant garter snake	• Delineate aquatic habitat up to 200 ft from water's edge on each side • Document any occurrences	• Limit construction to Oct-May • Dewater habitat April 15 – Sep 30 prior to construction • Minimize clearing for construction	• Delineate 200 ft buffer around potential habitat near construction • Provide field report on monitoring efforts • Stop construction activities if snake is encountered; allow snake to passively relocate • Remove temporary fill or debris from construction site • Mandatory training for construction personnel	pp. 6-43 to 6-45
☐ California tiger salamander	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-45
☐ California red-legged frog	• Provide written notification to USFWS and CDFW regarding timing of construction and likelihood of occurrence on site	• Allow agency staff to translocate species, if requested	• None	p. 6-46
☐ Covered shrimp	• Establish presence/absence • Document and evaluate use of all habitat features (e.g. vernal pools, rock outcrops)	• Establish buffer near construction activities • Prohibit incompatible activities	• Establish buffer around outer edge of all hydric vegetation associated with habitat (50 ft or immediate watershed, whichever is larger) • Mandatory training for construction personnel	pp. 6-46 to 6-48
☐ Townsend's big-eared bat	• Establish presence/absence • Determine if potential sites were recently occupied (guano)	• Seal hibernacula before Nov • Seal nursery sites before April • Delay construction near occupied sites until hibernation or nursery seasons are over	• None	pp. 6-36 to 6-37
☒ Swainson's hawk	• Determine whether potential nests are occupied	• No construction within 1,000 ft of occupied nests within breeding season (March 15 - Sep 15) • If necessary, remove active nest tree after nesting season to prevent occupancy in second year.	• Establish 1,000 ft buffer around active nest and monitor compliance (no activity within established buffer)	pp. 6-41 to 6-43
☒ Golden Eagle	• Establish presence/absence of nesting eagles	• No construction within ½ mile near active nests (most activity late Jan – Aug)	• Establish ½ mile buffer around active nest and monitor compliance with buffer	pp. 6-38 to 6-39

2) Required Preconstruction Surveys, Avoidance and Minimization, and Construction Monitoring

All preconstruction surveys shall be conducted in accordance with the requirements set forth in Section 6.4.3, Species-Level Measures, and Table 6-1 of the ECCC HCP/NCCP. Detailed descriptions of preconstruction surveys, avoidance and minimization, and construction monitoring applicable to each of the wildlife species in Table 3 are located below. Please remove the species-specific measures that do not apply to your project (highlight entire section and delete).

WESTERN BURROWING OWL

Preconstruction Surveys

Prior to any ground disturbance related to covered activities, a USFWS/CDFW- approved biologist will conduct a preconstruction survey in areas identified in the planning surveys as having potential burrowing owl habitat. The surveys will establish the presence or absence of western burrowing owl and/or habitat features and evaluate use by owls in accordance with CDFW survey guidelines (California Department of Fish and Game 1995).

On the parcel where the activity is proposed, the biologist will survey the proposed disturbance footprint and a 500-foot radius from the perimeter of the proposed footprint to identify burrows and owls. Adjacent parcels under different land ownership will not be surveyed. Surveys should take place near sunrise or sunset in accordance with CDFW guidelines. All burrows or burrowing owls will be identified and mapped. Surveys will take place no more than 30 days prior to construction. During the breeding season (February 1– August 31), surveys will document whether burrowing owls are nesting in or directly adjacent to disturbance areas. During the nonbreeding season (September 1–January 31), surveys will document whether burrowing owls are using habitat in or directly adjacent to any

disturbance area. Survey results will be valid only for the season (breeding or nonbreeding) during which the survey is conducted.

Avoidance and Minimization and Construction Monitoring

This measure incorporates avoidance and minimization guidelines from CDFW's *Staff Report on Burrowing Owl Mitigation* (California Department of Fish and Game 1995).

If burrowing owls are found during the breeding season (February 1 – August 31), the project proponent will avoid all nest sites that could be disturbed by project construction during the remainder of the breeding season or while the nest is occupied by adults or young. Avoidance will include establishment of a non-disturbance buffer zone (described below). Construction may occur during the breeding season if a qualified biologist monitors the nest and determines that the birds have not begun egg-laying and incubation or that the juveniles from the occupied burrows have fledged. During the nonbreeding season (September 1 – January 31), the project proponent should avoid the owls and the burrows they are using, if possible. Avoidance will include the establishment of a buffer zone (described below).

During the breeding season, buffer zones of at least 250 feet in which no construction activities can occur will be established around each occupied burrow (nest site). Buffer zones of 160 feet will be established around each burrow being used during the nonbreeding season. The buffers will be delineated by highly visible, temporary construction fencing.

If occupied burrows for burrowing owls are not avoided, passive relocation will be implemented. Owls should be excluded from burrows in the immediate impact zone and within a 160-foot buffer zone by installing one-way doors in burrow entrances. These doors should be in place for 48 hours prior to excavation. The project area should be monitored daily for 1 week to confirm that the owl has abandoned the burrow. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation (California Department of Fish and Game 1995). Plastic tubing or a similar structure should be inserted in the tunnels during excavation to maintain an escape route for any owls inside the burrow.

SWAINSON'S HAWK

Preconstruction Survey

Prior to any ground disturbance related to covered activities that occurs during the nesting season (March 15–September 15), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether Swainson's hawk nests within 1,000 feet of the project site are occupied. If potentially occupied nests within 1,000 feet are off the project site, then their occupancy will be determined by observation from public roads or by observations of Swainson's hawk activity (e.g., foraging) near the project site. If nests are occupied, minimization measures and construction monitoring are required (see below).

Avoidance and Minimization and Construction Monitoring

During the nesting season (March 15–September 15), covered activities within 1,000 feet of occupied nests or nests under construction will be prohibited to prevent nest abandonment. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be used, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

If young fledge prior to September 15, covered activities can proceed normally. If the active nest site is shielded from view and noise from the project site by other development, topography, or other features, the project applicant can apply to the Implementing Entity for a waiver of this avoidance measure. Any waiver must also be approved by USFWS and CDFW. While the nest is occupied, activities outside the buffer can take place.

All active nest trees will be preserved on site, if feasible. Nest trees, including non-native trees, lost to covered activities will be mitigated by the project proponent according to the requirements below.

Mitigation for Loss of Nest Trees

The loss of non-riparian Swainson's hawk nest trees will be mitigated by the project proponent by:

- If feasible on-site, planting 15 saplings for every tree lost with the objective of having at least 5 mature trees established for every tree lost according to the requirements listed below.

  AND either

  1) Pay the Implementing Entity an additional fee to purchase, plant, maintain, and monitor 15 saplings on the HCP/NCCP Preserve System for every tree lost according to the requirements listed below, OR

  2) The project proponent will plant, maintain, and monitor 15 saplings for every tree lost at a site to be approved by the Implementing Entity (e.g., within an HCP/NCCP Preserve or existing open space linked to HCP/NCCP preserves), according to the requirements listed below.

The following requirements will be met for all planting options:

- Tree survival shall be monitored at least annually for 5 years, then every other year until year 12. All trees lost during the first 5 years will be replaced. Success will be reached at the end of 12 years if at least 5 trees per tree lost survive without supplemental irrigation or protection from herbivory. Trees must also survive for at least three years without irrigation.
- Irrigation and fencing to protect from deer and other herbivores may be needed for the first several years to ensure maximum tree survival.
- Native trees suitable for this site should be planted. When site conditions permit, a variety of native trees will be planted for each tree lost to provide trees with different growth rates, maturation, and life span, and to provide a variety of tree canopy structures for Swainson's hawk. This variety will help to ensure that nest trees will be available in the short term (5-10 years for cottonwoods and willows) and in the long term (e.g., Valley oak, sycamore). This will also minimize the temporal loss of nest trees.
- Riparian woodland restoration conducted as a result of covered activities (i.e., loss of riparian woodland) can be used to offset the nest tree planting requirement above, if the nest trees are riparian species.
- Whenever feasible and when site conditions permit, trees should be planted in clumps together or with existing trees to provide larger areas of suitable nesting habitat and to create a natural buffer between nest trees and adjacent development (if plantings occur on the development site).
- Whenever feasible, plantings on the site should occur closest to suitable foraging habitat outside the UDA.
- Trees planted in the HCP/NCCP preserves or other approved offsite location will occur within the known range of Swainson's hawk in the inventory area and as close as possible to high-quality foraging habitat.

GOLDEN EAGLE

Preconstruction Survey

Prior to implementation of covered activities, a qualified biologist will conduct a preconstruction survey to establish whether nests of golden eagles are occupied (see Section 6.3.1, *Planning Surveys*). If nests are occupied, minimization requirements and construction monitoring will be required.

Avoidance and Minimization

Covered activities will be prohibited within 0.5 mile of active nests. Nests can be built and active at almost any time of the year, although mating and egg incubation occurs late January through August, with peak activity in March through July. If site-specific conditions or the nature of the covered activity (e.g., steep topography, dense vegetation, limited activities) indicate that a smaller buffer could be appropriate or that a larger buffer should be implemented, the Implementing Entity will coordinate with CDFW/USFWS to determine the appropriate buffer size.

Construction Monitoring

Construction monitoring will focus on ensuring that no covered activities occur within the buffer zone established around an active nest. Although no known golden eagle nest sites occur within or near the ULL, covered activities inside and outside of the Preserve System have the potential to disturb golden eagle nest sites. Construction monitoring will ensure that direct effects to golden eagles are minimized.

3) Construction Monitoring Plan

Before implementing a covered activity, the applicant will develop and submit a construction monitoring plan to the planning department of the local land use jurisdiction and the East Contra Costa County Habitat Conservancy for review and approval. Elements of a brief construction monitoring plan will include the following:

- Results of planning and preconstruction surveys.[11]
- Description of avoidance and minimization measures to be implemented, including a description of project-specific refinements to the measures or additional measures not included in the HCP/NCCP.
- Description of monitoring activities, including monitoring frequency and duration, and specific activities to be monitored.
- Description of the onsite authority of the construction monitor to modify implementation of the activity.

☒ Check box to acknowledge this requirement.

V. SPECIFIC CONDITIONS ON COVERED ACTIVITIES

1) Check off the HCP conservation measures that apply to the project.

APPLIES TO ALL PROJECTS

☒ **Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Migratory Birds.** This conservation measure applies to all projects. All projects will avoid all impacts on extremely rare plants and fully protected species listed in Table 6-5 of the ECCC HCP/NCCP. See HCP pp. 6-23 to 6-25, and Table 6-5.

APPLIES TO PROJECTS THAT IMPACT COVERED PLANT SPECIES

☐ **Conservation Measure 3.10. Plant Salvage when Impacts are Unavoidable.** This condition applies to projects that cannot avoid impacts on covered plants and help protect covered plants by prescribing salvage whenever avoidance of impacts is not feasible. Project proponents wishing to remove populations of covered plants must notify the Conservancy of their construction schedule to allow the Conservancy the option of salvaging the populations. See HCP pp. 6-48 to 6-50.

APPLIES TO PROJECTS THAT INCLUDE ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☐ **Conservation Measure 2.12. Wetland, Pond, and Stream Avoidance and Minimization.** All projects will implement measures described in the HCP to avoid and minimize impacts on wetlands, ponds, streams, and riparian woodland/scrub. See HCP pp. 6-33 to 6-35.

APPLIES TO NEW DEVELOPMENT PROJECTS

☒ **Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion.** All new development must avoid or minimize direct and indirect impacts on local hydrological conditions and erosion by incorporating the applicable Provision C.3 Amendments of the Contra Costa County Clean Water Program's (CCCCWP's) amended NPDES Permit (order no. R2-2003-0022; permit no. CAS002912). The overall goal of this measure is to ensure that new development covered under the HCP has no or minimal adverse effects on downstream fisheries to avoid take of fish listed under ESA or CESA. See HCP pp. 6-21 to 6-22.

APPLIES TO NEW DEVELOPMENT PROJECTS THAT INCLUDE OR ARE ADJACENT TO STREAMS, PONDS, OR WETLANDS

☐ **Conservation Measure 1.7. Establish Stream Setbacks.** A stream setback will be applied to all development projects covered by the HCP according to the stream types listed in Table 6-2 of the HCP. See HCP pp. 6-15 to 6-18 and Table 6-2.

APPLIES TO NEW DEVELOPMENT PROJECTS ADJACENT TO EXISTING PUBLIC OPEN SPACE, HCP PRESERVES, OR LIKELY HCP ACQUISITION SITES

☐ **Conservation Measure 1.6. Minimize Development Footprint Adjacent to Open Space.** Project applicants are encouraged to minimize their development footprint and set aside portions of their land to contribute to the HCP Preserve System. Land set aside that contributes to the HCP biological goals and objectives may be credited against development fees. See HCP pages 6-14 to 6-15.

☐ **Conservation Measure 1.8. Establish Fuel Management Buffer to Protect Preserves and Property.** Buffer zones will provide a buffer between development and wildlands that allows adequate fuel management to minimize the risk of wildlife damage to property or to the preserve. The minimum buffer zone for new development is 100 feet. See HCP pages 6-18 to 6-19.

[11] If the preconstruction surveys do not trigger construction monitoring, results of preconstruction surveys should still be submitted to the local jurisdiction and the East Contra Costa County Habitat Conservancy.

☐ **Conservation Measure 1.9. Incorporate Urban-Wildlife Interface Design Elements.** These projects will incorporate design elements at the urban-wildlife interface to minimize the indirect impacts of development on the adjacent preserve. See HCP pp. 6-20 to 6-21.

APPLIES TO ROAD MAINTENANCE PROJECTS OUTSIDE THE UDA

☐ **Conservation Measure 1.12. Implement Best Management Practices for Rural Road Maintenance.** Road maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways, spreading invasive weeds, and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-25 to 6-26.

APPLIES TO NEW ROADS OR ROAD IMPROVEMENTS OUTSIDE THE UDA

☐ **Conservation Measure 1.14. Design Requirements for Covered Roads Outside the Urban Development Area (UDA).** New roads or road improvements outside the UDA have impacts on many covered species far beyond the direct impacts of their project footprints. To minimize the impacts of new, expanded, and improved roads in agricultural and natural areas of the inventory area, road and bridge construction projects will adopt siting, design, and construction requirements described in the HCP and listed in Table 6-6. See HCP pp. 6-27 to 6-33 and Table 6-6.

APPLIES TO FLOOD CONTROL MAINTENANCE ACTIVITIES

☐ **Conservation Measure 1.13. Implement Best Management Practices for Flood Control Facility Maintenance.** Flood control maintenance activities have the potential to affect covered species by introducing sediment and other pollutants into downstream waterways and disturbing breeding wildlife. In order to avoid and minimize these impacts, BMPs described in the HCP will be used where appropriate and feasible. See HCP pp. 6-26 to 6-27.

2) For all checked conservation measures, describe how the project will comply with each measure. Attach as Attachment C: Project Compliance to HCP Conditions.

VI. MITIGATION MEASURES

1) Mitigation Fee Calculator(s)
Complete and attach the fee calculator (use permanent and/or temporary impact fee calculator as appropriate), and attach as **Attachment D: Fee Calculator(s)**.

2) Briefly describe the amount of fees to be paid and when applicant plans to submit payment.

The 14.86+/- acre site contains 13.45 acres of ruderal grassland and 0.11 acres of urban land.

The site is within Fee Zone 1 and construction is expected to commence in Spring 2021.

Using the current fee schedule, fees would be paid on 13.45+/- acres within Fee Zone 1, at a cost of $17,137.99 per acre ($235,674.86 total). Fees will paid pursuant to the fee schedule that is in place at the time construction commences.

ATTACHMENT A: PROJECT DESCRIPTION

Oakley Sellers Village

Project Description

October 2020

The 15+/- acre project site is located along the west side of Sellers Road and just west of Kings Canyon Way in Oakley, Contra Costa County, California (Figure 1). The site is within Sections 31 and 32, in Township 2 North, Range 3 East of the USGS 7.5-minute Brentwood topographic quadrangle (Figure 1). The project site includes 2 parcels encompassing 14+/- acres, and an offsite 0.11+/-acre sliver along Sellers Avenue.

Edgemont Station, LLC plans to divide the property in to a 42-lot residential subdivision with single family medium-sized homes (Figures 2a and 2b). Access to the site will be from Sellers Avenue, via a new road along the south edge of the subdivision. There will also be access in to the site from Tamarack Drive, which will extend east in to the site from the neighboring subdivision. A network of roads and cul-de-sacs will provide access to all of lots in the subdivision.

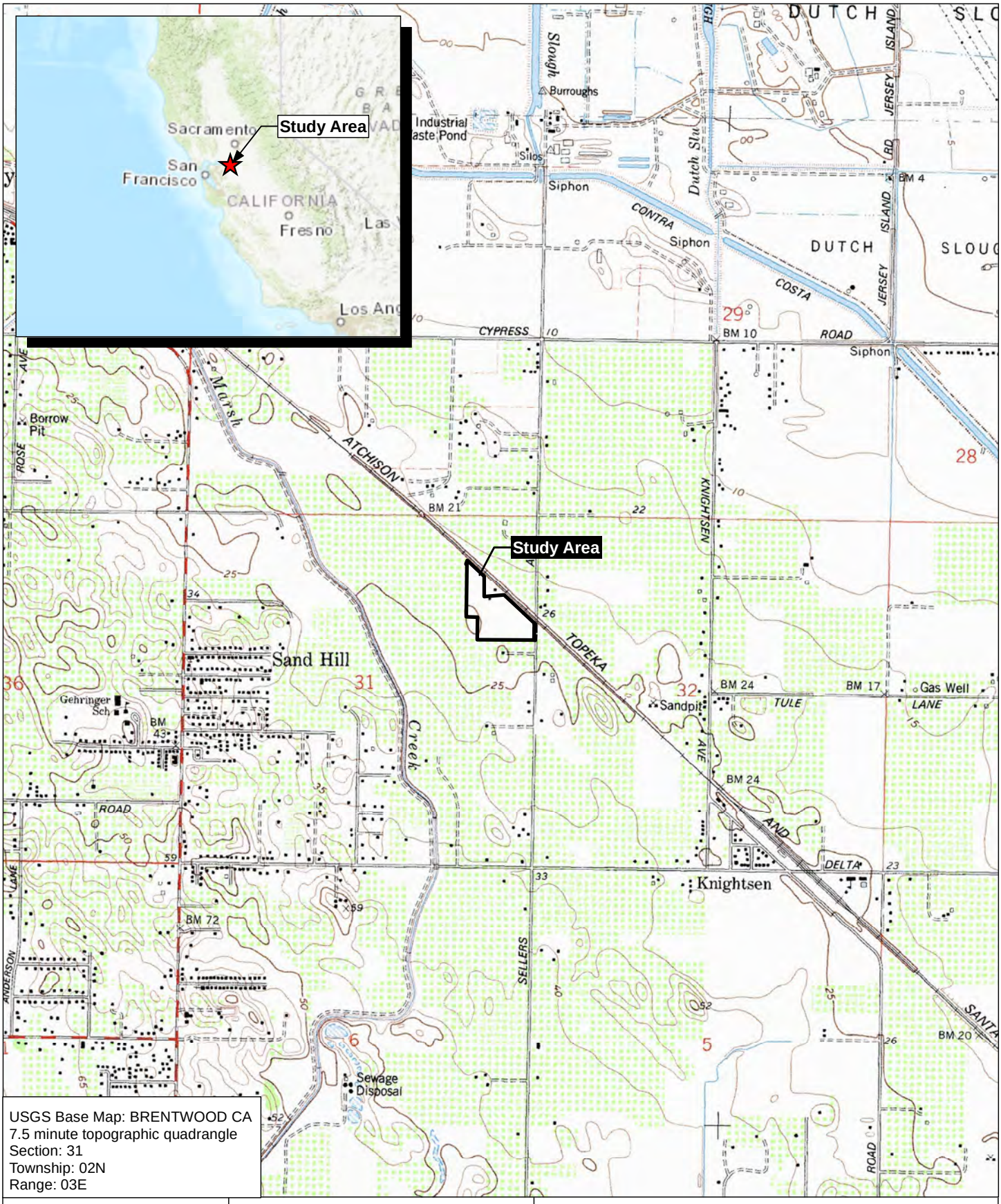
The project may require minor improvements to the edge of Sellers Lane for shoulder work and/or construction of a sidewalk along the edge of the road. If needed, these off-site improvements will occur on 0.11 acres of land immediately east of the site.

The proposed project will connect to existing City infrastructure to provide sewer and water to the site. The storm water will be detained in to two water quality treatment basins prior to its discharge into the City's storm drain system.

Standard construction best management practices (BMPs) will be employed during construction to minimize the potential for erosion and off-site transport of fines. BMPs will include use of water trucks, appropriate compaction of soil, and installation of straw wattles, silt fences or other technologies along the perimeter of the site during construction, and stabilization of bare soils as appropriate with seeding, straw, and/or hydromulch.

Construction is expected to begin in Spring 2021 and is expected to continue through 2022.

ATTACHMENT B: FIGURES



USGS Base Map: BRENTWOOD CA
7.5 minute topographic quadrangle
Section: 31
Township: 02N
Range: 03E

Figure 1

Moore Biological Consultants

0 1,000 2,000
Feet
1 inch = 2,000 feet

N
W E
S

Map Date: 09/24/2020

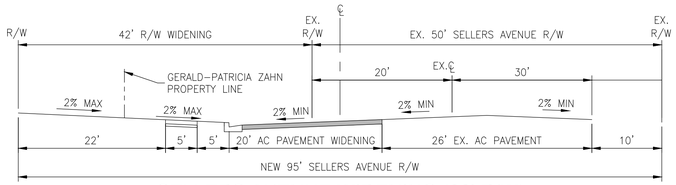
Site Map/USGS

Oakley Sellers Village

City of Oakley, Contra Costa County, CA

TYPICAL IN-TRACT STREET SECTION (56' R/W)

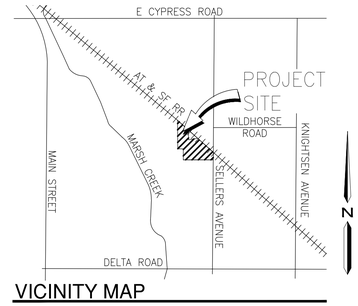
NOT TO SCALE



SELLERS AVENUE WIDENING (92' R/W)

NOT TO SCALE

LOT SUMMARY	
LOT AREA (SF)	NUMBER OF LOTS
10,000-11,000	37
11,001-12,000	1
12,001-13,000	3
13,001+	1
TOTAL	42



VICINITY MAP

GENERAL NOTES

1. LAND AREA SUMMARY

LOT AREA	10.05 AC
PARCEL A	0.07 AC
PARCEL B	0.05 AC
SELLERS AVENUE	0.27 AC
IN-TRACT STREETS	4.32 AC
TOTAL AREA	14.76 AC

2. TOTAL NUMBER OF LOTS = 42
3. DENSITY: 2.85 LOTS / ACRE
4. LAND USE: EXISTING – 1 EXISTING RESIDENTIAL (TO BE REMOVED)
   AGRICULTURAL PURPOSED – SINGLE FAMILY RESIDENTAL
5. ZONING: R-10 10,000 SF. MIN. LOT AREA
6. GENERAL PLAN: SINGLE FAMILY MEDIUM (033-150-011 & 033-150-018)
7. UTILITIES:

WATER	DIABLO WATER DISTRICT
SEWER	IRON HOUSE SANITARY DISTRICT
GAS/ELECTRIC	PG&E
TELEPHONE	AT&T CALIFORNIA

8. PROJECT SITE APN'S: 033-150-011 & 033-150-018
9. MULTIPLE FINAL MAPS MAY BE FILED ON THE LANDS SHOWN ON THIS MAP
10. ALL TREES, FENCES AND BUILDINGS WITHIN DEVELOPED AREA TO BE REMOVED
11. FLOOD ZONE INFORMATION ZONE X: ZONE IS OUTSIDE THE 100 YEAR FLOOD PLANE

    FLOOD ZONE INFORMATION FROM FEMA FLOOD MAP COMMUNITY PANEL NUMBER 06013C0360G EFFECTIVE 03/21/2017

CONTACT INFORMATION

OWNER/APPLICANT: EDGEMONT STATION LLC.
8880 CAL CENTER DRIVE, SUITE 100
SACRAMENTO, CA 95826
CONTACT: SHAHRAIR MONFARED
(916) 276-3861

CIVIL ENGINEER: O'DELL ENGINEERING
1165 SCENIC DRIVE, SUITE A
MODESTO, CA 95350
CONTACT: MIKE PERSAK
(209) 497-4061

Figure 2A: Vesting Tentative Map (Sheet 1/2)

Know what's below. Call before you dig.

PLAN REVISIONS

NO.	DATE	REVISION

O'DELL ENGINEERING
1165 Scenic Drive, Suite A
Modesto, CA 95350
odellengineering.com

VESTING TENTATIVE MAP
OAKLEY SELLERS VILLAGE

OAKLEY, CALIFORNIA

VESTING TENTATIVE MAP

APPROVED:

DESIGNED:	MP
DRAWN:	JJB
CHECKED:	MP
SCALE:	1" = 60'
DATE:	7/16/2020
JOB NO.:	JOB NO.:35750
FILE NO.:	TENTATIVE MAP7 35750.DWG

SHEET NO.
1
OF
2

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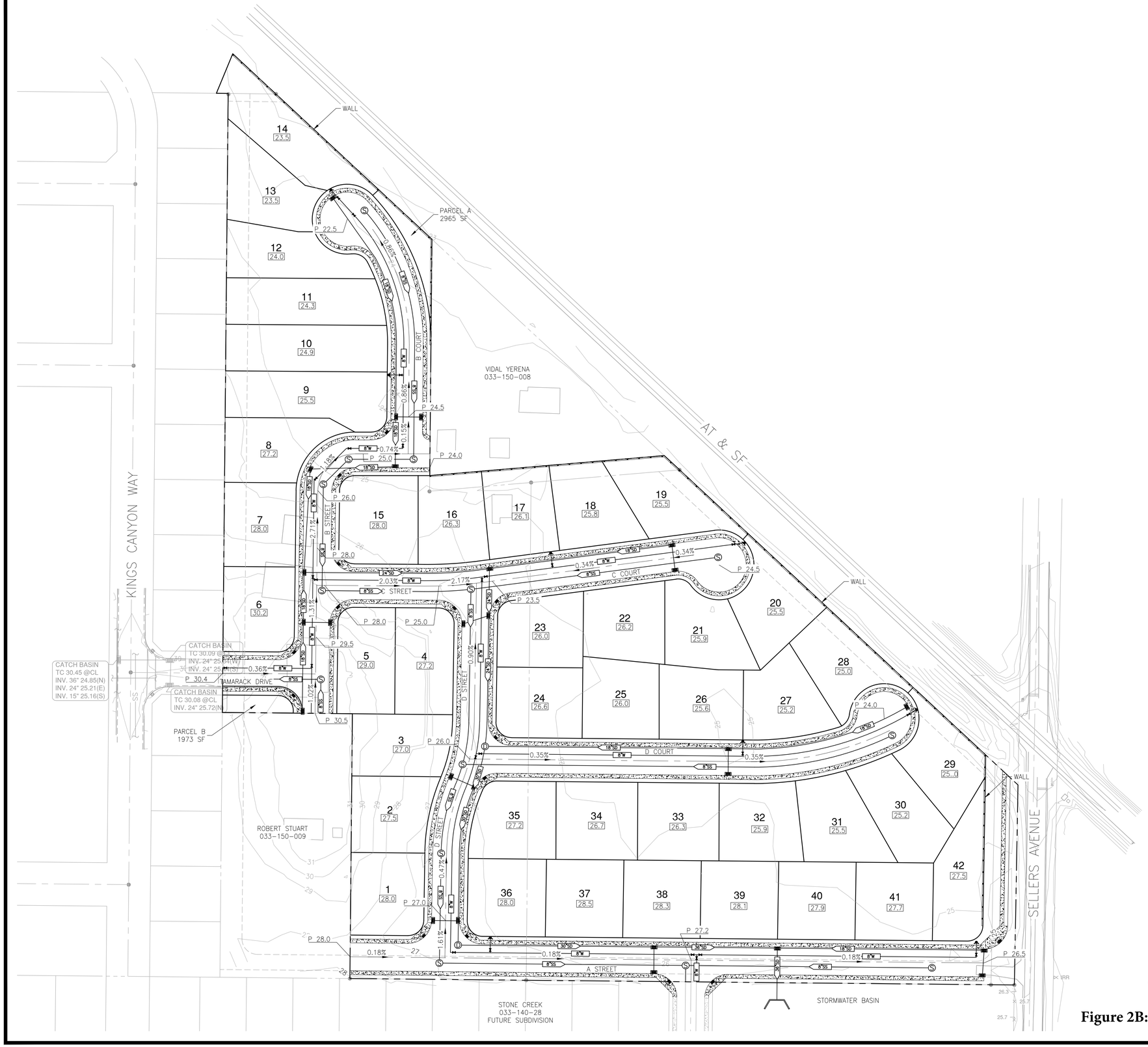

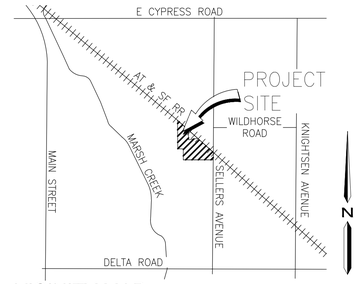

VICINITY MAP

LEGEND

- CATCH BASIN
- FIRE HYDRANT
- SANITARY SEWER MAN HOLE
- WATER VALVE
- XX"UT — UNDERGROUND UTILITY AND DIRECTION
- XX"UT — UNDERGROUND WATER PIPE PIPE AND SIZE
- XX.X — PAD ELEVATION
- MASONRY SOUND WALL

N

0 30 60 120

SCALE: 1" = 60'

Figure 2B: Vesting Tentative Map (Sheet 2/2)

Know what's below. Call before you dig.

PLAN REVISIONS

NO.	DATE	REVISION

O'DELL ENGINEERING
1165 Scenic Drive, Suite A
Modesto, CA 95350
odellengineering.com

VESTING TENTATIVE MAP
OAKLEY SELLERS VILLAGE
OAKLEY, CALIFORNIA

PRELIMINARY GRADING & DRAINAGE PLAN

APPROVED:

DESIGNED:	MP
DRAWN:	JJB
CHECKED:	MP
SCALE:	1" = 60'
DATE:	7/16/2020
JOB NO.:	JOB NO.:35750
FILE NO.:	PRE-GP 35750.DWG

SHEET NO.
2
OF
2

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Figure 3

Moore Biological Consultants

Project Site (14.75 acres)

Off-Site Improvements (0.11 acre)

Ruderal Grassland (13.45 ac.)

Urban/Developed (1.41 ac.)

N W E S

0 100 200

Map Date: 09/24/2024
Aerial Source: Google Earth (02/2020)

Field Verified Landcover Map

Oakley Sellers Village

City of Oakley, Contra Costa County, CA

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Ruderal grassland field in the south part of the site, looking west from the southeast part of the site; 09/02/20.

Ground squirrel burrow in the ruderal grassland field in the south part of the site, looking southwest; 09/02/20.

FIGURE 4a

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

A few ornamental trees in the northwest part of the large grassland field in the site, looking northwest; 09/02/20.

Ruderal grassland in the southwest part of the site, looking north from the south edge of the site; 09/02/20.

FIGURE 4b

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

Ruderal grassland field in the north part of the site, looking north from the south end of the field; 09/02/20.

Fenceline in the north part of the site, looking northwest; 09/02/20.

FIGURE 4c

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

East edge of the site, looking southeast from near the residence adjacent to the east part of the site; 09/02/20.

East edge of the site, looking north along Sellers Avenue; 09/02/20.

FIGURE 4d

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

Home site in the west part of the site, looking west from just east of the site; 09/02/20.

Home site and other structures in the west part of the site, looking south from the north part of the site; 09/02/20.

FIGURE 4e

MOORE BIOLOGICAL **REPRESENTATIVE PHOTOGRAPHS**

Figure 5a

Moore Biological Consultants

Project Site (14.75 acres)

Off-Site Improvements (0.11 acre)

Ruderal Grassland (13.45 ac.); assumed habitat for western burrowing owl

Urban/Developed (1.41 ac.)

Tree; potential nest site for Swainson's hawk, golden eagle, and white-tailed kite

N W E S

0 100 200

Map Date: 09/24/2024
Aerial Source: Google Earth (02/2020)

Planning Survey Species Habitat Map

Oakley Sellers Village

City of Oakley, Contra Costa County, CA

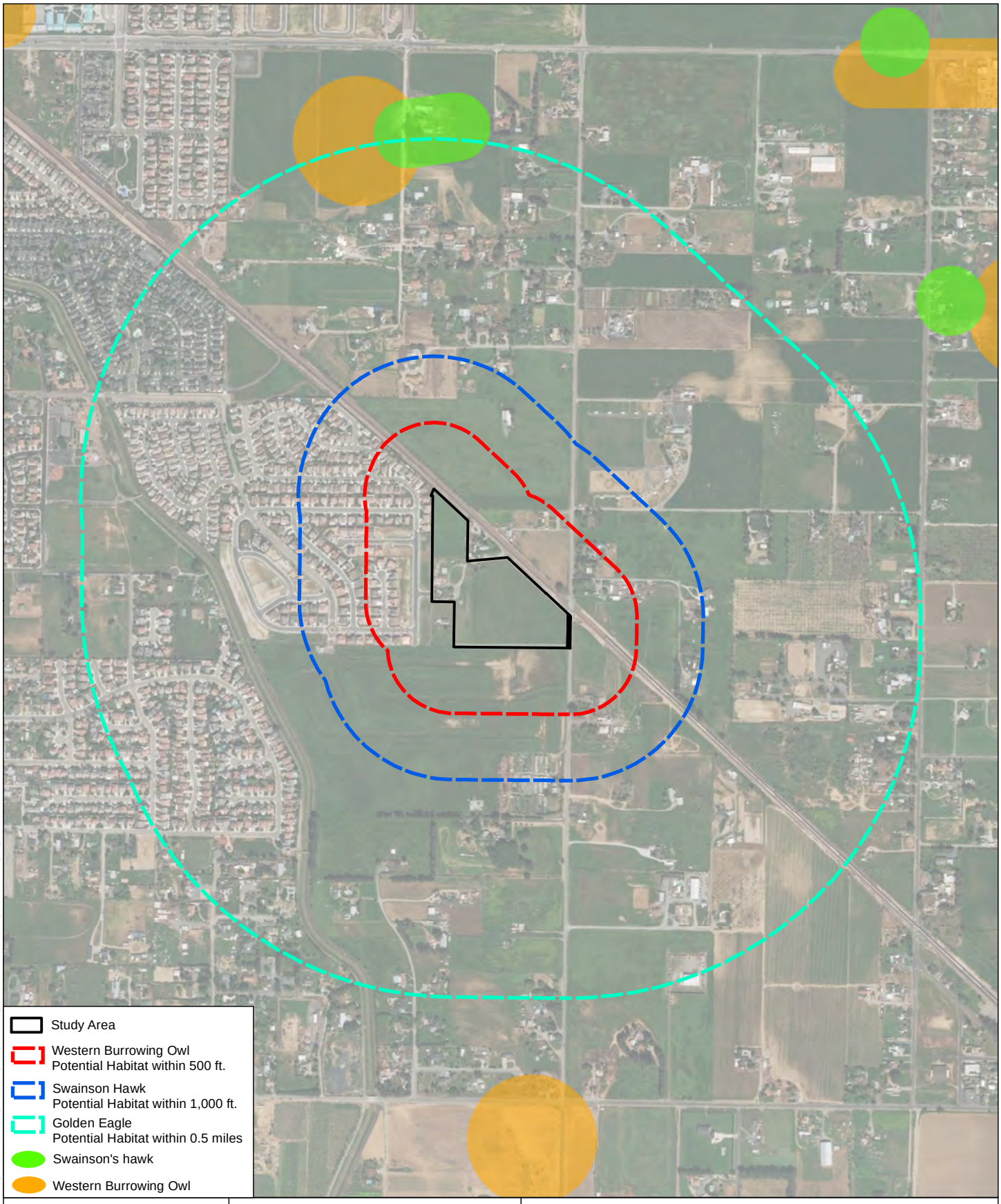

Figure 5b

Moore Biological Consultants

0 500 1,000

N W E S

Map Date: 09/24/2020
Aerial Photo: Maxar (2019)

Regional Species Habitat Map

Oakley Sellers Village

City of Oakley, Contra Costa County, CA

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ATTACHMENT C: PROJECT COMPLIANCE TO HCP CONDITIONS

Oakley Sellers Village

Project Compliance to HCP Conditions

October 2020

HCP/NCCP Conservation Measure 1.11. Avoid Direct Impacts on Extremely Rare Plants, Fully Protected Wildlife Species, or Covered Migratory Birds:

The potential for special-status plants to occur within the site is considered extremely remote, as described in Section III (10).

Species-specific pre-construction surveys, and if needed, monitoring and avoidance requirements for burrowing owl, Swainson's hawk, and golden eagle will be conducted as described in Section IV (2). There is no suitable habitat in the site for ringtail (*Bassariscus astutus*), a "fully protected species," per California Fish and Game Code Section 4700. Similarly, there is no suitable nesting habitat in the site for peregrine falcon (*Falco peregrinus*), a "fully protected species," per California Fish and Game Code Section 3511.

White-tailed kite (*Elanus caeruleus*), another "fully protected species," per California Fish and Game Code Section 3511 could potentially nest in trees in and near the site. Prior to any ground disturbance related to covered activities that occur during the nesting season (March 15-August 31), a qualified biologist will conduct a preconstruction survey no more than 1 month prior to construction to establish whether white-tailed kite is nesting in trees in or visible from the site. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.

On-site tree, shrubs, and grasslands could be used by other species of nesting birds protected by the Migratory Bird Treaty Act. If possible, vegetation removal will occur outside of the general bird nesting season (February 1 through August 31). Alternately, a qualified biologist will conduct a preconstruction survey no more than 2 weeks prior to vegetation removal. In the event active nests are found, the applicant shall notify the Implementing Entity and consult with CDFW for further guidance.

HCP/NCCP Conservation Measure 1.10. Maintain Hydrologic Conditions and Minimize Erosion:

The project has been designed to maintain hydrologic conditions and minimize erosion. Standard construction best management practices (BMPs) will be employed during construction to minimize the potential for erosion and off-site transport of fines. BMPs will include use of water trucks, appropriate compaction of soil, and installation of straw wattles, silt fences or other technologies along the perimeter of the site during construction, and stabilization of bare soils as appropriate with seeding, straw, and/or hydromulch.

ATTACHMENT D: FEE CALCULATOR

ECCC HCP/NCCP 2020 Fee Calculator Worksheet
Permanent Impacts

PROJECT APPLICANT: Edgemont Station, LLC

PROJECT NAME: Oakley Sellers Village

APN(s): 033-150-011 & 033-150-018

JURISDICTION: Oakley

DATE: October 2020

DEVELOPMENT FEE		**ACREAGE PERMANENTLY IMPACTED (TABLE 1)[1]**		**2020 FEE PER ACRE (SUBJECT TO CHANGE)[2]**		
See appropriate ordinance or HCP/NCCP Figure 9-1 to determine Fee Zone	Fee Zone 1	13.75	x	$17,139.99	=	$235,674.86
	Fee Zone 2		x	$34,279.99	=	$0.00
	Fee Zone 3		x	$8,570.72	=	$0.00
				Development Fee Total	**=**	**$235,674.86**

WETLAND MITIGATION FEE	**ACREAGE PERMANENTLY IMPACTED (TABLE 1)[1]**		**2020 FEE PER ACRE (SUBJECT TO CHANGE)[2]**		
Riparian woodland / scrub		x	$84,239.66	=	$0.00
Perennial Wetland		x	$115,275.32	=	$0.00
Seasonal Wetland		x	$249,763.19	=	$0.00
Alkali Wetland		x	$236,462.19	=	$0.00
Ponds		x	$125,620.54	=	$0.00
Aquatic (open water)		x	$63,549.21	=	$0.00
Slough / Channel		x	$143,355.21	=	$0.00
STREAMS	**LINEAR FEET PERMANENTLY IMPACTED (TABLE 1)**		**2020 FEE PER LINEAR FT (SUBJECT TO CHANGE)[2]**		
Streams 25 feet wide or less		x	$686.78	=	$0.00
Streams greater than 25 feet wide		x	$1,034.52	=	$0.00
			Wetland Mitigation Fee Total	**=**	**$0.00**

FEE REDUCTION[3]		
Development Fee reduction for land in lieu of fee	=	
Development Fee reduction (up to 33%) for permanent assessments	=	
Wetland Mitigation Fee reduction for wetland restoration/creation performed by applicant	=	
Reduction Total	**=**	**$0.00**

FINAL FEE CALCULATION		
Development Fee Total		$235,674.86
Wetland Mitigation Fee Total	+	$0.00
Fee Subtotal	**=**	**$235,674.86**
Contribution to Recovery	**+**	
TOTAL AMOUNT TO BE PAID	**=**	**$235,674.86**

[1] City/County planning staff will consult the land cover map in the Final HCP/NCCP and will reduce the acreage subject to the Development Fee by the acreage of the subject property that was identified in the Final HCP/NCCP as urban, turf, landfill or aqueduct land cover.

[2] Development Fees are adjusted annually according to a formula that includes both a Home Price Index (HPI) and a Consumer Price Index (CPI). The Wetland Mitigation Fees are adjusted according to a CPI. The Conservancy conducted the 2013 periodic fee audit required by the HCP/NCCP. Action by the County and participating cities is pending, which could result in adjustments to some or all fees in 2020.

[3] Fee reductions must be reviewed and approved by the Conservancy.

Template date: March 3, 2020

Appendix C
CNDDB Search Results

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Brentwood (3712186))
AND Other Status CONTAINS (CDFW_FP-Fully Protected OR CDFW_SSC-Species of Special Concern)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	1	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Anniella pulchra	Northern California legless lizard	Reptiles	ARACC01020	375	3	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, USFS_S-Sensitive	Chaparral, Coastal dunes, Coastal scrub
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2011	48	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Elanus leucurus	white-tailed kite	Birds	ABNKC06010	180	4	None	None	G5	S3S4	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1398	7	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Lanius ludovicianus	loggerhead shrike	Birds	ABPBR01030	110	1	None	None	G4	S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Broadleaved upland forest, Desert wash, Joshua tree woodland, Mojavean desert scrub, Pinon & juniper woodlands, Riparian woodland, Sonoran desert scrub

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Brentwood (3712186))
AND CA Rare Plant Rank IS (1A OR 1B OR 1B.1 OR 1B.2 OR 1B.3 OR 2A OR 2B OR 2B.1 OR 2B.2 OR 2B.3)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Blepharizonia plumosa	big tarplant	Dicots	PDAST1C011	53	6	None	None	G1G2	S1S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Valley & foothill grassland
Centromadia parryi ssp. congdonii	Congdon's tarplant	Dicots	PDAST4R0P1	98	1	None	None	G3T1T2	S1S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Valley & foothill grassland
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Dicots	PDAPI0M051	17	1	None	None	G5T4T5	S2?	2B.1	null	Marsh & swamp, Salt marsh, Wetland
Extriplex joaquinana	San Joaquin spearscale	Dicots	PDCHE041F3	127	3	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland
Hesperolinon breweri	Brewer's western flax	Dicots	PDLIN01030	29	1	None	None	G2	S2	1B.2	null	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Dicots	PDONA0C0B4	10	1	Endangered	Endangered	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Interior dunes
Symphyotrichum lentum	Suisun Marsh aster	Dicots	PDASTE8470	175	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Brackish marsh, Freshwater marsh, Marsh & swamp, Wetland
Tropidocarpum capparideum	caper-fruited tropidocarpum	Dicots	PDBRA2R010	20	1	None	None	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Valley & foothill grassland

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Brentwood (3712186))
AND Federal Listing Status IS (Endangered OR Threatened OR Proposed Endangered OR Proposed Threatened OR Candidate) OR State Listing Status IS (Endangered OR Threatened OR Candidate Endangered OR Candidate Threatened)

Print Close

CNDDB Element Query Results

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	1	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Ambystoma californiense pop. 1	California tiger salamander - central California DPS	Amphibians	AAAAA01181	1261	21	Threatened	Threatened	G2G3	S2S3	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Bombus occidentalis	western bumble bee	Insects	IIHYM24250	306	2	None	Candidate Endangered	G2G3	S1	null	USFS_S-Sensitive	null
Branchinecta lynchi	vernal pool fairy shrimp	Crustaceans	ICBRA03030	795	3	Threatened	None	G3	S3	null	IUCN_VU-Vulnerable	Valley & foothill grassland, Vernal pool, Wetland
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2541	11	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Oenothera deltoides ssp. howellii	Antioch Dunes evening-primrose	Dicots	PDONA0C0B4	10	1	Endangered	Endangered	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Interior dunes
Vulpes macrotis mutica	San Joaquin kit fox	Mammals	AMAJA03041	1020	3	Endangered	Threatened	G4T2	S2	null	null	Chenopod scrub, Valley & foothill grassland

Appendix D
Cultural Resources Report

Cultural Resources Study for the Oakley Village Project Oakley, Contra Costa County, California

Eileen Barrow, MA/RPA

August 11, 2021

Cultural Resources Study for the Oakley Village Project Oakley, Contra Costa County, California

Prepared by:

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Prepared for:

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1501 Sports Drive, Suite A
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August 11, 2021

ABSTRACT

Tom Origer & Associates conducted a cultural resources study for the Oakley Village Project, Oakley, Contra Costa County, California. The study was requested and authorized by Raney Planning & Management, Inc. This study was conducted to meet the requirements of the City of Oakley and those of the California Environmental Quality Act. The purpose of this report is to identify potential historical resources other than Tribal Cultural Resources, as defined in Public Resources Code [PRC] 21074 (a)(1)(A)-(B) and discussed in the Regulatory Context section). Tribal Cultural Resources are defined in Public Resources Code [PRC] 21074 (a)(1)(A)-(B).

The project proponent is proposing to develop 14.82 acres into a residential subdivision with related infrastructure.

This study included archival research at the Northwest Information Center, Sonoma State University, examination of the library and files of Tom Origer & Associates, Native American contact, and field inspection of the study area. No cultural resources were found within the study area.

This report contains information about the locations of archaeological sites. For the protection of these resources, this report, and such location information, should not be publicly circulated.

Synopsis

Project:	Oakley Village
Location:	Sellers Avenue, Oakley, Contra Costa County
APN:	033-150-011 and 033-150-018
Quadrangles:	Brentwood 7.5' series
Study Type:	Intensive
Scope:	14.82 acres
Field Hours:	2 person-hours
NWIC #:	21-0083
TOA #:	2021-068
Finds:	None

Key Personnel

Eileen Barrow

Ms. Barrow conducted archival research, conducted the records search at the Northwest Information Center, conducted the fieldwork, and authored this report. Ms. Barrow has been with Tom Origer & Associates since 2005. She holds a Master of Arts in cultural resources management from Sonoma State University. Mrs. Barrow's experience includes work in compliance with local ordinances, California Environmental Quality Act, National Environmental Policy Act, and Section 106 of the National Historic Preservation Act requirements. Her professional affiliations include the Society for American Archaeology, the Society for California Archaeology, the California Historical Society, and the Sonoma County Historical Society.

Janine M. Origer

Ms. Origer provided her architectural history expertise for this project. Ms. Origer has 30 years' experience in Northern California cultural resources management. She has been with Tom Origer & Associates since 1991. She has worked on both prehistoric and historical archaeological sites and has completed research and documentation of historical buildings. Ms. Origer has a Bachelor of Arts in Anthropology from Sonoma State University. She holds a Master of Arts in Archaeology and Heritage from the University of Leicester. She has completed extensive continuing education in regulatory compliance, planning local surveys, and identifying historical resources. She is affiliated with the American Historical Association, Society for California Archaeology (Secretary of the Executive Board 2004-2006), the International Association for Obsidian Studies, the Society for American Archaeology, the Society for Historical Archaeology, Society of Architectural Historians, Vernacular Architecture Forum, and the Register of Professional Archaeologists (#1066030).

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INTRODUCTION

This report describes a cultural resources study for the Oakley Village Project, Oakley Contra Costa County, California (Figure 1). The study was requested and authorized by Raney Planning & Management, Inc. This study was conducted to meet the requirements of the City of Oakley and those of the California Environmental Quality Act (CEQA). Documentation pertaining to this study is on file at Tom Origer & Associates (File No. 2021-068).

The project proponent is proposing to develop 14.82 acres into a residential subdivision with related infrastructure.

REGULATORY CONTEXT

The State of California requires that cultural resources be considered during the environmental review process. This process is outlined in CEQA and accomplished by an inventory of resources within a study area and by assessing the potential that historical resources could be affected by development. The term "Historical Resources" encompasses all forms of cultural resources including prehistoric and historical archaeological sites and built environment resources (e.g., buildings, bridges, canals), that would be eligible for inclusion on the California Register of Historical Resources (California Register). An additional category of resources is defined in CEQA under the term "Tribal Cultural Resources" (Public Resources Code Section 21074). They are not addressed in this report because Tribal Cultural Resources are resources that are of specific concern to California Native American tribes, and knowledge of such resources is limited to tribal people. Pursuant to CEQA, as revised in July 2015, such resources are to be identified by tribal people in direct, confidential consultation with the lead agency (PRC §21080.3.1).

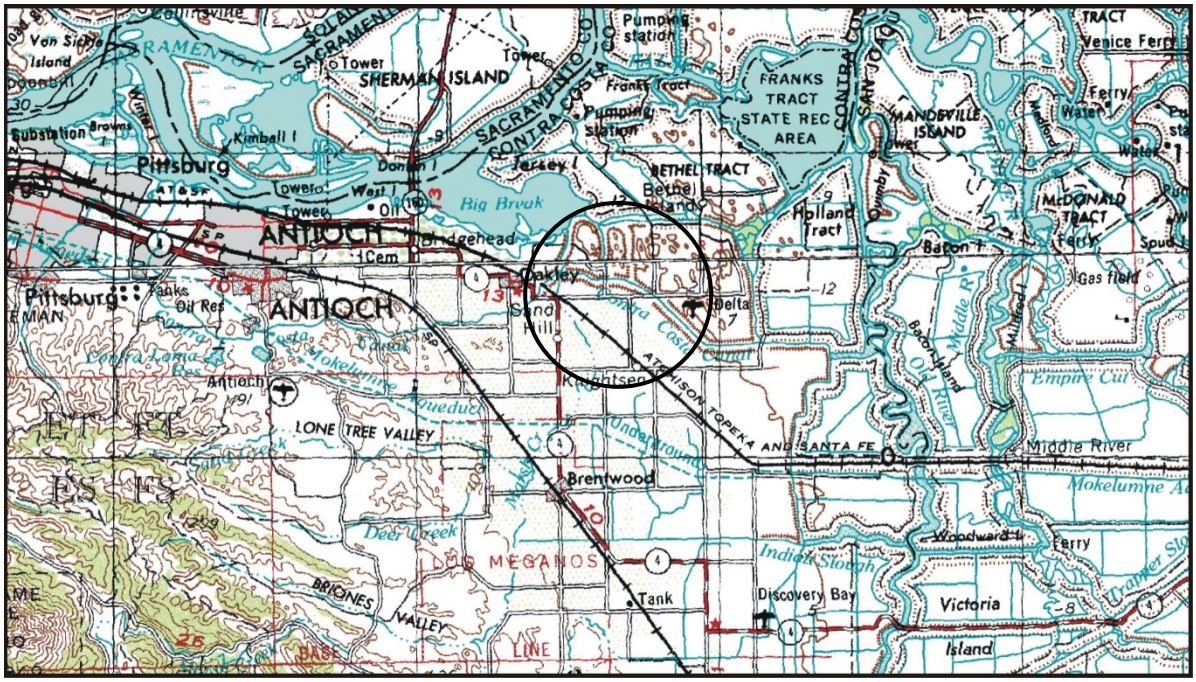

Figure 1. Project vicinity (adapted from the 1977 San Jose 1:250,000-scale USGS map).

This cultural resources study was designed to satisfy environmental issues specified in the CEQA and its guidelines (Title 14 CCR §15064.5) by: (1) identifying historical resources within the project area; (2) offering a preliminary significance evaluation of the identified cultural resources; (3) assessing resource vulnerability to effects that could arise from project activities; and (4) offering suggestions designed to protect resource integrity, as warranted.

Resource Definitions

Historical resources are classified by the State Office of Historic Preservation (OHP) as sites, buildings, structures, objects, and districts, and each is described by OHP (1995) as follows.

> **Site.** A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.
>
> **Building.** A building, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. "Building" may also be used to refer to a historically and functionally related unit, such as a courthouse and jail, or a house and barn.
>
> **Structure.** The term "structure" is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter.
>
> **Object.** The term "object" is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed. Although it may be, by nature or design, movable, an object is associated with a specific setting or environment.
>
> **District.** A district possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Significance Criteria

When a project might impact a cultural resource, the project proponent is required to conduct an assessment to determine whether the impact may be one that is significant. Consequently, it is necessary to determine the importance of resources that could be impacted. The importance of a resource is measured in terms of criteria for inclusion on the California Register. A resource may be important if it meets any one of the criteria, or if it is already listed on the California Register or a local register (Title 14 CCR, §4852).

An important resource is one which:

1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

2. Is associated with the lives of persons important to local, California, or national history.

3. Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of a master or possesses high artistic values.

4. Has yielded, or may be likely to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, eligibility for the California Register requires that a resource retains sufficient integrity to convey a sense of its significance or importance. Seven elements are considered key in considering a property's integrity: location, design, setting, materials, workmanship, feeling, and association.

The OHP advocates that all resources over 45 years old be recorded for inclusion in the OHP filing system (OHP 1995:2), although the use of professional judgment is urged in determining whether a resource warrants documentation.

PROJECT SETTING

Study Area Location and Description

The study area is located in the flatland between the Black Hills to the southwest and the San Joaquin River to the northeast. Prior to Euro-american immigration to this part of California, this area would have been a broad savannah cross-cut by seasonal streams that drained toward the San Joaquin River.

The study area is located at 5681 Sellers Avenue, Oakley, Contra Costa County, as shown on the Brentwood 7.5' USGS topographic map (Figure 2). The study area is largely undeveloped, but does contain two houses, and three outbuildings. Figure 3 provides a current overview of the study area.

The study area consists of 14.82 acres situated on generally level land with a percent slope of less than 1%. The closest water sources Marsh Creek which lies 440 meters to the southwest of the study area. Marsh Creek has been channelized but lies in approximately the same location as its natural course.

The geology of the study area consists of alluvial clay and sand dunes that were formed during Holocene epoch (11,700 years ago to the present) (Dibblee 2006).

Soils for the majority of the study area belong to the Sorento series; however, a small portion of the west side is comprised of Dehli soils (Welch 1971: Sheet 21). Dehli soils consist of excessively draining sandy soils which are formed in wind-modified stream deposits of mixed origins. In a natural state, this soil supports the growth of grasses, forbs, and scattered oaks. Historically, parcels containing Dehli soils were used for irrigated almonds, vineyards, and some walnuts (Welch 1971:20). Sorrento soils consist of well-draining silty clay loams found in valley fill and on alluvial fans. In a natural state, this soil supports the growth of grasses and forbs. Historically, parcels containing Sorrento soils were used for irrigated barley, alfalfa, row crops, walnuts, apricots, and peaches (Welch 1971:49).

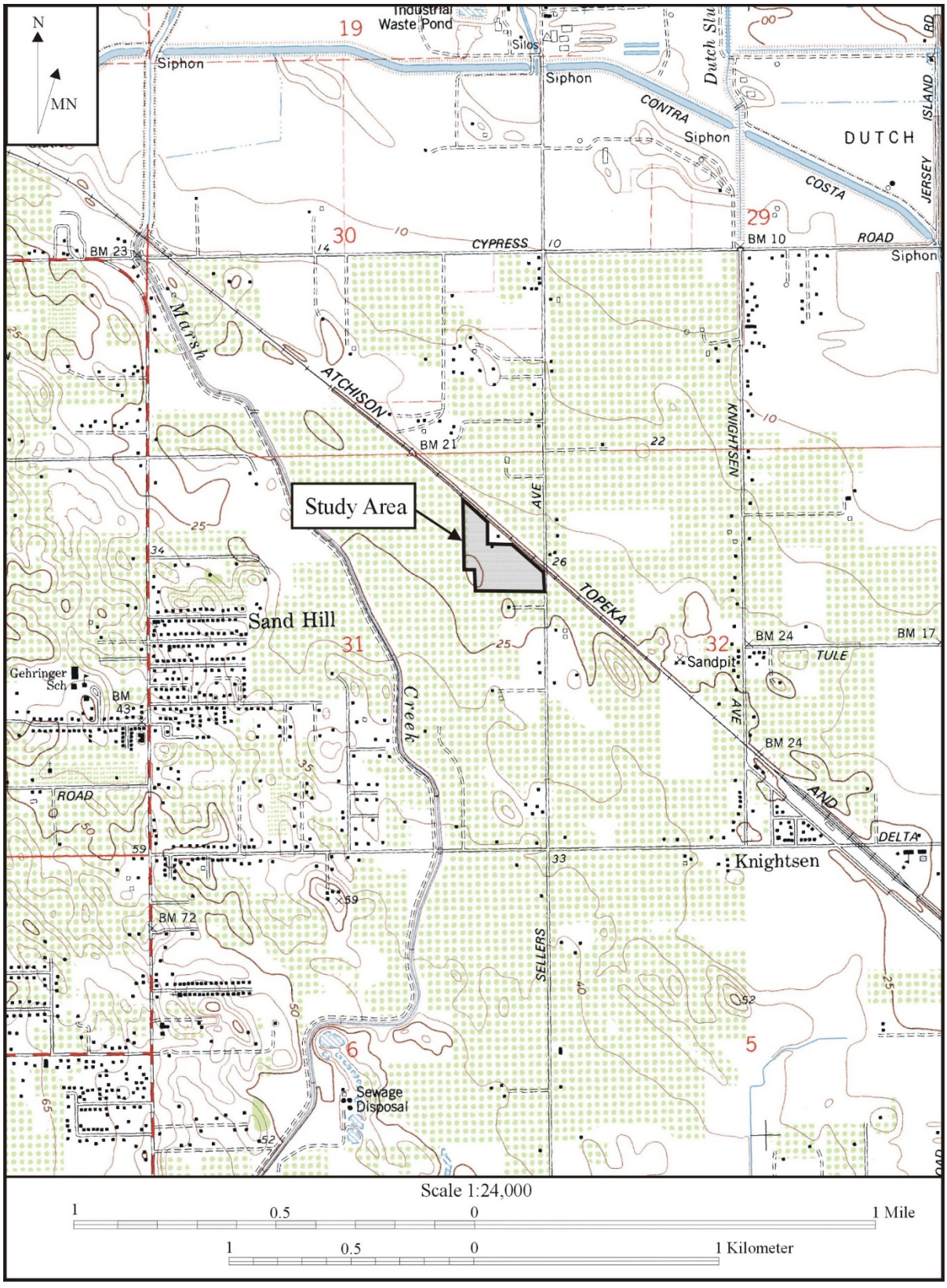

Figure 2. Study area location (adapted from the 1978 Brentwood 7.5' USGS topographic maps).

Figure 3. Overview photo of the study area, facing east.

Cultural Setting

Prehistory

The concept of prehistory refers to the period of time before events were recorded in writing and vary worldwide. Because there is no written record, our understanding of California prehistory relies on archaeological materials and oral histories passed down through generations. Early archaeological research in this area began with the work of Max Uhle and Nels Nelson. Uhle is credited with the first scientific excavation in California with his work at the Emeryville Shellmound in 1902, and Nelson spent several years (1906 to 1908) surveying the San Francisco Bay margins and California coast for archaeological sites (Nelson 1909). In the 1930s, archaeologists from Sacramento Junior College and the University of California began piecing together a sequence of cultures primarily based on burial patterns and ornamental artifacts from sites in the lower Sacramento Valley (Lillard *et al*. 1939; Heizer and Fenenga 1939). Their cultural sequence became known as the Central California Taxonomic System (CCTS), which identified three culture periods termed the Early, Middle, and Late Horizons, but without offering date ranges. Refinement of the CCTS became a chief concern of archaeologists as the century progressed with publications by Richard Beardsley (1948, 1954) and Clement Meighan (1955) based on materials excavated by the University of California archaeological survey.

In 1973, David Fredrickson synthesized prior work, and in combination with his own research, he developed a regional chronology that is used to this day, albeit modified for locality-specific circumstances. Fredrickson's scheme shows that native peoples have occupied the region for over 11,000 years (which is supported by Erlandson *et al.* 2007), and during that time, shifts took place in their social, political, and ideological regimes (Fredrickson 1973). While Fredrickson's chronology was adopted by many archaeologists, Beardsley's cultural sequence was adopted by others creating a roughly North Bay-South Bay division in usage.

In 1960, the first study of obsidian hydration as a dating tool for archaeologists was published (Friedman and Smith 1960). This study showed that the chemical composition of the obsidian and temperature affect the hydration process. It was not until the 1980s that research into this dating method was conducted for the North Bay Area which has four major obsidian sources. In 1987, Thomas Origer

devised a hydration chronology for the North Bay Area (Origer 1987b). This chronology was developed by pairing micron readings taken from obsidian specimens and pairing them with radiocarbon-dated artifacts and features. Origer was able to develop a hydration rate for Annadel and Napa Valley obsidian sources as a result of his study. Later, Tremaine (1989, 1993) was able to develop comparison constants among the four primary obsidian sources in the North Bay Area. The concept of comparison constants allows for the calculation of dates from hydration band measurements taken from obsidian specimens from sources with unknown hydration rates.

The development of obsidian hydration rates for the four, primary north Bay Area obsidian sources have provided archaeologists the ability to obtain dates from sites that could not previously be dated due to lack of diagnostic artifacts or organic material suitable for radiocarbon dating. Origer was able to support and refine Fredrickson's chronology dating tools diagnostic of certain periods (Origer 1987b).

In an effort to bridge the differences between chronologies, Milliken *et al.* (2007: Figure 8.4) presented a concordance for comparing time periods, cultural patterns, and local variations for the San Francisco Bay Area. Milliken included Dating Scheme D, as presented by Groza in 2002, which is a refinement of previous radiocarbon-based temporal sequences for the San Francisco Bay Area. More recently, Byrd, Whitaker, Mikkelsen, and Rosenthal (2017) called upon archaeologists to abandon previous temporal sequences in favor of Scheme D, further refined in Groza *et al.* 2011. Table 1 assimilates Scheme D, Fredrickson's (1973) chronology, and the obsidian hydration dating scheme from Origer (1987). Note that the Early, Middle, Late Horizon scheme is still evident though refinements have been made within those categories.

Early occupants appear to have had an economy based largely on hunting, with limited exchange, and social structures based on the extended family unit. Later, milling technology and an inferred acorn economy were introduced. This diversification of economy appears to be coeval with the development of sedentism and population growth and expansion. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, as evidenced by an increased range and distribution of trade goods (e.g., shell beads, obsidian tool stone), which are possible indicators of both status and increasingly complex exchange systems.

These horizons or periods are marked by a transition from large projectile points and milling slabs, indicating a focus on hunting and gathering during the Early Period, to a marine focus during the Middle Period evidenced by the number of shellmounds in the Bay Area. The Middle Period also saw more reliance on acorns and the use of bowl-shaped mortars and pestles. Acorn exploitation increased during the Late Period and the bow and arrow were introduced.

Prehistoric archaeological site indicators expected to be found in the region include but are not limited to: obsidian and chert flakes and chipped stone tools; grinding and mashing implements such as slabs and hand-stones, and mortars and pestles; and locally darkened midden soils containing some of the previously listed items plus fragments of bone, shellfish, and fire-affected stones.

Table 1. North Bay/San Francisco Bay Area Chronology

Temporal Period[1]	Approximate Time Range[1]	~ Hydration Interval (μ) [2]	Scheme D Periods[3]	Approximate Time Range[3]	~ Hydration Interval (μ) [2]
Historical	< AD 1800	<1.20	Historic Mission	AD 1835 to AD 1770	1.10 - 1.27
Upper Emergent	AD 1800 to AD 1500	1.21 - 1.84	Late 2	AD 1770 to AD 1520	1.28 - 1.80
Lower Emergent	AD 1500 to AD 1000	1.85 - 2.58	Late 1b	AD 1520 to AD 1390	1.81 - 2.02
			Late 1a	AD 1390 to AD 1265	2.03 - 2.22
			Middle/Late Transition	AD 1265 to AD 1020	2.23 - 2.55
Upper Archaic	AD 1000 to 500 BC	2.59 - 4.05	Middle 4	AD 1020 to AD 750	2.56 - 2.88
			Middle 3	AD 750 to AD 585	2.89 - 3.06
			Middle 2	AD 585 to AD 420	3.07 - 3.23
			Middle 1	AD 420 to 200 BC	3.24 - 3.80
			Early/Middle Transition	200 BC to 600 BC	3.81 - 4.13
Middle Archaic	500 BC to 3000 BC	4.06 - 5.72	Early	600 BC to 2100 BC	4.14 - 5.18
Lower Archaic	3000 BC to 6000 BC	5.73 - 7.23			
Paleo-Indian	6000 BC to 8000 BC	7.24 - 8.08+			

μ = microns

[1] based on Fredrickson (1994)

[2] based on Napa Glass Mountain rate by Origer (1987b) and Effective Hydration Temperature value from the vicinity of Santa Rosa, Sonoma County

[3] based on Groza *et al.* (2011)

Ethnography

Linguists and ethnographers tracing the evolution of languages have found that most of the indigenous languages of the California region belong to one of five widespread North American language groups (the Hokan and Penutian phyla, and the Uto-Aztecan, Algic, and Athabaskan language families). The distribution and internal diversity of four of these groups suggest that their original centers of dispersal were outside, or peripheral to, the core territory of California, that is, the Central Valley, the Sierra Nevada, the Coast Range from Cape Mendocino to Point Conception, and the Southern California coast and islands. Only languages of the Hokan phylum can plausibly be traced back to populations inhabiting parts of this core region during the Archaic period, and there are hints of connections between certain branches of Hokan, such as that between Salinan and Seri, that suggest that at least some of the Hokan languages could have been brought into California by later immigrants, primarily from the Southwest and northwestern Mexico (Golla 2011).

At the time of European settlement, the study area was situated in within the territory of the Bay Miwok (Kroeber 1925; Levy 1978). The Bay Miwok were hunter-gatherers who lived in rich marsh and plains environments, which allowed for dense populations with complex social structures (Kroeber 1925; Levy 1978). The Bay Miwok settled in large, permanent villages about which were distributed seasonal camps and task-specific sites. Primary villages were inhabited throughout the year while other sites were visited seasonally to obtain particular resources. Sites were often established near fresh water sources and at ecotones where plant and animal life was diverse and abundant. The environmental setting enjoyed by the Bay Miwok provided abundant plant and animal resources for their use (Kroeber 1925; Levy 1978).

History

Historically, the study area lies in the public lands of northern Contra Costa County, on what is now the eastern boundary of the city of Oakley. Before Oakley was established, the city of Antioch was established to the east of what is now Oakley. Antioch, and later Oakely, grew due to proximity to the San Joaquin and Sacramento rivers, the discovery of coal in the hills to the south, and the construction of the railroad (Emanuels 1986:213-219).The railroad lies just north of the study area; though the closest stop was in Knightsen, 0.75 miles away. Oakley's history began later than Antioch, when the railroad was constructed and a siding and stop were created in 1900 (Emanuels 1986:209). The area surrounding Antioch and Oakley was used for growing crops and orchards. Many fruit and vegetable packing sheds were constructed along the railroad where hundreds of immigrants were hired annually (Emanuels 1986:211). In 1866, the quarter-section that the study area lies in was given to Friedrick Babbe and Albert Rockford as part of a military grant (GLO 1866).

Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

STUDY PROCEDURES AND FINDINGS

Native American Contact

A request was sent to the State of California's Native American Heritage Commission (NAHC) seeking information from the Sacred Lands File and the names of Native American individuals and groups that would be appropriate to contact regarding this project. Letters were also sent to the following groups:

Amah Mutsun Tribal Band of Mission San Juan Bautista
Chicken Ranch Rancheria of MeWuk Indians
The Confederated Villages of Lisjan
Guidiville Indian Rancheria
Indian Canyon Mutsun Band of Costanoan
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
Nashville Enterprise Miwok-Maidu-Nishinam Tribe
North Valley Yokuts Tribe
The Ohlone Indian Tribe
Tule River Indian Tribe
Wilton Rancheria

This contact does not constitute consultation with tribes.

Native American Contact Results

The NAHC replied with a letter dated July 27, 2021, which indicated that the Sacred Lands File has no information about the presence of Native American cultural resources in the immediate project area. A list of additional contacts was provided.

Independent of our study, the City of Oakley conducted consultation efforts and received a response from Kanyon Sayers-Roods of the Indian Canyon Mutsun Band of Costanoan; their letter is attached to this report.

No other comments have been received as of the date of this report. A log of contact efforts is appended to this report, along with copies of correspondence (see Appendix A).

Archival Research Procedures

Archival research included examination of the library and project files at Tom Origer & Associates. This research is meant to assess the potential to encounter archaeological sites and built environment within the study area. Research was also completed to determine the potential for buried archaeological deposits.

A review (NWIC File No. 21-0083) was completed of the archaeological site base maps and records, survey reports, and other materials on file at the Northwest Information Center (NWIC), Sonoma State University, Rohnert Park by Julia Karnowski on July 20, 2021. Sources of information included but were not limited to the current listings of properties on the National Register of Historic Places, California Historical Landmarks, California Register of Historical Resources, and California Points of Historical Interest as listed in the OHP's *Historic Property Directory* (2012) and the *Built Environment Resources Directory* (2021).

The OHP has determined that structures in excess of 45 years of age could be important historical resources, and former building and structure locations could be important archaeological sites. Archival research included an examination of 19th and 20th-century maps and aerial photographs to gain insight into the nature and extent of historical development in the general vicinity, and especially within the study area.

Ethnographic literature that describes appropriate Native American groups, county histories, and other primary and secondary sources were reviewed. Sources reviewed are listed in the "Materials Consulted" section of this report.

A model for predicting a location's sensitivity for buried archaeological sites was formulated by Byrd *et al.* (2017) based on the age of the landform, slope, and proximity to water. A location is considered to have the highest sensitivity if the landform dates to the Holocene, has a slope of five percent or less, is within 150 meters of freshwater, and 150 meters of a confluence. Note, the Holocene Epoch is the current period of geologic time, which began about 11,700 years ago, and coincides with the emergence of human occupation of the area. A basic premise of the model is that archaeological deposits will not be buried within landforms that predate human colonization of the area. Calculating these factors using the buried site model (Byrd *et al.* 2017:Tables 11 and 12), a location's sensitivity is scored on a scale of 1 to 10 and classed as follows: lowest (<1); low (1-3); moderate (3-5.5); high (5.5-7.5); highest (>7.5). Incorporating King's (2004) analysis of buried site potential, the probability of encountering buried archaeological deposits for each class is as follows:

Sensitivity Score[1]	Classification[1]	Probability[2]
<1	Lowest	<1 %
1-3	Low	1-2 %
3-5.5	Moderate	2-3%
5.5-7.5	High	3-5%
>7.5	Highest	5-20%

[1] Byrd *et al.* 2017
[2] King 2004

Archival Research Findings

Archival research found that the study area had not been subjected to a cultural resources survey. Nine studies have been conducted within a quarter-mile of the study area (Table 2). There is one resource documented within a quarter-mile of the study area (Ashkar 1998). This resource consists of the Atchinson, Topeka, and Santa Fe Railroad which lies just outside the northern boundary of the study area.

Table 2. Studies within a Quarter-mile of the Study Area

Author	Date	S#
Busby	2004	30593
Jones & Stokes Associates, Inc.	1998	20808
Moratto and Jackson	1990	12300
Moratto *et al.*	1991	17298
Moratto *et al.*	1994	23674
Moratto *et al.*	1992	47656
Theodoratus *et al.*	1980	11826
West	1988	10508
Wirth Associates, Inc.	1980	4991

There are no reported ethnographic sites within one mile of the study area (Kroeber 1925; Levy 1978).

County records show that the residence on APN 033-150-018 was constructed in 1912. A review of 19th and 20th-century maps and aerial photos show a discrepancy regarding the number and location of buildings within the study area. This is likely a function of older and larger scale maps not depicting outbuildings and mapping error. Since aerial photos do not have a level of error like maps, those will be used in this instance to discuss the historical changes within the study area.

Examination of the 1939 aerial photo of the location of the study area shows that the study area was once a part of a larger parcel. It appears that there were four buildings within the study area at that time and that most of the study area was planted with orchard (UCSB 1939).

An aerial photo shows that three of the four buildings visible on the 1939 aerial were still present in 1958. The removed fourth building appeared to be a barn. However, a barn of a different size is present within the study area (UCSB 1958). The 1965 aerial photo appears much the same as the 1958 (UCSB 1965).

A house and two additional outbuildings were constructed within the study area after 2000 and two of the buildings that were present in 1939 that where in the vicinity of the house and two additional outbuildings are no longer present.

In summary, one house remains within the study area that dates to at least 1939 and is likely the house referenced in county records as having a construction date of 1912. One building was constructed between 1939 and 1958 and appears to be a barn. And the remaining three buildings within the study area were constructed during the last 20 years.

Based on landform age, our analysis of the environmental setting, and incorporating Meyer and Kaijankoski (2017) analysis of sensitivity for buried sites shows that there is a moderate potential (3.3) for buried archaeological site indicators.

Field Survey Procedures

An intensive field survey was completed by Eileen Barrow on August 2, 2021. Two person-hours were spent in the field and field conditions were sunny and warm. Surface examination consisted of walking in 15-meter transects and a hoe was used as needed to expose the ground surface. Ground visibility for most of the study area was excellent with vegetation being the primary hindrance.

Field Survey Findings

Archaeology

Field survey of the study area found no archaeological site indicators.

Built Environment

Field survey confirmed that there are a total of five buildings within the study area. Two of the buildings are houses and three of the buildings are outbuildings. One of the houses and two of the outbuildings were constructed within the last 20 years and will not be described further.

The older residence consists of a single-story, wood-framed buildings on a square plan. There is an addition on the rear (west) side of the building, an addition on the side (south) side of the building, and an addition on the south side of the south addition (which appears to be modern). The entire house is

clad with board-on-batten siding, except the southernmost addition which is clad in T-111 siding. All of the windows have wooden sashes except for the windows in the southernmost addition which have aluminum sashes. The building also has a recently constructed perimeter foundation.

The older outbuilding is single-story wood-framed building on a rectangular plan. There is an addition along the south side. The building is clad with a combination of plywood and corrugated metal.

DISCUSSION AND RECOMMENDATIONS

No archaeological site indicators were found within the study area. Application of the buried sites model indicates a moderate potential for buried resources.

Janine Origer of Tom Origer & Associates meets the Secretary of the Interior's Standards for architectural history and provided the following opinion with regard to the built environment. While the two buildings in the study area meet the age threshold for consideration, they are architecturally indistinctive and have been modified from their original construction. In addition, the property was used in the past as an orchard; however, none of the orchard remains. Given that some of the original buildings constructed on the property are no longer present, the orchard is no longer present, and the existing buildings have been modified from their original construction, they are unlikely to meet criteria for inclusion on the California Register.

Archaeological Recommendations

No recommendations are warranted.

Built Environment Recommendations

No recommendations are warranted.

Accidental Discovery

In keeping with the CEQA guidelines, if archaeological remains are uncovered, work at the place of discovery should be halted immediately until a qualified archaeologist can evaluate the finds (§15064.5 [f]). Prehistoric archaeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g., slabs and handstones, and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains and fire-affected stones. Historic period site indicators generally include: fragments of glass, ceramic, and metal objects; milled and split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g., wells, privy pits, dumps).

The following actions are promulgated in the CEQA Guidelines Section 15064.5(d) and pertain to the discovery of human remains. If human remains are encountered, excavation or disturbance of the location must be halted in the vicinity of the find, and the county coroner contacted. If the coroner determines the remains are Native American, the coroner will contact the NAHC. The NAHC will identify the person or persons believed to be most likely descended from the deceased Native American.

The most likely descendent makes recommendations regarding the treatment of the remains with appropriate dignity.

SUMMARY

Tom Origer & Associates completed a cultural resources study for the Oakley Village Project, Oakley Contra Costa County, California. The study was requested and authorized by Raney Planning & Management, Inc. This study was conducted to meet the requirements of the City of Oakley and those of CEQA. No cultural resources were found during the course of this study. Documentation pertaining to this study is on file at Tom Origer & Associates (File No. 2021-068).

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APPENDIX A

Native American Contact

Copies of Correspondence

Native American Contact Efforts
Oakley Village
Oakley, Contra Costa County

Organization	Contact	Action	Results
Native American Heritage Commission		Letter 7/8/21	The NAHC replied with a letter dated July 27, 2021, which indicated that the Sacred Lands File has no information about the presence of Native American cultural resources in the immediate project area. A list of additional contacts was provided.
Amah Mutsun Tribal Band of Mission San Juan Bautista	Irene Zwierlein	Email 7/27/21	No response has been received as of the date of this report.
Chicken Ranch Rancheria of Me-Wuk Indians	Lloyd Mathiesen	Email 7/27/21	No response has been received as of the date of this report.
The Confederated Villages of Lisjan	Corrina Gould	Email 7/27/21	No response has been received as of the date of this report.
Guidiville Indian Rancheria	Donald Duncan	Email 7/27/21	No response has been received as of the date of this report.
Indian Canyon Mutsun Band of Costanoan	Ann Marie Sayers Kanyon Sayers-Roods	Email 7/27/21	Independent of our study, the City of Oakley conducted consultation efforts and received a response from Kanyon Sayers-Roods of the Indian Canyon Mutsun Band of Costanoan, and so their letter is attached to this report. No response has been received by Tom Origer & Associates as of the date of this report.
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area	Monica Arellano	Email 7/27/21	No response has been received as of the date of this report.
Nashville Enterprise Miwok-Maidu-Nishinam Tribe	Cosme Valdez	Email 7/27/21	No response has been received as of the date of this report.
North Valley Yokuts Tribe	Katherine Perez Timothy Perez	Email 7/27/21	No response has been received as of the date of this report.
The Ohlone Indian Tribe	Andrew Galvan	Email 7/27/21	No response has been received as of the date of this report.

Native American Contact Efforts
Oakley Village
Oakley, Contra Costa County

Organization	Contact	Action	Results
Tule River Indian Tribe	Joey Garfield Neil Payron Kerri Vera	Email 7/27/21	No response has been received as of the date of this report.
Wilton Rancheria	Dahlton Brown Steven Hutchason Jesus Tarango	Email 7/27/21	No response has been received as of the date of this report.

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Oakley Village
County: Contra Costa

USGS Quadrangles
Name: Brentwood
Township T2N Range R3E Section(s) 31 MDBM

Date: July 8, 2021
Company/Firm/Agency: Tom Origer & Associates
Contact Person: Eileen Barrow

Address: P.O. Box 1531
City: Rohnert Park Zip: 94927
Phone: (707) 584-8200 Fax: (707) 584-8300
Email: eileen@origer.com

Project Description: The project proponent is proposing a housing development within the nearly 15-acre study area.

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

July 27, 2021

Elieen Barrow, Senior Associate
Tom Origer & Associates

Via Email to: Eileen@origer.com

Re: Oakley Village Project, Contra Costa County

Dear Ms. Barrow:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Contra Costa County
7/27/2021

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
3030 Soda Bay Road — Costanoan
Lakeport, CA, 95453
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com

Chicken Ranch Rancheria of Me-Wuk Indians
Lloyd Mathiesen, Chairperson
P.O. Box 1159 — Me-Wuk
Jamestown, CA, 95327
Phone: (209) 984 - 9066
Fax: (209) 984-9269
lmathiesen@crtribal.com

Guidiville Indian Rancheria
Donald Duncan, Chairperson
P.O. Box 339 — Pomo
Talmage, CA, 95481
Phone: (707) 462 - 3682
Fax: (707) 462-9183
admin@guidiville.net

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods, MLD Contact
1615 Pearson Court — Costanoan
San Jose, CA, 95122
Phone: (408) 673 - 0626
kanyon@kanyonkonsulting.com

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

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232 — Costanoan
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
marellano@muwekma.org

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme Valdez, Chairperson
P.O. Box 580986 — Miwok
Elk Grove, CA, 95758-0017
Phone: (916) 429 - 8047
Fax: (916) 429-8047
valdezcome@comcast.net

North Valley Yokuts Tribe
Timothy Perez,
P.O. Box 717 — Costanoan
Linden, CA, 95236 — Northern Valley
Phone: (209) 662 - 2788 — Yokut
huskanam@gmail.com

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717 — Costanoan
Linden, CA, 95236 — Northern Valley
Phone: (209) 887 - 3415 — Yokut
canutes@verizon.net

The Ohlone Indian Tribe
Andrew Galvan,
P.O. Box 3388 — Bay Miwok
Fremont, CA, 94539 — Ohlone
Phone: (510) 882 - 0527 — Patwin
Fax: (510) 687-9393 — Plains Miwok
chochenyo@AOL.com

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589 — Yokut
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov

Tule River Indian Tribe
Joey Garfield, Tribal Archaeologist
P. O. Box 589 — Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
joey.garfield@tulerivertribe-nsn.gov

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

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Oakley Village Project, Contra Costa County.

Tule River Indian Tribe
Kerri Vera, Environmental Department
P. O. Box 589 Yokut
Porterville, CA, 93258
Phone: (559) 783 - 8892
Fax: (559) 783-8932
kerri.vera@tulerivertribe-nsn.gov

Wilton Rancheria
Jesus Tarango, Chairperson
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 683-6015
jtarango@wiltonrancheria-nsn.gov

Wilton Rancheria
Steven Hutchason, THPO
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 863-6015
shutchason@wiltonrancheria-nsn.gov

Wilton Rancheria
Dahlton Brown, Director of Administration
9728 Kent Street Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
dbrown@wiltonrancheria-nsn.gov

The Confederated Villages of Lisjan
Corrina Gould, Chairperson
10926 Edes Avenue Bay Miwok
Oakland, CA, 94603 Ohlone
Phone: (510) 575 - 8408 Delta Yokut
cvltribe@gmail.com

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

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Oakley Village Project, Contra Costa County.

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Lloyd Mathiesen
Chicken Ranch Rancheria of Me-Wuk Indians
P.O. Box 1159
Jamestown, CA 95327

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Mathiesen:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

This letter serves as notification of our study and does not constitute consultation.

Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Corrina Gould
The Confederated Villages of Lisjan
10926 Edes Avenue
Oakland, CA 94603

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Gould:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Donald Duncan
Guidiville Indian Rancheria
P.O. Box 339
Talmage, CA 95481

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Duncan:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Ann Marie Sayers
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Sayers:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Kanyon Sayers-Roods
Indian Canyon Mutsun Band of Costanoan
1615 Pearson Court
San Jose, CA 95122

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Sayers-Roods:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

This letter serves as notification of our study and does not constitute consultation.

Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Monica Arellano
Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 94546

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Arellano:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

This letter serves as notification of our study and does not constitute consultation.

Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow
Senior Associate

July 27, 2021

Cosme Valdez
Nashville Enterprise Miwok-Maidu-Nishinam Tribe
P.O. Box 580986
Elk Grove, CA 95758

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Valdez:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

This letter serves as notification of our study and does not constitute consultation.

Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Katherine Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Perez:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Timothy Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Perez:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

This letter serves as notification of our study and does not constitute consultation.

Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3388
Fremont, CA 94539

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Galvan:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Joey Garfield
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Garfield:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Neil Peyron
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Peyron:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Kerri Vera
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Ms. Vera:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Dahlton Brown
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Brown:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Steven Hutchason
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Hutchason:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate

P.O. Box 1531, Rohnert Park, California 94927 ♦ www.origer.com Phone (707) 584-8200

Tom Origer & Associates
Archaeology / Historical Research

July 27, 2021

Jesus Tarango
Wilton Rancheria
9728 Kent Street
Elk Grove, CA 95624

RE: Oakley Village, Sellers Avenue, Oakley, Contra Costa County

Dear Mr. Tarango:

I am writing to notify you of a proposed project within the County of Contra Costa, for which our firm is conducting a cultural resources study. The project proponent is proposing to construct residential housing and related infrastructure on 15.61 acres of land off Sellers Avenue within Oakley city limits. The City of Oakley is ensuring that this project meets with California Environmental Quality Act compliance.

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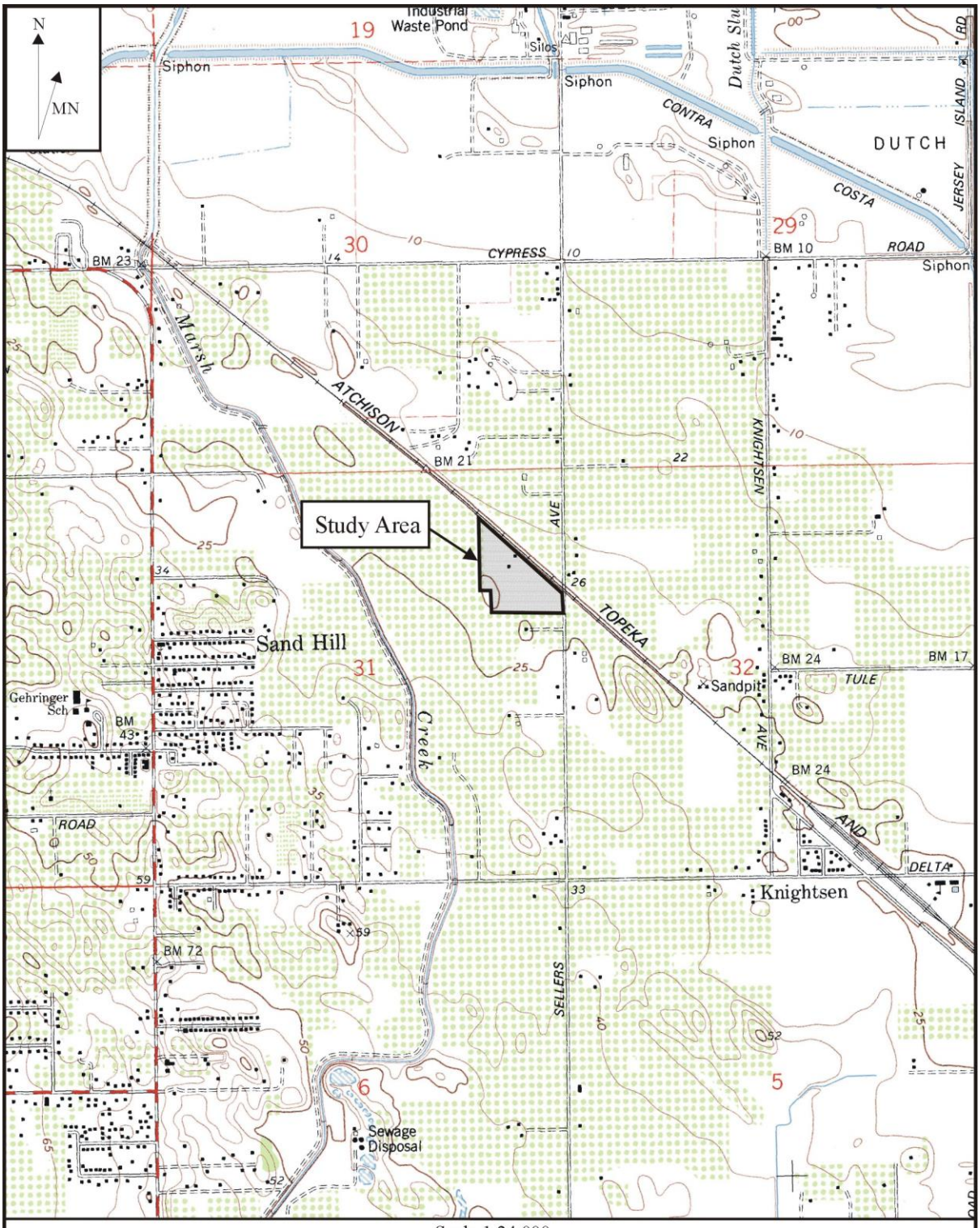
Enclosed is a portion of the Brentwood, Calif. 7.5' USGS topographic quadrangle showing the project location.

Sincerely,

Eileen Barrow

Eileen Barrow
Senior Associate


N
MN
Study Area
Sand Hill
Knightsen
Industrial Waste Pond
Silos
Siphon
CONTRA COSTA
DUTCH
ISLAND
JERSEY
CYPRESS
ROAD
BM 10
BM 23
BM 21
BM 24
BM 17
BM 43
BM 72
Marsh
ATCHISON TOPEKA AND SANTA FE
KNIGHTSEN AVE
SELLERS AVE
DELTA
TULE
Creek
Sandpit
Gehringer Sch
Sewage Disposal
19
30
29
31
32
33
6
5
Scale 1:24,000
1 0.5 0 1 Mile
1 0.5 0 1 Kilometer

Eileen

From: Megane Browne-Allard <mbrowneallard@raneymanagement.com>
Sent: Monday, July 26, 2021 12:25 PM
To: Eileen
Cc: Rod Stinson
Subject: FW: Oakley Village Subdivision Tribal Consultation

Hi Eileen,

I just wanted to share an email the City received from the Indian Canyon Band of Costanoan Ohlone People regarding the Oakley Village Subdivision project.

Thanks,

Megane Browne-Allard
Marketing Director / Associate

phone. (916) 372-6100 1501 Sports Drive, Suite A Sacramento, CA 95834
fax. (916) 419-6108 www.raneymanagement.com

RANEY PLANNING & MANAGEMENT, INC. 20 years

From: Rod Stinson <rods@raneymanagement.com>
Sent: Friday, July 23, 2021 9:57 AM
To: Megane Browne-Allard <mbrowneallard@raneymanagement.com>; Briette Shea <bshea@raneymanagement.com>
Subject: FW: Oakley Village Subdivision

Rod Stinson
Division Manager / Air Quality Specialist

phone. (916) 372-6100 1501 Sports Drive, Suite A Sacramento, CA 95834
fax. (916) 419-6108 www.raneymanagement.com

RANEY PLANNING & MANAGEMENT, INC. 20 years

From: Kenneth Strelo <Strelo@ci.oakley.ca.us>
Sent: Thursday, July 22, 2021 1:39 PM
To: Rod Stinson <rods@raneymanagement.com>
Subject: FW: Oakley Village Subdivision

Rod,

Forwarding you an email received by the City from the Indian Canyon Band of Costanoan Ohlone People.

Sincerely,

Kenneth W. Strelo
Principal Planner
925-625-7036
3231 Main Street
Oakley, CA 94561

Thank you for communicating via email. In-person meetings at City Hall will be very limited and will only be by appointment. I look forward to assisting you via email, phone or video conferencing.

From: KKLLC Admin [mailto:admin@kanyonkonsulting.com]
Sent: Wednesday, July 21, 2021 7:55 AM
To: Kenneth Strelo <Strelo@ci.oakley.ca.us>
Subject: Oakley Village Subdivision

miSmin Tuuhis [Good Day]
Kan rakat Kanyon Sayers-Roods. I am writing this on behalf of the Indian Canyon Band of Costanoan Ohlone People as requested, responding to your letter
As this project's Area of Potential Effect (APE) overlaps or is near the management boundary of a potentially eligible cultural site, I am interested in consulting and voicing our concerns. With some instances like this, usually we recommend that a Native American Monitor and an Archaeologist be present on-site at all times during any/all ground disturbing activities. The presence of a Native monitor and archaeologist will help the project minimize potential effects on the cultural site and mitigate inadvertent issues.

Kanyon Konsulting, LLC has numerous Native Monitors available for projects such as this, if applicable, we recommend a Cultural Sensitivity Training at the beginning of each project. This service is offered to aid those involved in the project to become more familiar with the indigenous history of the peoples of this land that is being worked on.

Kanyon Konsulting is a strong proponent of honoring truth in history, when it comes to impacting Cultural Resources and potential ancestral remains, we need to recognise the history of the territory we are impacting. We have seen that projects like these tend to come into an area to consult/mitigate and move on shortly after - barely acknowledging the Cultural Representatives of the territory they steward and are responsible for. Because of these possibilities, we highly recommend that you receive a specialized consultation provided by our company as the project commences, bringing in considerations about the Indigenous peoples and environment of this territory that you work, have settled upon and benefit from.

As previously stated, our goal is to Honor Truth in History. And as such we want to ensure that there is an effort from the project organizer to take strategic steps in ways that #HonorTruthinHistory. This will make all involved aware of the history of the Indigenous communities whom we acknowledge as the first stewards and land managers of these territories.
Potential Approaches to Indigenous Cultural Awareness/History:

➢Signs or messages to the audience or community of the territory being developed. (ex. A commerable plaque, page on the website, mural, display, or an Educational/Cultural Center with information about the history/ecology/resources of the land)
➢Commitment to consultation with the Native Peoples of the territory in regards to presenting and messaging about the Indigenous history/community of the land (Land Acknowledgement on website, written material about the space/org/building/business/etc, Cultural display of cultural resources/botanical knowledge or Culture sharing of Traditional Ecological Knowledge - Indigenous Science and Technology)
➢Advocation of supporting indigenous lead movements and efforts. (informing one's audience and/or community about local present Indigenous community)

We look forward to working with you.
Tumsan-ak kannis [Thank You]
Kanyon Sayers-Roods
Consultant / Tribal Monitor [ICMBCO]
Kanyon Konsulting, LLC

Appendix E
Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

Sellers Village
Sellers Avenue
Oakley, California

PREPARED FOR:

EDGEMONT STATION, LLC
8880 CAL CENTER DRIVE, SUITE 400
SACRAMENTO, CALIFORNIA 95826

PREPARED BY:

GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CALIFORNIA 94550

GEOCON

GEOCON PROJECT NO. E9124-04-01

APRIL 2020

Project No. E9124-04-01
April 1, 2020

Edgemont Station, LLC
8880 Cal Center Drive, Suite 400
Sacramento, CA 95826

Attention: Mr. Shaw Monfared

Subject: SELLERS VILLAGE
SELLERS AVENUE
OAKLEY, CALIFORNIA

Dear Mr. Monfared:

In accordance with your authorization of our proposal dated March 12, 2019, we have performed a design-level geotechnical investigation for the subject residential subdivision proposed in Oakley, California. Our investigation was performed to observe the soil and geologic conditions that may impact site development for the project as presently planned. The accompanying report presents the results of our investigation and conclusions and recommendations pertaining to the geotechnical aspects of the proposed project. The findings of this study indicate the site is suitable for development as planned provided the recommendations of this report are implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

GEOCON CONSULTANTS, INC.

Jacob Bishop-Moser, EIT
Senior Staff Engineer

REGISTERED PROFESSIONAL ENGINEER
SHANE A. RODACKER
No. 2915
GEOTECHNICAL
STATE OF CALIFORNIA

Shane Rodacker, PE, GE
Senior Engineer

(1/e-mail) Addressee

TABLE OF CONTENTS

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a design-level geotechnical investigation for a proposed 43-lot residential subdivision in Oakley, California (see Vicinity Map, Figure 1). The purpose of this investigation was to evaluate the subsurface soil and geologic conditions in the areas of the planned development and provide conclusions and recommendations pertaining to the geotechnical aspects of project design and construction, based on the conditions encountered during our study.

The scope of this investigation included field exploration, laboratory testing, engineering analysis, and the preparation of this report. Our field exploration was performed on April 17 and 18, 2019. Our exploration consisted of the advancement of five Cone Penetrometer Test (CPT) soundings to maximum depths of approximately 50 ½ feet and 7 backhoe test pits to maximum depths of approximately 10 feet. The locations of the test pits and CPTs are depicted on the Site Plan, Figure 2. A detailed discussion of our field investigation, test pit logs and CPT profiles are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical properties for engineering analyses. Appendix B presents the laboratory test results in tabular and graphical format.

The opinions expressed herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE CONDITIONS AND PROJECT DESCRIPTION

The project is proposed on two contiguous irregularly shaped parcels (Contra Costa Co. APN 033-150-018 and 033-150-011-6) comprising approximately 14½ acres on the west side of Sellers Avenue in Oakley. The southeastern margin of the site abuts Sellers Avenue and the site is bound by an AT&SF rail line and an existing residence at the northeast side. A residential subdivision is located to the west and site development is underway for a new subdivision to the south of the site. A single-family residence is located immediately southwest of the site, with vehicular access to Sellers Avenue via a gravel driveway that bounds the southern side of the site. The majority of the site is generally undeveloped and used for livestock. All existing structures and improvements within the project limits will be razed to accommodate the new development. Web-based mapping indicates the ground surface at the site is generally flat with surface elevations of approximately 25 feet MSL.

The site will be developed as a residential subdivision with new interior streets and 43 approximately ¼-acre lots. The planned single-family residences will be wood-framed and up to two stories in height with no subterranean levels. Ancillary improvements such as minor retaining walls, sidewalks, underground utilities, and landscaping are also anticipated. Grading plans were not provided. We anticipate cuts and fills to attain building pad subgrade elevation will be on the order of two to three feet or less.

3. GEOLOGIC SETTING

Oakley is located near the western margin of the Great Valley Geomorphic Province of California, more commonly known as the Central Valley. The valley is a broad lowland between the Sierra Nevada to the east and Coast

Ranges to the west. The Central Valley has been filled by a sequence of deep alluvial deposition from weathering processes in the Sierra Nevada and Coast Ranges. The weathering and subsequent deposition within the valley has resulted in alluvial deposits that can be hundreds to thousands of feet in thickness. Available geologic mapping by the United States Geological Survey (USGS) indicates the site is underlain by Holocene-age dune sands and alluvial clays.

4. GEOLOGIC HAZARDS

4.1 Faulting and Seismicity

Geologists and seismologists recognize the greater San Francisco Bay Area as one of the most active seismic regions in the United States. The significant earthquakes that occur in the Bay Area are associated with crustal movements along well-defined active fault zones that generally trend in a northwesterly direction.

The site and the greater San Francisco Bay Area are seismically dominated by the presence of the active San Andreas Fault System. In the theory of plate tectonics, the San Andreas Fault System is a transform fault that forms the boundary between the northward moving Pacific Plate (west of the fault) and the southward moving North American Plate (east of the fault). In the Bay Area, the movement is distributed across a complex system of strike-slip, right lateral parallel and subparallel faults, which include the San Andreas, Hayward and Calaveras faults, among others.

The table below presents approximate distances to active faults in the site vicinity based on mapping by the CGS, as presented in an online fault database maintained by Caltrans. Site latitude is N 37.9794°; site longitude is W 121.6800°. Active faults within approximately 25 miles of the site are summarized in Table 4.1.

TABLE 4.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Maximum Earthquake Magnitude, M_w
Great Valley 6	1 ¾	6.8
Great Valley 5	9 ½	6.6
Clayton	12 ¼	6.9
Greenville	12 ¼	6.9
Los Medanos – Roe Island	13 ¼	6.8
Concord	18	6.6
Great Valley 7	19	6.7
Las Positas	20	6.4
Pleasanton	20 ½	6.6
Calaveras	21 ¾	6.9
Contra Costa Shear Zone	23 ¾	6.5
Green Valley	23 ¾	6.8

The faults tabulated above and numerous other faults in the greater Bay Area are sources of potential ground motion. However, earthquakes that might occur on other faults within the northern and central California area are also potential generators of significant ground motion and could subject the site to intense ground shaking.

4.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active or potentially-active faults are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low. By definition, an active fault is one with surface displacement within the last 11,000 years. A potentially-active fault has demonstrated evidence of surface displacement with the past 1.6 million years. Faults that have not moved in the last 1.6 million years are typically considered inactive.

4.3 Ground Shaking

We used the beta version of the USGS web-based application *Unified Hazard Tool* to estimate peak ground acceleration (PGA) and mean and modal (most probable) magnitude associated with a 2,475-year return period. This return period corresponds to an event with 2% chance of exceedance in a 50-year period. The USGS-estimated PGA is 0.63g and the modal magnitude is 6.5 for Seismic Site Class D (V_S30 of 259 m/sec) based on a 2014 model within the application.

While listing PGA is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site.

4.4 Liquefaction

The subject site is located within a State of California Seismic Hazard Zone for liquefaction and web-based mapping by USGS indicates the site possesses a “moderate” to “high” susceptibility to liquefaction. Liquefaction is a phenomenon in which saturated cohesionless soils are subject to a temporary loss of shear strength due to pore pressure buildup under the cyclic shear stresses associated with intense earthquakes. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile.

We used the computer software program *CLiq* (Version 2.3.1.15, Geologismiki) and the in-situ soil parameters measured in the CPT soundings. The software applied the methodologies of Boulanger and Idriss (2014) and Zhang (2002) to the CPT data to evaluate liquefaction potential and estimate resultant settlements. Our evaluation incorporated an earthquake moment magnitude (M_w) of 6.5 and a groundwater depth of 10 feet. We used a ground motion (peak ground acceleration) of 0.28g in our analysis. This ground motion value was obtained from the CGS *Seismic Hazard Zone Report* and is defined therein as a “pseudo-PGA”, which is a PGA scaled for earthquake magnitude weight factor (MWF).

Our liquefaction analysis identified potentially liquefiable layers at all five CPT locations. Consequences of liquefaction can include ground surface settlement, ground loss (sand boils) and lateral slope displacements (lateral spreading). For liquefaction-induced sand boils or fissures to occur, pore water pressure induced within liquefied strata must exert enough force to break through overlying, non-liquefiable layers. Based on methodology recommended by Youd and Garris (1995), which advanced original research by Ishihara (1985), a capping layer of non-liquefiable soil can prevent the occurrence of sand boils and fissures. However, based on the thickness and depth of liquefiable layers and the design ground motion, we opine the potential for ground loss due to sand boils or fissures in a seismic event is low.

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic

shaking, and free face geometry. Due to generally flat site vicinity and distance to the nearest free face, it is our opinion the likelihood of lateral spreading is low.

The likely consequence of potential liquefaction at the site is settlement. Our analysis indicates that total ground surface settlements up to approximately 1 ½ inch may result from liquefaction after a seismic event. We recommend that foundations and site improvements be designed to accommodate approximately 1 ½ inch of total liquefaction-induced settlement and approximately 1 inch of differential seismic settlement across a horizontal distance of 50 feet. Selected output from our liquefaction analysis is presented in Appendix C.

4.5 Landslides

There are no known landslides near the site, nor is the site in the path of any known or potential landslides. We do not consider the potential for a landslide to be a significant hazard to this project.

4.6 Tsunamis and Seiches

The site is not located within a coastal area. Therefore, tsunamis (seismic sea waves) are not considered a significant hazard at the site.

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

5. SOIL AND GROUNDWATER CONDITIONS

5.1 Alluvium

A variety of geologic mapping indicates the site is underlain by Holocene-age dune sands and alluvial clays. For the purposes of this study, we have not differentiated the subunits. As observed in our exploratory test pits, the alluvium is generally comprised of medium stiff to very stiff sandy clays and silts and medium dense to dense sands with variable amounts of silt and clay. We encountered alluvium in our test pits and CPTs to the maximum depth explored– approximately 50 ½ feet below the existing ground surface.

5.2 Groundwater

Groundwater level was estimated at depths of approximately 13 to 17 feet by performing pore pressure dissipation tests in 3 of our CPT soundings. Historic high groundwater levels for the site vicinity are approximately 10 feet below natural grade based on information in the CGS *Seismic Hazard Zone Report*. Actual groundwater levels will fluctuate with variations in rainfall, temperature and other factors and may be higher or lower than observed during our study.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 General

6.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude the project as presently proposed.

6.1.2 Key geotechnical constraints for the project are the potential for seismically induced settlement at the site and the porosity of the near-surface soils. We anticipate that both constraints can be mitigated through foundation design and remedial grading as recommended herein.

6.1.3 As discussed in Section 4.4, the site is susceptible to liquefaction. Our analysis indicates that, if liquefaction were to occur, total ground surface settlements will be approximately 1½ inches or less. We recommend the project be designed to accommodate at least 1 inch of seismically induced differential settlement over a distance of 50 feet.

6.1.4 The subgrade soils at the site will require remedial grading in the form of removal and recompaction. Specific recommendations are presented in Section 6.5. Soils generated from over-excavations at the site should be suitable for use as engineered fill in structural areas provided they do not contain deleterious matter, organic material, or cementations larger than 6 inches in maximum dimension.

6.1.5 Based on the subsurface conditions at the site, the anticipated structural loading and estimated seismically induced settlements, conventional shallow foundation systems consisting of strip footings can be used to support the planned single-family residences.

6.1.6 Any changes in the design, location or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

6.1.7 The proposed project redevelops a site with past agricultural and residential use. As such, unknown underground improvements and areas of undocumented fill materials (not discussed herein) may be present. If encountered, supplemental recommendations, will be provided during site development.

6.1.8 All references to relative compaction and optimum moisture content in this report are based on the latest edition of ASTM D 1557.

6.2 Seismic Design Criteria

6.2.1 We understand that seismic structural design will be performed in accordance with the provisions of the 2019 CBC which is based on the American Society of Civil Engineers (ASCE) publication *Minimum Design Loads for Buildings and Other Structures* (ASCE 7-16). We derived the following seismic design parameters using the web-based Structural Engineers Association of California application *U.S. Seismic Design Maps*. Results are summarized in Table 6.2.1. The values presented are for the risk-targeted maximum considered earthquake (MCE_R) and Seismic Risk Category II.

TABLE 6.2.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.279g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.451g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.0	Table 1613.2.3(1)
Site Coefficient, F_V	1.849*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.279g	Section 1613.2.3 (Eq. 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.834g*	Section 1613.2.3 (Eq. 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.853g	Section 1613.2.4 (Eq. 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.556g*	Section 1613.2.4 (Eq. 16-39)

Note:
Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis shall be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions where ground motion hazard analysis may be waived. Using the code based values presented in the table above, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed in project design.

6.2.2 Table 6.2.2 presents additional seismic design parameters for projects with Seismic Design Categories of D through F in accordance with ASCE 7-16 for the mapped maximum considered geometric mean (MCE_G).

TABLE 6.2.2
2019 CBC SITE ACCELERATION DESIGN PARAMETERS

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.526g	Figure 22-7
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.579g	Section 11.8.3 (Eq. 11.8-1)

6.2.3 Conformance to the criteria presented in Tables 6.2.1 and 6.2.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a maximum level earthquake occurs. The primary goal of seismic design is to protect life and not to avoid structural damage, since such design may be economically prohibitive.

6.3 Soil and Excavation Characteristics

6.3.1 Based on the soils conditions encountered in our field explorations, we anticipate the onsite soils can be excavated with moderate effort using conventional excavation equipment. We do not anticipate excavations in the native alluvium at the site will generate oversize material (greater than 6 inches in nominal dimension). However, any artificial fills encountered at the site are undocumented and may contain constituents not reported herein.

6.3.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupation Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements.

6.3.3 Some of the site alluvial soils encountered are considered expansive as defined by 2019 CBC (Expansion Index greater than 20). The recommendations of this report assume the building foundations will derive support in compacted fill materials and/or competent alluvial soils.

6.4 Materials for Fill

6.4.1 Excavated soils generated from cut operations at the site should be suitable for use as engineered fill in structural areas provided they do not contain deleterious matter, organic material, or cementations larger than 6 inches in maximum dimension.

6.4.2 Import material should be well-graded with a very low to low expansion potential (Expansion Index less than 50), a Plasticity Index less than 15, be free of organic material and construction debris, and not contain rock larger than 6 inches in greatest dimension.

6.4.3 Environmental characteristics and corrosion potential of import soil materials may also be considered. Proposed import materials should be sampled, tested, and approved by Geocon prior to its transportation to the site.

6.5 Grading

6.5.1 All clearing operations and earthwork (including over-excavation, scarification, and recompaction) should be observed and all fills tested for recommended compaction and moisture content by representatives of Geocon.

6.5.2 Structural areas should be considered as areas extending a minimum of 5 feet horizontally from a foundation or beyond the outside dimensions of buildings, including footings and overhangs carrying structural loads, and where not restricted by property boundaries.

6.5.3 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance. Special soil handling requirements can be discussed at that time.

6.5.4 After complete demolition and removal of any existing structures, site preparation should commence with the removal of all existing improvements from the area to be developed/graded. All active or inactive utilities within the construction area should be protected, relocated, or abandoned. Any pipelines to be abandoned that are greater than 2 inches and less than 18 inches in diameter should be removed or filled with sand-cement slurry. Utilities larger than 18 inches in diameter should be removed. Excavations or depressions resulting from site clearing operations, or other existing

excavations or depressions, should be restored with engineered fill in accordance with the recommendations of this report.

6.5.5 Following stripping operations, subgrade soils in the proposed building pad areas should be over-excavated to a depth of approximately 2 feet below existing or proposed grade, whichever is lower. The resultant over-excavation bottom should then be scarified to a depth of approximately 1 foot, moisture conditioned to at least 2% above optimum moisture content (near optimum if sands or gravels) and recompacted to at least 90% relative compaction. In general, over-excavated materials may be used for engineered fill provided they do not contain deleterious matter, organic material, or cementations larger than 6 inches in maximum dimension.

6.5.6 If grading commences in winter or spring, or in periods of precipitation, excavated and in-place soils may be wet. Earthwork contractors should be aware of potential compaction/workability difficulties. The most effective site preparation alternatives will depend on site conditions prior to and during grading operations; we should evaluate site conditions at those times and provide supplemental recommendations, if necessary.

6.5.7 All engineered fill should be placed in layers no thicker than will allow for adequate bonding and compaction (typically 8 inches). Fill soils should be placed, moisture conditioned to at least 2% above optimum moisture content and compacted to at least 90% relative compaction (near optimum moisture and at least 92% relative compaction where predominantly sandy). Fill areas with in-place density tests showing moisture contents below those recommended herein will require additional moisture conditioning, processing and recompaction prior to placing additional fill or constructing overlying improvements.

6.6 Temporary Excavations

6.6.1 We anticipate that the majority of the site alluvial soils will be classified as Cal-OSHA "Type C" soil when encountered in excavations during site development and construction. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved "competent person" onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

6.6.2 All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load. Penetrations below this 1:1 projection will require special excavation measures such as sloping and possibly shoring.

6.6.3 It is the contractor's responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements.

6.6.4 Temporary excavations such as utility trench sidewalls within the alluvial soils should remain near vertical to depths of at least 3 feet below ground surface, although some sloughing and caving may occur, particularly if clean sandy or gravelly soils, undocumented fills or groundwater are encountered. Excavations greater than approximately 3 feet in height or those that are surcharged by adjacent traffic or structures may require sloping or shoring measures in order to provide a stable excavation.

6.6.5 Temporary excavations should be protected from rainfall and erosion. Surface runoff should be directed away from excavations or slopes.

6.7 Underground Utilities

6.7.1 Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than six inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding eight inches and compacted to at least 90% relative compaction at least 2% above optimum moisture content (near optimum and at least 92% relative compaction if sand or gravel).

6.7.2 Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to a minimum of six inches above the crown of the pipe. Pipe bedding material should consist of crushed aggregate, clean sand or similar open-graded material. Proposed bedding and pipe zone materials should be reviewed by Geocon prior to construction; materials such as ¾-inch drain rock may require wrapping with filter fabric to mitigate the potential for piping. Bedding and backfill should also conform to the requirements of the governing utility agency.

6.8 Shallow Foundations

6.8.1 The site is suitable for use of conventional foundations consisting of continuous strip footings founded in competent native alluvial materials or properly compacted fill. The following recommendations are based on the assumption that the soils within 5 feet of finish grade will consist of low expansive materials (Expansion Index less than 50). Over-excavations may be required if soft or loose soils are encountered in footing excavations.

6.8.2 It is recommended that conventional continuous footings have a minimum embedment depth of 18 inches below lowest adjacent pad grade. The footings should be at least 15 inches wide.

6.8.3 Footings proportioned as recommended may be designed for an allowable soil bearing pressure of 2,500 pounds per square foot (psf). The allowable bearing pressure is for dead + live loads and may be increased by up to one-third for transient loads due to wind or seismic forces. Total settlements due to foundation loading should be ¾ inch or less with differential settlements of approximately ½ inch or less across 50 feet.

6.8.4 The allowable passive pressure used to resist lateral movement may be assumed to be equal to a fluid weighing 300 pounds per cubic foot (pcf) for footings poured neat against properly compacted fills or undisturbed natural soils. The allowable passive pressure assumes a horizontal surface extending at least 5 feet or 3 times the surface generating the passive pressure, whichever is greater. The allowable coefficient of friction to resist sliding is 0.30 for concrete against soil. Combined passive resistance and friction may be utilized for design provided that the frictional resistance is reduced by 50%. Where not protected by flatwork or pavement, the upper 1 foot of soil should be neglected when calculating passive resistance to lateral loads.

6.8.5 Minimum reinforcement for continuous footings should consist of four No. 4 steel reinforcing bars; two placed near the top of the footing and two near the bottom.

6.8.6 The foundation dimensions and minimum reinforcement recommendations presented herein are based upon soil conditions only and are not intended to be used in lieu of those required for structural purposes.

6.8.7 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

6.8.8 The use of isolated footings that are located beyond the perimeter of the building and support structural elements connected to the building are not recommended. Where this condition cannot be avoided, the isolated footings should be connected and tied to the building foundation system with grade beams.

6.8.9 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Our representative should observe all footing excavations prior to placing reinforcing steel.

6.9 Retaining Wall Design

6.9.1 Lateral earth pressures may be used in the design of retaining walls and buried structures. Lateral earth pressures against these facilities may be assumed to be equal to the pressure exerted by an equivalent fluid. The unit weight of the equivalent fluid depends on the design conditions. Table 6.9 summarizes the weights of the equivalent fluid based on the different design conditions.

TABLE 6.9
RECOMMENDED LATERAL EARTH PRESSURES

Condition	Equivalent Fluid Density
Active	40 pcf
At-Rest	60 pcf

6.9.2 Unrestrained walls should be designed using the active case. Unrestrained walls are those that are allowed to rotate more than 0.01H (where H is the height of the wall). Walls restrained from movement such as basement walls should be designed using the at-rest case. The above soil pressures assume level backfill under drained conditions within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall and no surcharges within that same area.

6.9.3 Retaining wall foundations should be designed as continuous strip footings in accordance with Section 6.8.

6.9.4 Unless hydrostatic conditions are incorporated into design, retaining walls greater than 2 feet tall (retained height) should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. Positive drainage for retaining walls should consist of a vertical layer of permeable material positioned between the retaining wall and the soil backfill. The permeable material may be composed of a composite drainage geosynthetic or a natural permeable material such as crushed gravel at least 12 inches thick and capped with at least 12 inches of native soil. A geosynthetic filter fabric should be placed between the gravel and the soil backfill. Provisions for removal of collected water should be provided for either

system by installing a perforated drainage pipe along the bottom of the permeable material which leads to suitable drainage facilities.

6.10 Concrete Slabs-on-Grade

6.10.1 Concrete slabs-on-grade subject to vehicle loading should be designed in accordance with the recommendations in Section 6.12 of this report.

6.10.2 Concrete slabs-on-grade for structures should be a minimum of 5 inches thick and minimum slab reinforcement should consist of No. 3 steel reinforcing bars placed 24 inches on center in both horizontal directions. Steel reinforcing should be positioned vertically near the slab midpoint.

6.10.3 Interior slabs should also be underlain by 3 inches of ½-inch or ¾-inch crushed rock with no more than 5 percent passing the No. 200 sieve to serve as a capillary break. The crushed rock should be subjected to several passes with a walk-behind vibratory compactor or similar equipment prior to placing a vapor barrier or rebar for the slab-on-grade.

6.10.4 The slab-on-grade dimensions and minimum reinforcement recommendations presented herein are based upon soil conditions only and are not intended to be used in lieu of those required for structural purposes.

6.10.5 Crack control joints for slabs-on-grade should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by the project structural engineer.

6.10.6 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

6.11 Moisture Protection Considerations

6.11.1 A vapor barrier is not required beneath slabs-on-grade for geotechnical purposes. Further, the migration of moisture through concrete slabs or moisture otherwise released from slabs is not a geotechnical issue. However, for the convenience of the owner, we are providing the following general suggestions for consideration by the owner, architect, structural engineer, and contractor. The suggested procedures may reduce the potential for moisture-related floor covering failures on concrete slabs-on-grade, but moisture problems may still occur even if the procedures are followed. If more detailed recommendations are desired, we recommend consulting a specialist in this field. If a vapor barrier is used beneath mat slab foundations, we should review the geotechnical design parameters presented herein.

6.11.2 A vapor barrier meeting ASTM E 1745-09 Class C requirements may be placed directly below the slab, without a sand cushion. To reduce the potential for punctures, a higher quality vapor barrier (15 mil,

Class A or B) should be used. The vapor barrier, if used, should extend to the edges of the slab, and should be sealed at all seams and penetrations.

6.11.3 The concrete water/cement ratio should be as low as possible. The water/cement ratio should not exceed 0.45 for concrete placed directly on the vapor barrier. Midrange plasticizers could be used to facilitate concrete placement and workability.

6.11.4 Proper finishing, curing, and moisture vapor emission testing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

6.12 Pavement Recommendations

6.12.1 The upper 12 inches of pavement subgrade should be scarified, moisture conditioned to at least 2% above optimum (near optimum where predominantly sandy) and compacted to at least 95% relative compaction. Prior to placing aggregate base, the finished subgrade should be proof-rolled with a laden water truck (or similar equipment with high contact pressure) to verify stability.

6.12.2 Sidewalk, curb and gutter, and driveway encroachments should be designed and constructed in accordance with City of Oakley requirements, as applicable.

6.12.3 We recommend the following asphalt concrete (AC) pavement sections for design to establish subgrade elevations in pavement areas. The project civil engineer should determine the appropriate Traffic Index (TI) based on anticipated traffic conditions. The flexible pavement sections below are based on estimated design TIs. We can provide additional sections based on other TIs if necessary. Soil sampling and laboratory testing should be performed during grading to verify the assumed R-value.

TABLE 6.12
FLEXIBLE PAVEMENT SECTION RECOMMENDATIONS

Location	Estimated Traffic Index (TI)	AC (inches)	AB (inches)
Parking Stalls	4.5	3	6
Driveways	6.0	3 ½	10 ½
Heavy Duty	7.0	4	13

Note: The recommended flexible pavement sections are based on the following assumptions:

1. Subgrade soil has an R-Value of 15.
2. AB: Class 2 AB with a minimum R-Value of 78 and meeting the requirements of Section 26 of the latest Caltrans Standard Specifications.
3. AB is compacted to 95% or higher relative compaction at or near optimum moisture content. Prior to placing AB, the subgrade should be proof-rolled with a loaded water truck to verify stability.
4. AC: Asphalt concrete conforming to local agency standards or Section 39 of the latest Caltrans Standard Specifications.

6.12.4 The AC sections in Table 6.12 are final, minimum thicknesses. If staged-pavements are used, the construction bottom AC lift should be at least 2 inches thick. Following construction, the finish top AC lift should be at least 1.5 inches thick.

6.12.5 Unless specifically designed and evaluated by the project structural engineer, where concrete paving will be utilized for support of vehicles, we recommend the concrete be a minimum of 6 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. In addition, doweling, reinforcing steel or other load-transfer mechanism should be provided at joints if desired to reduce the potential for vertical offset. The concrete should have a minimum 28-day compressive strength of 3,500 psi.

6.12.6 We recommend that at least 6 inches of Class 2 Aggregate Base be used below rigid concrete pavements. The aggregate base should be compacted to at least 95% relative compaction near optimum moisture content.

6.12.7 In general, we recommend that concrete pavements be designed, constructed and maintained in accordance with industry standards such as those provided by the American Concrete Pavement Association.

6.12.8 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 6 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving. Alternatives such as plastic moisture cut-offs or modified drop-inlets may also be considered in lieu of deepened curbs.

6.12.9 Asphalt pavement section recommendations for driveways and parking areas are based on Caltrans *Highway Design Manual* (HDM) procedures. It should be noted that most rational pavement design procedures are based on projected street or highway traffic conditions and, hence, may not be representative of vehicular loading that occurs in parking lots and driveways. Pavement proximity to landscape irrigation, reduced traffic speed and short turning radii increase the potential for pavement distress to occur in parking lots even though the volume of traffic is significantly less than that of an adjacent street. The HDM indicates that the resulting pavement sections for parking lots are minimized to keep initial costs down but are reasonable because additional AC surfacing can be added later, if needed, and generally without incurring traffic hazards or traffic handling problems. It is generally not economically feasible to design and construct the entire parking lot and driveways for the unique loading conditions previously described. Periodic maintenance of the pavement in these areas, therefore, should be anticipated.

6.12.10 We recommend that all retaining wall designs be reviewed by Geocon to confirm the incorporation of the recommendations provided herein. In particular, potential surcharges from adjacent structures and other improvements should be reviewed by Geocon.

6.13 Exterior Slabs

6.13.1 Exterior slabs, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 24 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to placing rebar, the subgrade should be moisture conditioned to at least 2% over optimum (near optimum if sands or gravels) and properly compacted to at least 90% relative compaction.

6.13.2 The slab-on-grade dimensions and minimum reinforcement recommendations presented herein are based upon soil conditions only and are not intended to be used in lieu of those required for structural purposes.

6.13.3 Crack control joints for slabs-on-grade should be spaced at intervals not greater than 8 feet for 4-inch slabs and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. Construction joints should be designed by the project structural engineer.

6.13.4 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

6.14 Surface Drainage

6.14.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

6.14.2 All site drainage should be collected and transferred to the street in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundations or retaining walls. Drainage should not be allowed to flow uncontrolled over any descending slope. The proposed structures should be provided with roof gutters. Discharge from downspouts, roof drains and scuppers not permitted onto unprotected soils within five feet of the building perimeter. Planters which are located adjacent to foundations should be sealed or properly drained to prevent moisture intrusion into the materials providing foundation support. Landscape irrigation within five feet of the building perimeter footings should be kept to a minimum to just support vegetative life.

6.14.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas should be fine graded such that water is not allowed to pond. Final soil grade should slope a minimum of 2% away from structures.

6.14.4 We recommend implemented measures to reduce infiltrating surface water near buildings and slabs-on-grade. Such measures may include:

- Selecting drought-tolerant plants that require little or no irrigation, especially within 3 feet of buildings, slabs-on-grade, or pavements.
- Using drip irrigation or low-output sprinklers.
- Using automatic timers for irrigation systems.
- Appropriately spaced area drains.
- Hard-piping roof downspouts to appropriate collection facilities.

7. FURTHER GEOTECHNICAL SERVICES

7.1 Plan and Specification Review

7.1.1 We should review project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

7.2 Testing and Observation Services

7.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase and provide compaction testing and observation services and foundation observations throughout the project. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Consultants, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the geotechnical scope of services provided by Geocon Consultants, Inc.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the site area at this time. No warranty is provided, express or implied.

GEOCON
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Sellers Village

Sellers Avenue
Oakley, California

VICINITY MAP

E9124-04-01	April 2020	Figure 1

N

LEGEND:

TP7 Approximate Test Pit Location

CPT5 Approximate CPT Location

0 140

Scale in Feet

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Sellers Village

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SITE PLAN

E9124-04-01	April 2020	Figure 2

APPENDIX A

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation included a site visit, subsurface exploration, and soil sampling. The locations of our exploratory test pits and CPTs are shown on the Site Plan, Figure 2. Test pit logs and CPT data for our exploration are presented as figures following the text in this appendix. The exploratory test pits and CPTs were located in the field by pacing from existing reference points. Therefore, the exploration locations shown on Figure 2 are approximate. Our subsurface explorations were performed on April 17 and 18, 2019.

The exploratory test pits were performed using a rubber-tire CAT 430F2 backhoe equipped with an 18-inch bucket. Seven test pits were excavated and extended to depths of approximately 10 feet or less. Samples were collected at appropriate intervals, classified by our field engineer, retained in moisture-tight containers, and transported to the laboratory for testing and further classification. Upon completion, our test pits were backfilled in lifts with tamped spoils.

The CPTs were performed using a 25-ton truck-mounted rig equipped with an integrated electronic cone system. The cone has a tip area of 10 cm^2, a friction sleeve area of 150 cm^2, and a ratio of friction sleeve area to tip end area equal to 0.8. The cone bearing (Q_c) and sleeve friction (F_s) were measured and recorded during tests at approximately 2 inch depth intervals. Five CPT soundings were advanced to maximum depths of approximately 50 ½ feet.

Subsurface conditions encountered in the exploratory boring were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The log depicts soil and geologic conditions encountered and depths at which samples were obtained. The log also includes our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, drill rig penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field log was revised based on subsequent laboratory testing. Upon completion, our CPT boreholes were backfilled in accordance with Contra Costa County Environmental Health Department requirements.

UNIFIED SOIL CLASSIFICATION

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS, MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS, MORE THAN HALF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 12% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS, MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 12% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS, MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS, LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS, LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC CLAYS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
	HIGHLY ORGANIC SOILS		PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

BORING/TRENCH LOG LEGEND

- No Recovery
- Shelby Tube Sample
- Bulk Sample
- SPT Sample
- Modified California Sample
- Groundwater Level (At Completion)
- Groundwater Level (Seepage)

PENETRATION RESISTANCE

SAND AND GRAVEL			SILT AND CLAY			
RELATIVE DENSITY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	CONSISTENCY	BLOWS PER FOOT (SPT)*	BLOWS PER FOOT (MOD-CAL)*	COMPRESSIVE STRENGTH (tsf)
VERY LOOSE	0 - 4	0 - 6	VERY SOFT	0 - 2	0 - 3	0 - 0.25
LOOSE	5 - 10	7 - 16	SOFT	3 - 4	4 - 6	0.25 - 0.50
MEDIUM DENSE	11 - 30	17 - 48	MEDIUM STIFF	5 - 8	7 - 13	0.50 - 1.0
DENSE	31 - 50	49 - 79	STIFF	9 - 15	14 - 24	1.0 - 2.0
VERY DENSE	OVER 50	OVER 79	VERY STIFF	16 - 30	25 - 48	2.0 - 4.0
			HARD	OVER 30	OVER 48	OVER 4.0

*NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 INCHES TO DRIVE LAST 12 INCHES OF AN 18-INCH DRIVE

MOISTURE DESCRIPTIONS

FIELD TEST	APPROX. DEGREE OF SATURATION, S (%)	DESCRIPTION
NO INDICATION OF MOISTURE; DRY TO THE TOUCH	S<25	DRY
SLIGHT INDICATION OF MOISTURE	25≤S<50	DAMP
INDICATION OF MOISTURE; NO VISIBLE WATER	50≤S<75	MOIST
MINOR VISIBLE FREE WATER	75≤S<100	WET
VISIBLE FREE WATER	100	SATURATED

QUANTITY DESCRIPTIONS

APPROX. ESTIMATED PERCENT	DESCRIPTION
<5%	TRACE
5 - 10%	FEW
11 - 25%	LITTLE
26 - 50%	SOME
>50%	MOSTLY

GRAVEL/COBBLE/BOULDER DESCRIPTIONS

CRITERIA	DESCRIPTION
PASS THROUGH A 3-INCH SIEVE AND BE RETAINED ON A NO. 4 SIEVE (#4 TO 3")	GRAVEL
PASS A 12-INCH SQUARE OPENING AND BE RETAINED ON A 3-INCH SIEVE (3"-12")	COBBLE
WILL NOT PASS A 12-INCH SQUARE OPENING (>12")	BOULDER

BEDDING SPACING DESCRIPTIONS

THICKNESS/SPACING	DESCRIPTOR
GREATER THAN 10 FEET	MASSIVE
3 TO 10 FEET	VERY THICKLY BEDDED
1 TO 3 FEET	THICKLY BEDDED
3 ⅜-INCH TO 1 FOOT	MODERATELY BEDDED
1 ¼-INCH TO 3 ⅜-INCH	THINLY BEDDED
⅜-INCH TO 1 ¼-INCH	VERY THINLY BEDDED
LESS THAN ⅜-INCH	LAMINATED

STRUCTURE DESCRIPTIONS

CRITERIA	DESCRIPTION
ALTERNATING LAYERS OF VARYING MATERIAL OR COLOR WITH LAYERS AT LEAST ¼-INCH THICK	STRATIFIED
ALTERNATING LAYERS OF VARYING MATERIAL OR COLOR WITH LAYERS LESS THAN ¼-INCH THICK	LAMINATED
BREAKS ALONG DEFINITE PLANES OF FRACTURE WITH LITTLE RESISTANCE TO FRACTURING	FISSURED
FRACTURE PLANES APPEAR POLISHED OR GLOSSY, SOMETIMES STRIATED	SLICKENSIDED
COHESIVE SOIL THAT CAN BE BROKEN DOWN INTO SMALLER ANGULAR LUMPS WHICH RESIST FURTHER BREAKDOWN	BLOCKY
INCLUSION OF SMALL POCKETS OF DIFFERENT SOIL, SUCH AS SMALL LENSES OF SAND SCATTERED THROUGH A MASS OF CLAY	LENSED
SAME COLOR AND MATERIAL THROUGHOUT	HOMOGENOUS

CEMENTATION/INDURATION DESCRIPTIONS

FIELD TEST	DESCRIPTION
CRUMBLES OR BREAKS WITH HANDLING OR LITTLE FINGER PRESSURE	WEAKLY CEMENTED/INDURATED
CRUMBLES OR BREAKS WITH CONSIDERABLE FINGER PRESSURE	MODERATELY CEMENTED/INDURATED
WILL NOT CRUMBLE OR BREAK WITH FINGER PRESSURE	STRONGLY CEMENTED/INDURATED

IGNEOUS/METAMORPHIC ROCK STRENGTH DESCRIPTIONS

FIELD TEST	DESCRIPTION
MATERIAL CRUMBLES WITH BARE HAND	WEAK
MATERIAL CRUMBLES UNDER BLOWS FROM GEOLOGY HAMMER	MODERATELY WEAK
⅛-INCH INDENTATIONS WITH SHARP END FROM GEOLOGY HAMMER	MODERATELY STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **ONE** BLOW FROM GEOLOGY HAMMER	STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **COUPLE** BLOWS FROM GEOLOGY HAMMER	VERY STRONG
HAND-HELD SPECIMEN CAN BE BROKEN WITH **MANY** BLOWS FROM GEOLOGY HAMMER	EXTREMELY STRONG

IGNEOUS/METAMORPHIC ROCK WEATHERING DESCRIPTIONS

DEGREE OF DECOMPOSITION	FIELD RECOGNITION	ENGINEERING PROPERTIES
SOIL	DISCOLORED, CHANGED TO SOIL, FABRIC DESTROYED	EASY TO DIG
COMPLETELY WEATHERED	DISCOLORED, CHANGED TO SOIL, FABRIC MAINLY PRESERVED	EXCAVATED BY HAND OR RIPPING (Saprolite)
HIGHLY WEATHERED	DISCOLORED, HIGHLY FRACTURED, FABRIC ALTERED AROUND FRACTURES	EXCAVATED BY HAND OR RIPPING, WITH SLIGHT DIFFICULTY
MODERATELY WEATHERED	DISCOLORED, FRACTURES, INTACT ROCK-NOTICEABLY WEAKER THAN FRESH ROCK	EXCAVATED WITH DIFFICULTY WITHOUT EXPLOSIVES
SLIGHTLY WEATHERED	MAY BE DISCOLORED, SOME FRACTURES, INTACT ROCK-NOT NOTICEABLY WEAKER THAN FRESH ROCK	REQUIRES EXPLOSIVES FOR EXCAVATION, WITH PERMEABLE JOINTS AND FRACTURES
FRESH	NO DISCOLORATION, OR LOSS OF STRENGTH	REQUIRES EXPLOSIVES

IGNEOUS/METAMORPHIC ROCK JOINT/FRACTURE DESCRIPTIONS

FIELD TEST	DESCRIPTION
NO OBSERVED FRACTURES	UNFRACTURED/UNJOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 1 TO 3 FOOT INTERVALS	SLIGHTLY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 4-INCH TO 1 FOOT INTERVALS	MODERATELY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT 1-INCH TO 4-INCH INTERVALS WITH SCATTERED FRAGMENTED INTERVALS	INTENSELY FRACTURED/JOINTED
MAJORITY OF JOINTS/FRACTURES SPACED AT LESS THAN 1-INCH INTERVALS; MOSTLY RECOVERED AS CHIPS AND FRAGMENTS	VERY INTENSELY FRACTURED/JOINTED

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KEY TO LOGS

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP1

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
1	TP1-0.5-1.5			ML	ALLUVIUM Stiff, moist, brown (f-m) Sandy SILT with few clays -pp=2-3			
2	TP1-1.5-2.5							19.1
3	TP1-2.5-3.5			CL	-medium stiff, less clay, more sand -pinholing observed to approximately 2½ feet Stiff, moist, brown (f-m) Sandy CLAY with silt -pp=2-3			
4	TP1-4-5			ML	Medium stiff, moist, light brown (f-m) Sandy SILT			
5					-more sand			
6	TP1-6-7				-stiff to very stiff, damp, cemented			11.0
7								
8	TP1-8-9				-brown, lightly cemented			
9					END OF TEST PIT AT APPROXIMATELY 9 FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A2, Log of Boring TP1, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

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SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ▨ ... DISTURBED OR BAG SAMPLE
- ◧ ... STANDARD PENETRATION TEST
- ◥ ... CHUNK SAMPLE
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP2

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
	TP2-0.5-1.5			SM	ALLUVIUM Dense, damp to moist, brown Silty (f-m) SAND with some clay -pp=2¾-3½			
1								
2	TP2-2-3				-pinholing observed to approximately 2 feet -medium dense, moist, less silt			26.9
3								
4	TP2-4-5			SP	Medium dense, moist, brown (f-m) SAND with trace silts			
5								
	TP2-5.5-6.5							
6					-light brown			
7								
8								
					END OF TEST PIT AT APPROXIMATELY 8½ FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A3, Log of Boring TP2, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP3

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
1	TP3-0.5-1.5			CL	ALLUVIUM Stiff to very stiff, moist, dark brown (f-m) Sandy CLAY with silt			
2	TP3-2-3				-moist to wet, less sand -pp=¾-1½ -pinholing observed to approximately 3 feet			
3								
4	TP3-4-5			SP	Medium dense, damp, brown (f-m) SAND with trace silts			
5								
6	TP3-6-7				-light brown, very lightly cemented			
7								
8					END OF TEST PIT AT APPROXIMATELY 8½ FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A4, Log of Boring TP3, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP4

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
	TP4-0.5-1.5			SP-SM	ALLUVIUM Medium dense to dense, damp, brown (f-m) SAND with few silts			
1								
2	TP4-2-3				-moist			6.7
3								
4	TP4-4-5				-loose to medium dense			
5								
					-significant caving			
6					END OF TEST PIT AT APPROXIMATELY 6 FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A5, Log of Boring TP4, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP5

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0			Approximately 3 inches of grass and rootlets			
	TP5-0.5-1.5	SM	ALLUVIUM Medium dense to dense, damp to moist, brown Silty (f-m) SAND -very lightly cemented -pp=1¾-2¼			
1						
	TP5-1.5-2.5	SP-SM	-pinholing observed to approximately 1½ feet Medium dense, moist, brown (f-m) SAND with few silts -pp=½			5.9
2						
3						
	TP5-3.5-4.5		-light brown			
4						
5						
	TP5-5.5-6.5	SP	Medium dense, moist, light brown to tan (f-m) SAND with trace silts			
6						
7	TP5-7-8					5.4
8			END OF TEST PIT AT APPROXIMATELY 8 FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A6, Log of Boring TP5, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

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SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◥ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP6

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
1	TP6-0.5-1.5			CL	ALLUVIUM Stiff, damp to moist, brown (f-m) Sandy Silty CLAY -pp=1½-2½			
2	TP6-2-3				-moist -pp=1-1¾ -pinholing observed to approximately 3 feet			
3								
4								
5	TP6-4.5-5.5			SM	Dense, damp to moist, light brown (f-m) SAND with little silt			6.9
6	TP6-6-7				-medium dense, light brown to tan, less silt			
7	TP6-7-8				-dense, moist, brown, more silt			
8								
9					END OF TEST PIT AT APPROXIMATELY 9 FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A7, Log of Boring TP6, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

GEOCON

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

▨ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. **E9124-04-01** PROJECT NAME: **Sellers Village GI**

BORING TP7

ELEV. (MSL.) _____ DATE COMPLETED **4/18/2019**

ENG./GEO. **JBM** DRILLER **BABS**

EQUIPMENT **CAT 430F2 RT w/ 18" bucket** HAMMER TYPE _____

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					Approximately 3 inches of grass and rootlets			
	TP7-0.5-1.5			CL	ALLUVIUM Stiff, moist, brown (f-m) Sandy CLAY with silt -pp=1-1½			
1								
2								
	TP7-2.5-3.5			SM	-pinholing observed to approximately 2½ feet Medium dense, moist, brown Silty (f-m) SAND			8.8
3								
4	TP7-4-5							
5								
6	TP7-6-7			SP	Medium dense, moist, brown (f-m) SAND with trace silts			
7								
8	TP7-8-9				-light brown			
9								
10					END OF TEST PIT AT APPROXIMATELY 10 FEET NO FREE WATER ENCOUNTERED BACKFILLED WITH TAMPED SPOILS			

Figure A8, Log of Boring TP7, Page 1 of 1

GEOCON BORING LOG E9124-04-01 BORING LOGS.GPJ 05/17/19

GEOCON

SAMPLE SYMBOLS

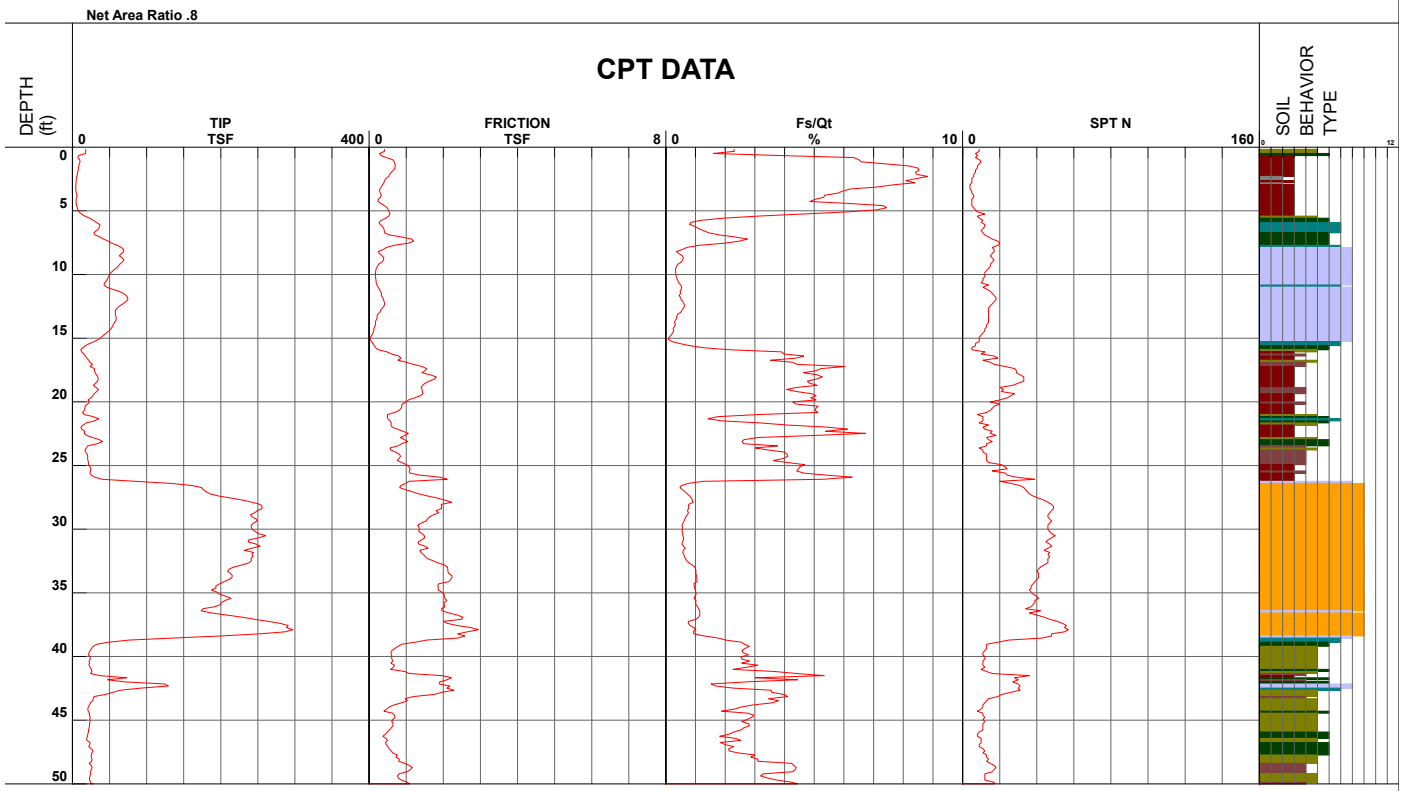
☐ ... SAMPLING UNSUCCESSFUL ◧ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED)

⊠ ... DISTURBED OR BAG SAMPLE ◪ ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Project	Seller's Village GI	Operator	JM-BH	Filename	SDF(270).cpt
Job Number	E9124-04-01	Cone Number	DDG1448	GPS	
Hole Number	CPT-01	Date and Time	4/17/2019 8:23:37 AM	Maximum Depth	50.52 ft
EST GW Depth During Test		14.00 ft			

Net Area Ratio .8



Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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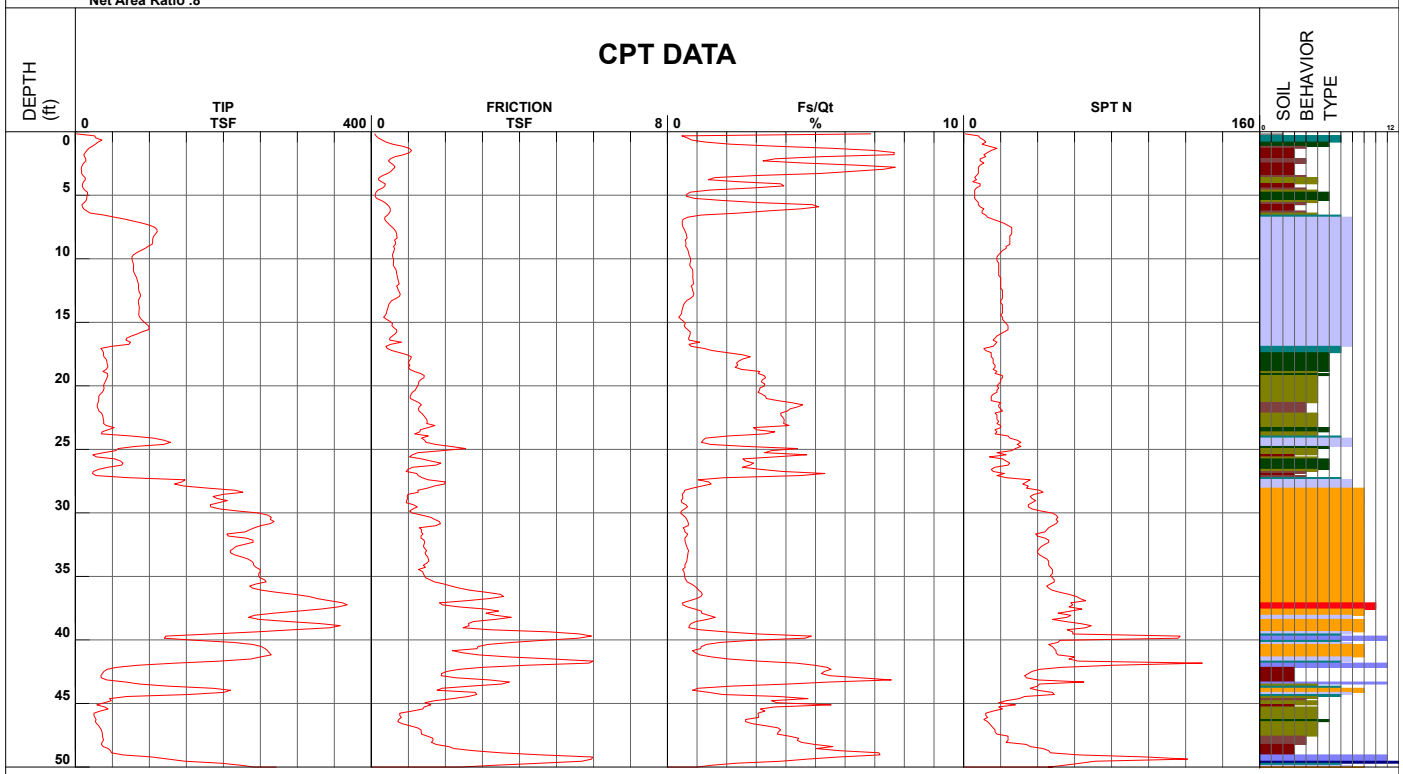
CONE PENETROMETER TEST - CPT 1

Project: Sellers Village
Location: Oakley, CA
Project No. E9124-04-01
Date: Apirl 2020

FIGURE A9

Project	Seller's Village GI	Operator	JM-BH	Filename	SDF(269).cpt
Job Number	E9124-04-01	Cone Number	DDG1448	GPS	
Hole Number	CPT-02	Date and Time	4/17/2019 7:39:44 AM	Maximum Depth	50.69 ft
EST GW Depth During Test	14.00 ft				

Net Area Ratio .8



Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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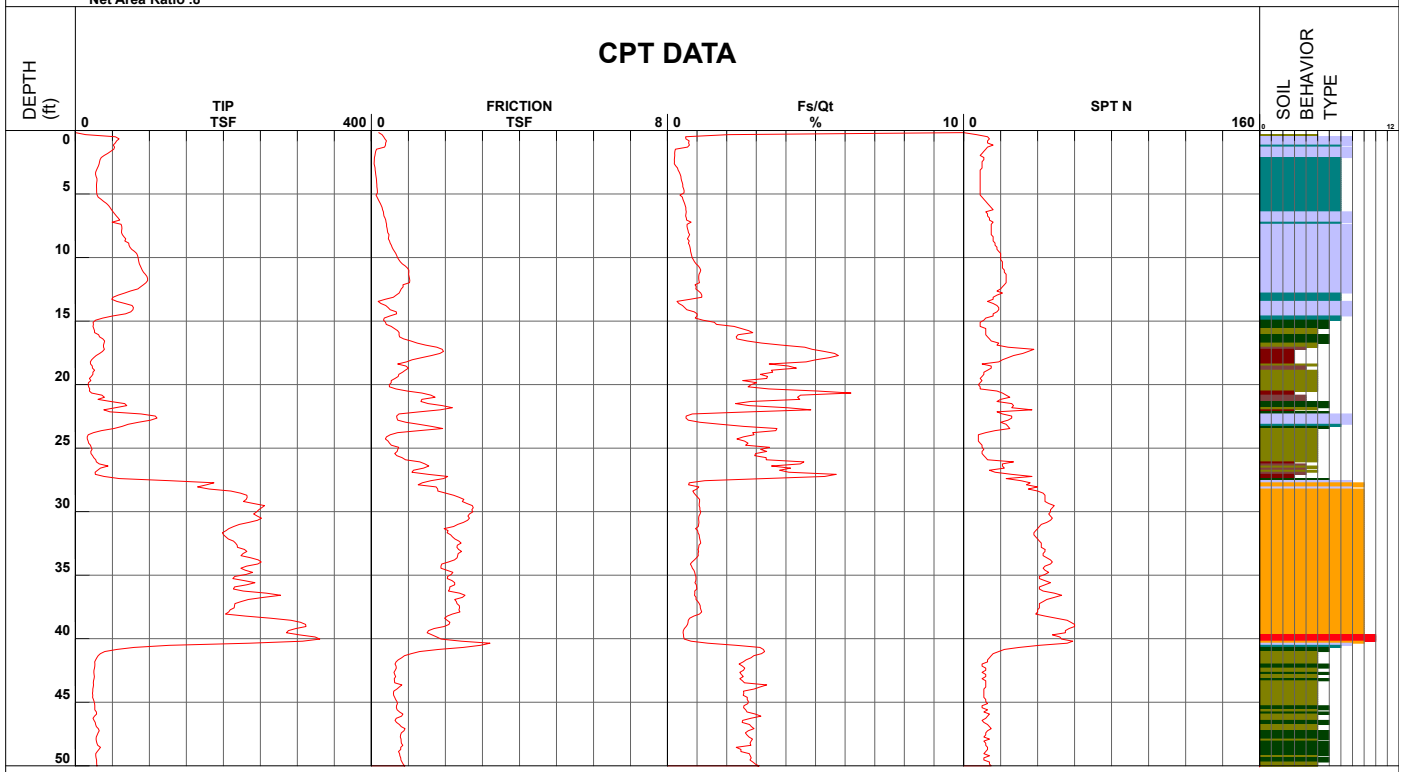
CONE PENETROMETER TEST - CPT 2

Project: Sellers Village
Location: Oakley, CA
Project No. E9124-04-01
Date: April 2020

FIGURE A10

Project	Seller's Village GI	Operator	JM-BH	Filename	SDF(271).cpt
Job Number	E9124-04-01	Cone Number	DDG1448	GPS	
Hole Number	CPT-03	Date and Time	4/17/2019 9:20:05 AM	Maximum Depth	50.85 ft
EST GW Depth During Test		14.00 ft			

Net Area Ratio .8



Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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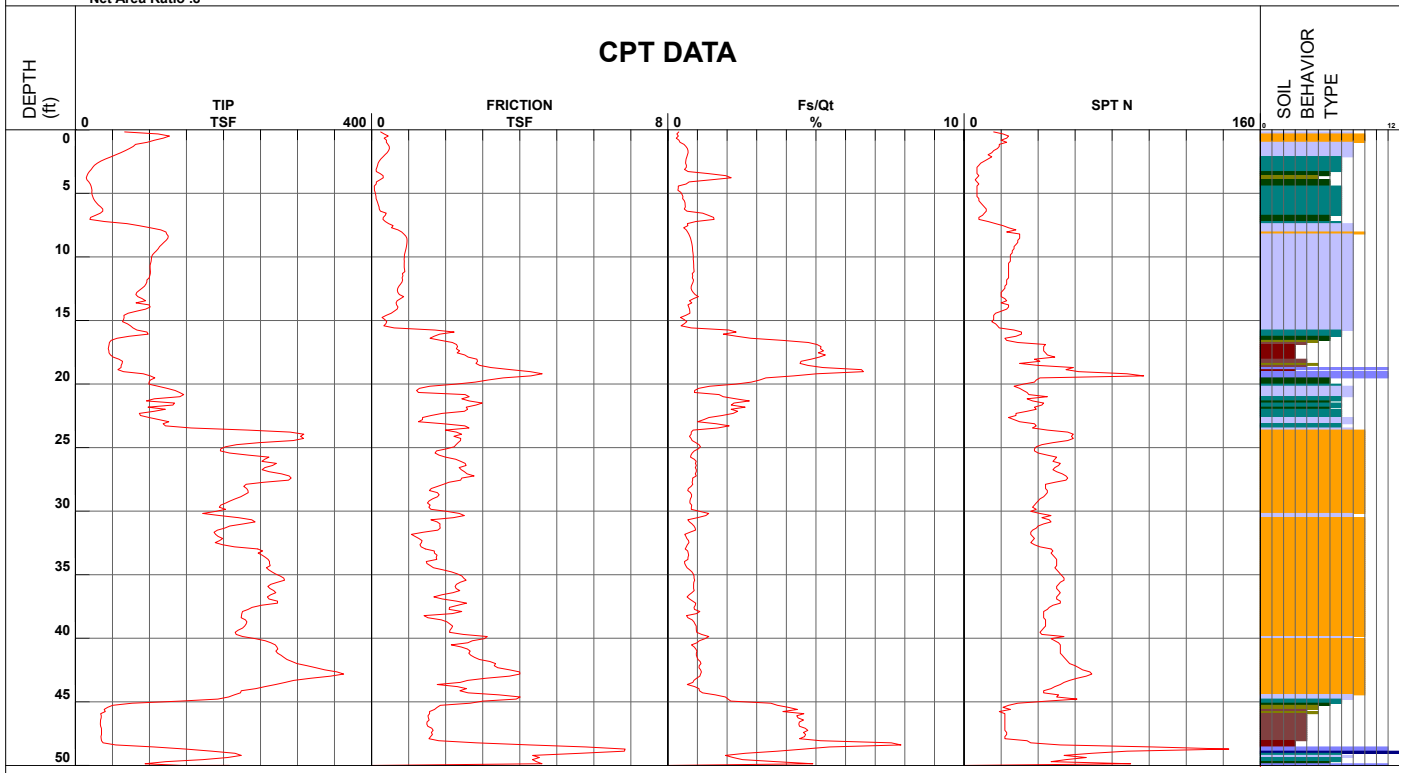
CONE PENETROMETER TEST - CPT 3

Project: Sellers Village
Location: Oakley, CA
Project No. E9124-04-01
Date: April 2020

FIGURE A11

Project	Seller's Village GI	Operator	JM-BH	Filename	SDF(272).cpt
Job Number	E9124-04-01	Cone Number	DDG1448	GPS	
Hole Number	CPT-04	Date and Time	4/17/2019 10:33:47 AM	Maximum Depth	50.36 ft
EST GW Depth During Test		15.00 ft			

Net Area Ratio .8



Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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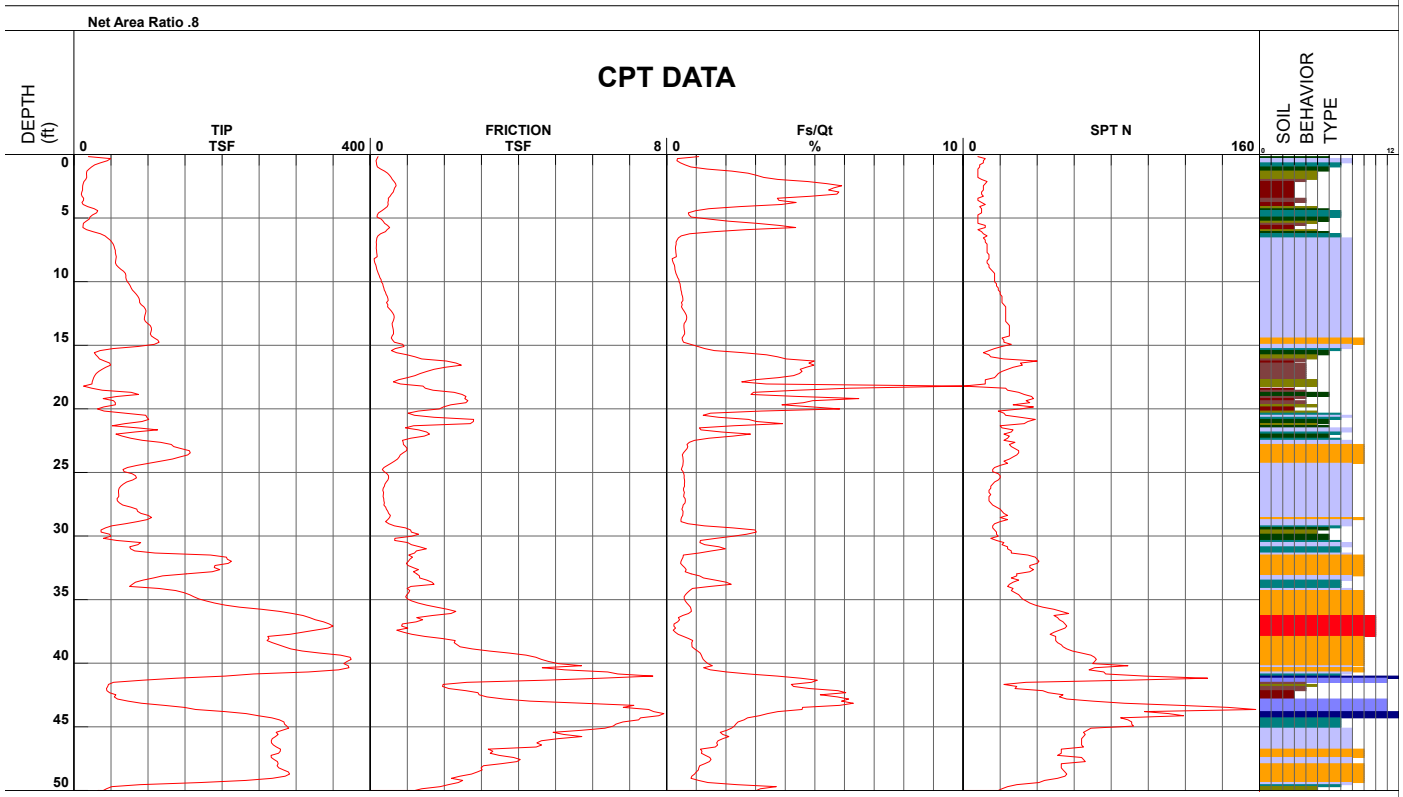
CONE PENETROMETER TEST - CPT 4

Project: Sellers Village
Location: Oakley, CA
Project No. E9124-04-01
Date: April 2020

FIGURE A12

Project	Seller's Village GI	Operator	JM-BH	Filename	SDF(274).cpt
Job Number	E9124-04-01	Cone Number	DDG1448	GPS	
Hole Number	CPT-05	Date and Time	4/17/2019 11:47:25 AM	Maximum Depth	50.52 ft
EST GW Depth During Test	15.00 ft				

Net Area Ratio .8



Cone Size 10cm squared

S*Soil behavior type and SPT based on data from UBC-1983

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CONE PENETROMETER TEST - CPT 5

Project: Sellers Village
Location: Oakley, CA
Project No. E9124-04-01
Date: April 2020

FIGURE A13

APPENDIX B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected samples were tested for plasticity, gradation, and expansion potential. The results of our testing are summarized in the tables below or presented graphically in the following figures.

TABLE B-I
SUMMARY OF LABORATORY ATTERBERG LIMITS TEST RESULTS
ASTM D 4318

Test Pit No.	Sample Depth (ft.)	Liquid Limit	Plastic Limit	Plasticity Index
TP3	2 – 3	44	18	26
TP7	0.5 – 1.5	30	13	17

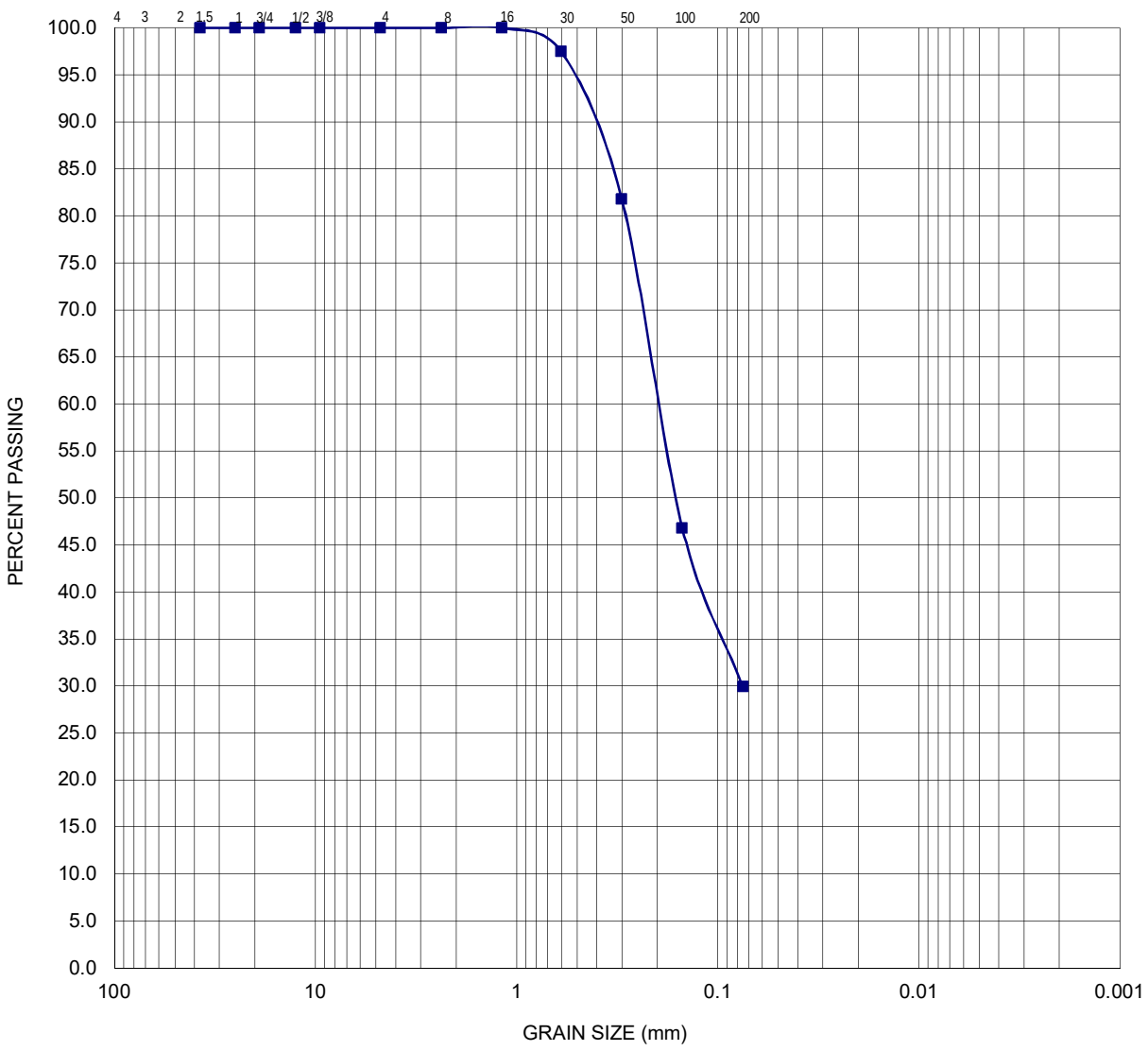
TABLE B-II
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS
ASTM D 4829

Sample No.	Moisture Content		Dry Density* (pcf)	Expansion Index
	Before Test (%)	After Test (%)		
TP3-0.5-1.5	12.5	27.3	99.4	39
TP6-0.5-1.5	11.4	25.9	102.8	43

*before saturation

TABLE B-III
SUMMARY OF LABORATORY GRAIN SIZE ANALYSIS – NO. 200 WASH
ASTM D1140

Test Pit No.	Sample Depth (feet)	Fraction Passing No. 200 Sieve (%)
TP1	1.5 – 2.5	72
TP1	6 – 7	70
TP4	2 – 3	10
TP5	7 – 8	3
TP6	4.5 – 5.5	20
TP7	2.5 – 3.5	27



Boring: TP2

Depth To Sample: 2' - 3'

Sieve Date: 5/6/19

Tested and Computed by: FG

Test Data

Sieve Number	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
% Passing	100	100	100	100	100	100	100	100	97.5	81.8	46.8	29.9

Geocon Consultants, Inc.
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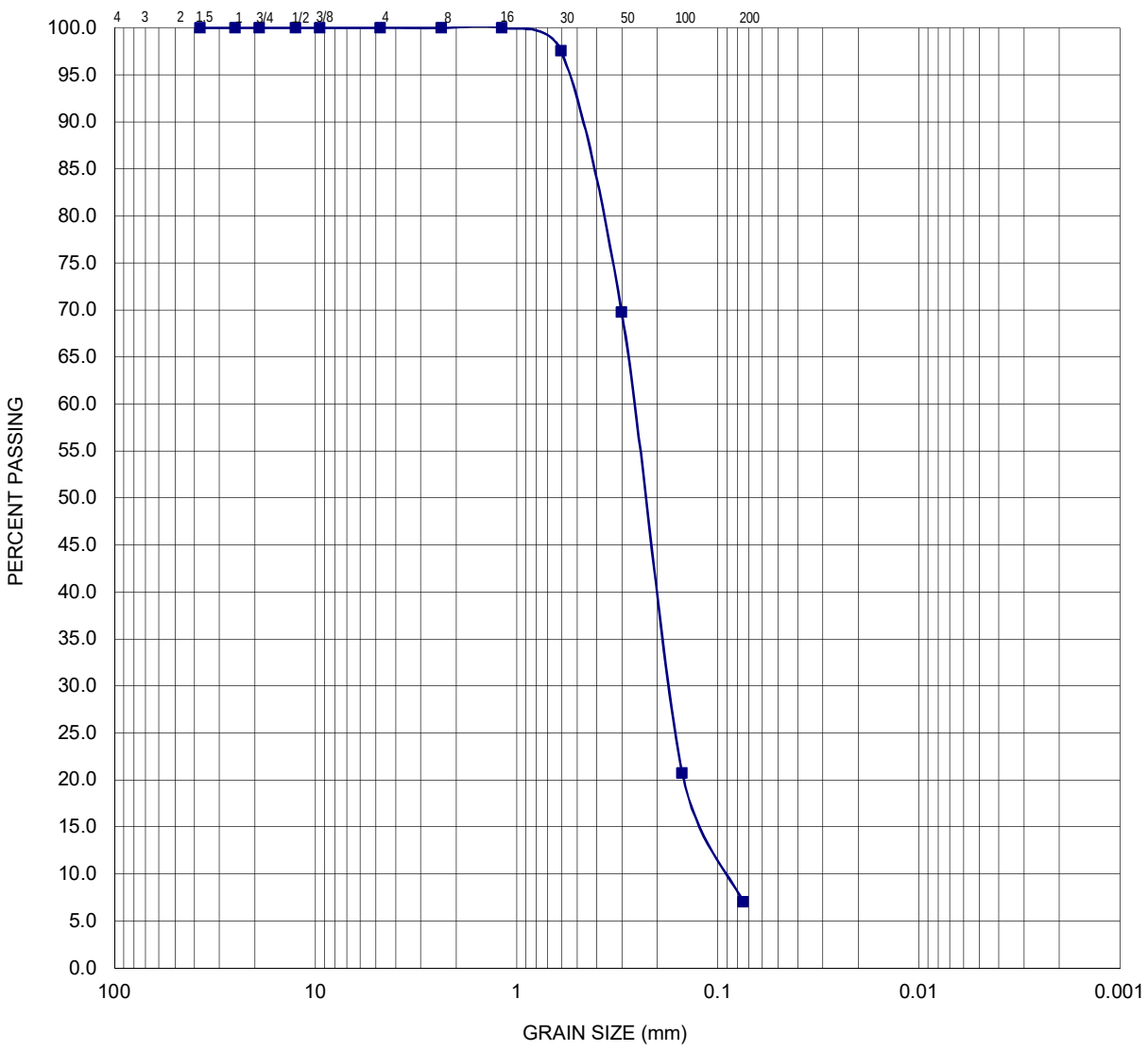
Particle Size Analysis - ASTM D422

Project: Sellers Village GI

Location: Oakley, CA

Project No.: E9124-04-01

Figure B1



Boring: TP5

Depth To Sample: 1½' - 2½'

Sieve Date: 5/6/19

Tested and Computed by: FG

Test Data

Sieve Number	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200
% Passing	100	100	100	100	100	100	100	100	97.5	69.7	20.7	7.0

Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Telephone: (925) 371-5900
Fax: (925) 371-5915

Particle Size Analysis - ASTM D422

Project: Sellers Village GI

Location: Oakley, CA

Project No.: E9124-04-01

Figure B2

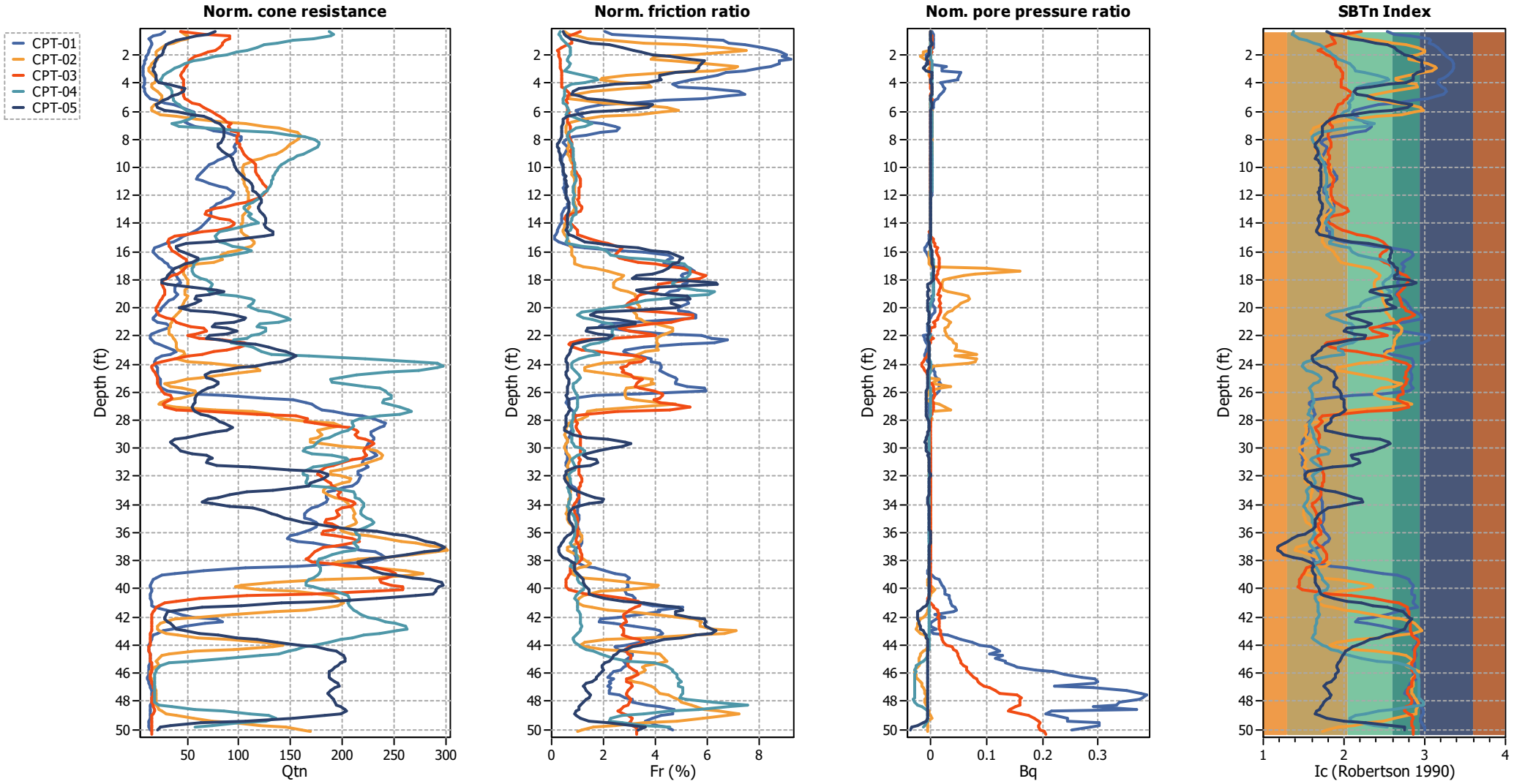
APPENDIX C

APPENDIX C
LIQUEFACTION ANALYSIS

GEOCON CONSULTANTS, INC.
6671 Brisa Street, Livermore, CA 94550
P: 925.371.5900 F: 925.371.5915

Project: Sellers Village

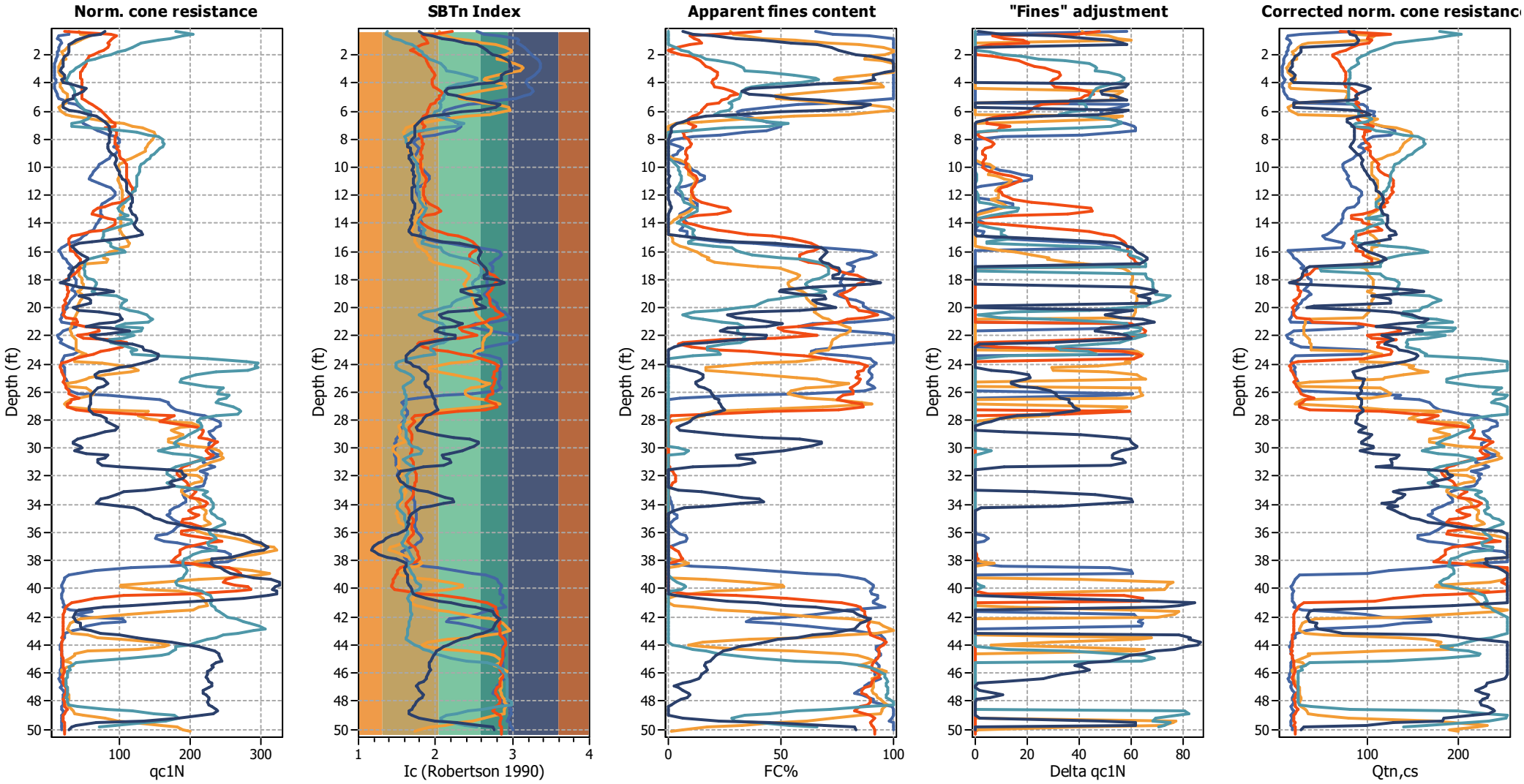
Overlay Normalized Plots



GEOCON CONSULTANTS, INC.
6671 Brisa Street, Livermore, CA 94550
P: 925.371.5900 F: 925.371.5915

Project: Sellers Village

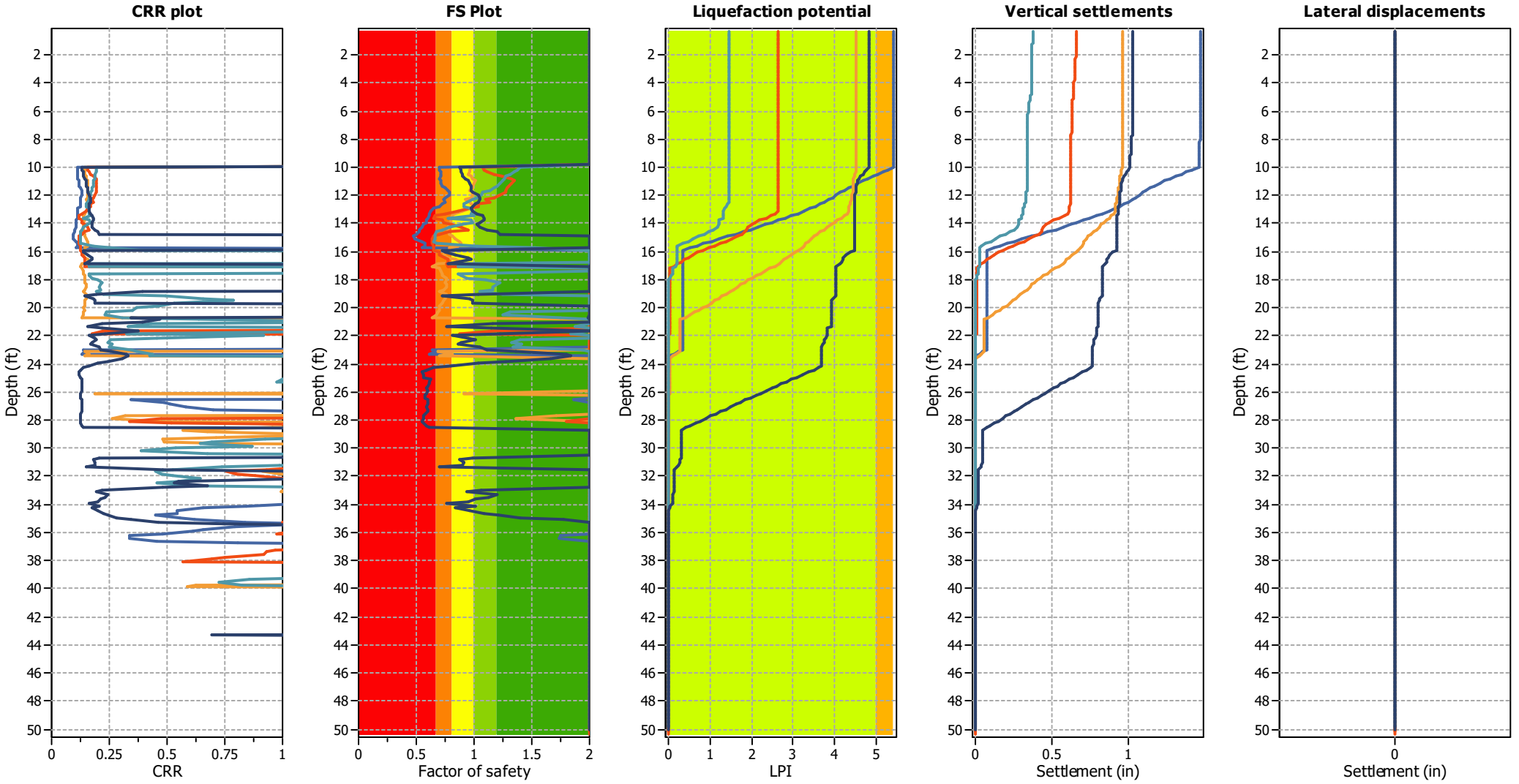
Overlay Intermediate Results



GEOCON CONSULTANTS, INC.
6671 Brisa Street, Livermore, CA 94550
P: 925.371.5900 F: 925.371.5915

Project: Sellers Village

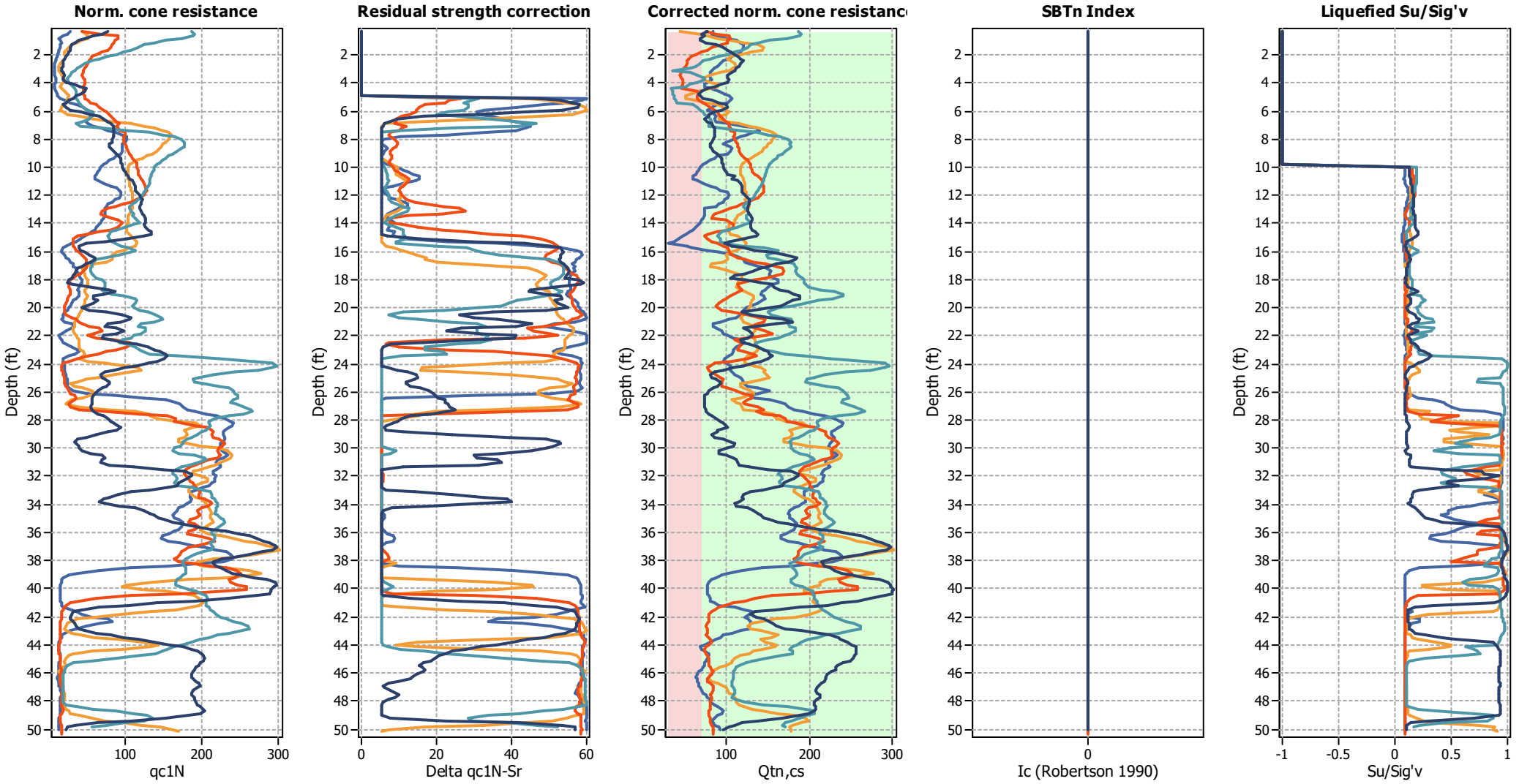
Overlay Cyclic Liquefaction Plots



GEOCON CONSULTANTS, INC.
6671 Brisa Street, Livermore, CA 94550
P: 925.371.5900 F: 925.371.5915

Project: Sellers Village

Overlay Strength Loss Plots



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Appendix F
Preliminary Storm Drainage Report

Preliminary Storm Drain Report

Oakley Village
Oakley, California

SUBMITTAL DATE: April 15, 2021

Prepared by:
O'Dell Engineering
1165 Scenic Drive, Suite A
Modesto, CA 95350
209.571.1765

Client:
Edgemont Station, LLC
8880 Cal Center Drive, Suite 400
Sacramento, CA 95826

Table of Contents

1.0 Introduction

This study presents the preliminary design for the construction of storm drain facilities for Oakley Village in the City of Oakley, California. The scope of work includes:

- Preparation of preliminary storm drain calculations using Rational Method hydrology and Manning's equation hydraulic calculations for the sizing of all proposed pipes in the system (See Appendix A), and
- Preparation of an exhibit of the study area showing the project limits, tributary areas, proposed pipe sizes, structure locations and routing. (See Appendix B)

State stormwater discharge regulations require runoff from a new development to be treated, infiltrated or reused prior to entering off-site storm facilities. Stormwater will be routed into the bioretention basin in the northwest corner of the property for treatment via a subsurface storm drain system that is sized to accommodate the 10- and 100-year storm events. After treatment, the storm water will be conveyed through a storm drain pipe that connects to an existing storm drain system on the west side of the property. The water is then taken to an existing detention basin off-site.

The new storm drain pipes range in size from 18-24 inches in diameter and are made of reinforced concrete.

The proposed site improvements will be public and maintained by the City of Oakley with the exception of the bioretention facility, which will be owned and maintained by a homeowners association that will be created for this subdivision.

1.1 Study Area

Oakley Village is on a 14.82-acre parcel located in Oakley, California. It is east of Sellers Avenue and south of the AT&SF railroad tracks. There is an existing subdivision to the west.

The exact limits of the drainage areas are delineated in the Tributary Area Map in Appendix B of this report, and a preliminary grading plan showing existing and proposed drainage patterns is included in Appendix C.

1.2 Existing and Proposed Conditions

The existing 14.82-acre site is mainly undeveloped, but it does contain some buildings that will be removed to accommodate the new development. The rest of the site is used for livestock. There are only a few trees, which will have to be removed. The topography is practically flat with relatively porous soil near the surface. The west side of the site, adjacent to the existing subdivision, is the high point currently. The low area is located in the center.

Oakley Village will consist of 42 single family homes, four roads with accompanying infrastructure and a bioretention facility.

2.0 Project Assumptions

Assumptions were made during the preliminary design of the storm drain system. All assumptions are based on either the City or County design criteria or on reasonable and responsible engineering practices, such as:

- Time of concentration, Tc, was determined assuming a roof to gutter time of 5 minutes for residential projects zoned R-10, per the Contra Costa County Flood Control District (CCCFCD) Runoff Coefficient standards found on their website,
- The Mean Annual Precipitation (MAP) value of 11 for the site was determined using the Contra Costa County Public Works Department Mean Seasonal Isohyets map, drawing B-166,
- The system is designed for both the 10- and 100-year storm events,
- The C-value for use in the Rational Formula, Q=CiA, is .60, per the CCCFCD Runoff Coefficient standards for residential projects zoned R-10, and
- The Manning's roughness coefficient, n, is .013 for reinforced concrete pipe, per Office Standard 61.

3.0 System Design

All calculations were done in accordance to the CCCFCD design criteria, which are intended to demonstrate that runoff from storms up to the 10-year storm event are conveyed through storm facilities and discharged in a manner which protects public and private improvements from flood hazards.

Runoff calculations were computed using the Rational Method, Q=CiA. Runoff from storms with recurrence intervals greater than 100 years may exceed the capacity of the storm drain system within this project. To protect both public and private improvements, the street profiles and site grading have been designed to provide overland release of floodwaters within the street rights-of-way.

The system design criteria are as follows:

- The minimum velocity in any storm drain pipe is 2 feet per second (fps),
- The minimum slope for a storm drain pipe is .003, and
- The City of Oakley maximum structure spacing is 400 linear feet.

The preliminary storm drain calculations are included in Appendix A.

4.0 Existing Kings Canyon Way Storm Drain System

The existing overland release path can no longer be utilized to direct water north towards the railroad tracks. However, the existing 24" storm drain line that connects the bioretention facility to the existing storm drain system in Kings Canyon Way will accommodate any overflow from the bioretention facility. Using Manning's equation, the capacity of this existing 24" pipe is 12.4 cfs.

$Q = (A * k_n * R_h^{2/3} * S^{1/2})/n$

Where
A = area = 3.14
k_n = conversion factor = 1.49
R_h = hydraulic radius = .5 foot
S = slope in ft/ft = .003
N = Manning's coefficient of roughness = .013

Q = 12.4 ft/s

The existing 24" pipe from SDCB#K1 to SDMH#A1 also has a capacity of 12.4 cfs, as it is designed to have the same slope (.003 ft/ft). The addition of a drainage area from the road and adjacent lots of approximately 0.58 acres, contributes only 0.56 cfs to this pipe. There is plenty of capacity in this 24" pipe to accommodate off-peak drainage from the bioretention facility, King's Canyon Way and the adjacent lots.

Our bioretenion facility will be designed to outfall into the existing storm drain system only when the basin is full. Even during a heavy storm, drainage in the existing storm drain system will be mostly gone before the water from the bioretention facility enters the existing system; therefore, there will not be a capacity issue when adding this project to the existing system.

APPENDIX A: PRELIMINARY STORM DRAIN CALCULATIONS

O'DELL ENGINEERING

STORM DESIGN SHEET

OAKLEY COUNTY

JOB NO. 34386

DES'D. BY JPG/MP DATE 04/14/21

CHK'D BY VJA/MP DATE 04/14/21

SUBJECT:
Oakley Sellers Village

DESCRIPTION:
Preliminary Storm Drain Calcs

TOTAL AREA= 14.82 ac

BEGINNING DESIGN DATA: ROOF TO GUTTER TIME = 5 min

STORM EVENT= 10 yr

MANNINGS "N" VALUE USED = 0.013

POINT OF CONCENTRATION	TRIB. AREA NO.	CONTRIB. Ac (A)	RUN OFF COEF (C)	CA	Σ CA	INTENSITY (I)	Q cfs (S CA x I)	PIPE DIA.	PIPE SLOPE FT/FT	LENGTH (FT)	Δ ELEV. (FT)	ACTUAL VELOCITY (FT/S)	d/D	HAZEN-WILLIAMS ROUGH. COEFF.	Δ Hydralic Elevation	HYD. SLOPE	T. MIN. IN PIPE	T. MIN. TOTAL	Tc (into Structure)	% of Capacity
CB-1 TO CB-2	1	0.40	0.6	0.24	0.24	1.62	0.39	18	0.0060	33	0.20	2.3	0.15	110.0	0.0498	0.0015	0.24	10.24	10.00	**5%**
CB-2 TO SDMH-1	2	2.09	0.6	1.25	1.49	1.58	2.36	18	0.0030	400	1.20	3.1	0.45	110.0	1.0171	0.0025	2.16	12.39	11.00	**41%**
SDMH-1 TO CB-4	-	0.00	0.6	0	1.49	1.54	2.29	18	0.0030	32	0.10	3.1	0.44	110.0	0.0798	0.0025	0.17	12.57	12.00	**40%**
CB-3 TO CB-4	3	0.87	0.6	0.52	0.52	1.54	0.80	18	0.0030	35	0.11	2.3	0.25	110.0	0.0507	0.0014	0.26	12.82	12.00	**14%**
CB-4 TO SDMH-2	4	0.44	0.6	0.26	2.28	1.58	3.60	18	0.0030	229	0.69	3.4	0.57	110.0	0.7056	0.0031	1.11	13.94	11.00	**63%**
CB-5 TO CB-6	5	2.07	0.6	1.24	1.24	1.54	1.91	18	0.0030	37	0.11	2.9	0.40	110.0	0.0846	0.0023	0.21	14.15	12.00	**33%**
CB-6 TO CB-6A	6	0.96	0.6	0.58	1.82	1.54	2.79	18	0.0030	227	0.68	3.2	0.49	110.0	0.6253	0.0028	1.17	15.32	12.00	**49%**
CB-6A TO SDMH-2	6A	0.38	0.6	0.23	2.05	1.54	3.14	18	0.0030	218	0.65	3.3	0.53	110.0	0.6334	0.0029	1.09	16.41	12.00	**55%**
SDMH-2 TO CB-8	-	0.00	0.6	0	4.33	1.49	6.46	24	0.0030	155	0.47	4.0	0.51	110.0	0.4493	0.0029	0.65	15.97	13.00	**52%**
CB-7 TO CB-8	7	1.20	0.6	0.72	0.72	1.49	1.08	18	0.0030	35	0.11	2.5	0.29	110.0	0.0592	0.0017	0.24	16.20	13.00	**19%**
CB-8 TO CB-11	8	0.64	0.6	0.38	5.43	1.45	7.88	24	0.0030	61	0.18	4.2	0.58	110.0	0.1928	0.0032	0.24	16.45	14.00	**64%**
CB-9 TO CB-10	9	0.93	0.6	0.56	0.56	1.45	0.81	18	0.0030	38	0.11	2.3	0.25	110.0	0.0551	0.0014	0.28	16.73	14.00	**14%**
CB-10 TO CB-11	10	0.63	0.6	0.38	0.94	1.45	1.36	18	0.0030	229	0.69	2.7	0.33	110.0	0.4412	0.0019	1.43	18.16	14.00	**24%**
CB-11 TO CB-12	11	0.87	0.6	0.52	6.89	1.45	10.00	24	0.0060	239	1.43	5.8	0.54	110.0	1.3729	0.0057	0.69	18.85	14.00	**57%**
CB-12 TO CB-15	12	0.35	0.6	0.21	7.10	1.41	10.01	24	0.0060	106	0.64	5.8	0.54	110.0	0.6089	0.0057	0.31	19.16	15.00	**57%**
CB-14 TO CB-15	14	0.17	0.6	0.10	0.10	1.41	0.14	18	0.0100	33	0.33	2.1	0.08	110.0	0.0399	0.0012	0.27	19.42	15.00	**1%**
CB-15 TO CB-16	15	0.31	0.6	0.19	7.39	1.41	10.41	24	0.0060	196	1.18	5.8	0.55	110.0	1.1408	0.0058	0.56	19.99	15.00	**59%**
CB-17 TO CB-16	17	1.22	0.6	0.73	0.73	1.49	1.09	18	0.0060	41	0.25	3.2	0.25	110.0	0.1104	0.0027	0.21	20.20	13.00	**13%**
CB-16 TO SDMH-3	16	0.92	0.6	0.55	8.67	1.54	13.32	24	0.0080	68	0.54	6.9	0.59	110.0	0.5415	0.0080	0.17	20.37	12.00	**66%**
SDMH-3 TO OUTFALL	-	0.00	0.6	0	8.67	1.54	13.32	24	0.0080	59	0.47	6.9	0.59	110.0	0.4699	0.0080	0.14	20.51	12.00	**66%**

O'DELL ENGINEERING

STORM DESIGN SHEET

OAKLEY COUNTY

JOB NO. 34386

DES'D. BY JPG DATE 03/15/21

CHK'D BY VJA/MP DATE 03/15/21

SUBJECT:
Oakley Sellers Village

DESCRIPTION:
Preliminary Storm Drain Calcs

TOTAL AREA= 14.82 ac

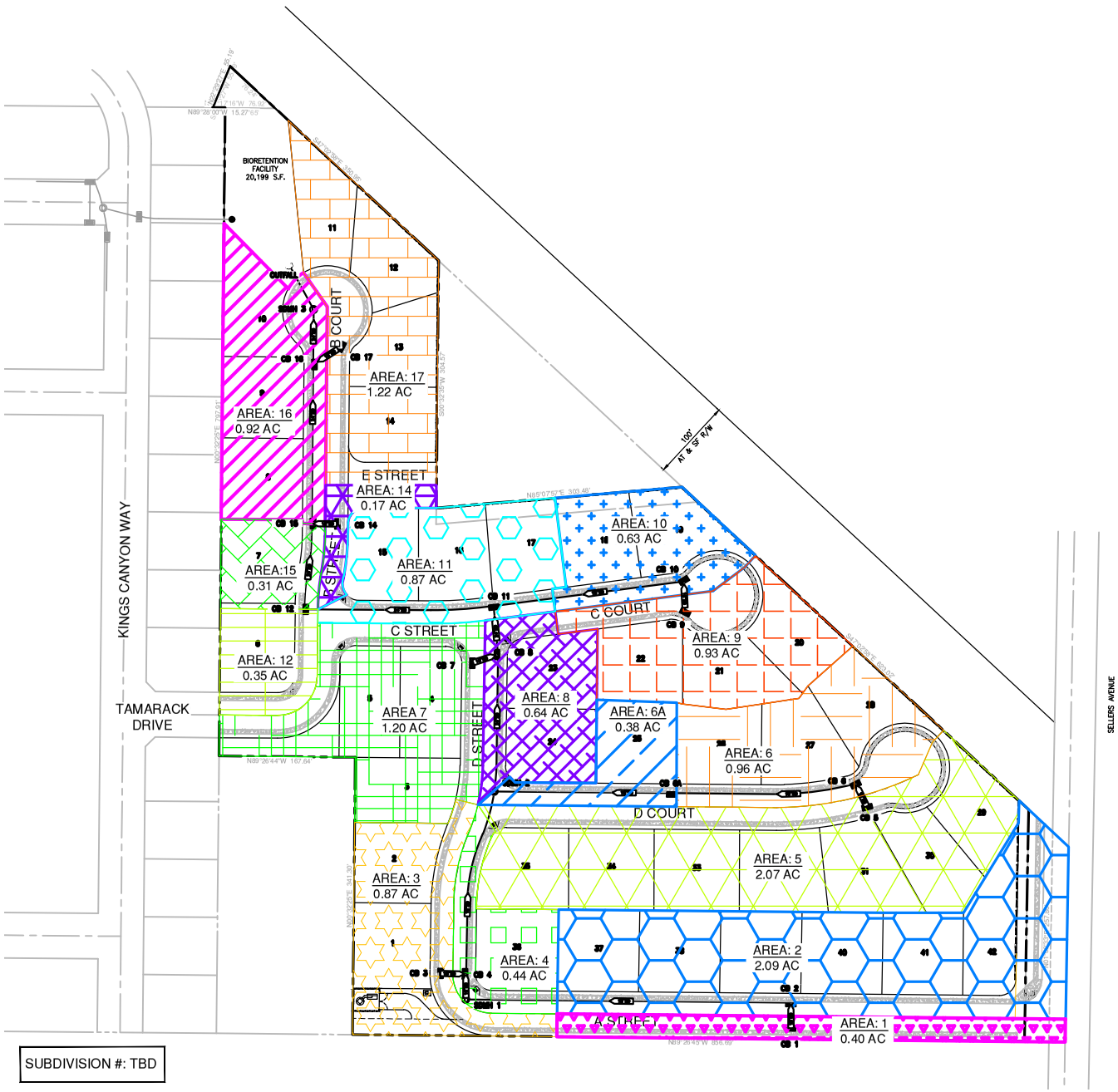
BEGINNING DESIGN DATA: ROOF TO GUTTER TIME = 5 min

STORM EVENT= 100 yr

MANNINGS "N" VALUE USED = 0.013

POINT OF CONCENTRATION	TRIB. AREA NO.	CONTRIB. Ac (A)	RUN OFF COEF (C)	CA	Σ CA	INTENSITY (I)	Q cfs (S CA x I)	PIPE DIA.	PIPE SLOPE FT/FT	LENGTH (FT)	Δ ELEV. (FT)	ACTUAL VELOCITY (FT/S)	d/D	HAZEN-WILLIAMS ROUGH. COEFF.	Δ Hydralic Elevation	HYD. SLOPE	T. MIN. IN PIPE	T. MIN. TOTAL	Tc (into Structure)	% of Capacity
CB-1 TO CB-2	1	0.40	0.6	0.24	0.24	1.86	0.45	18	0.0060	33	0.20	2.4	0.16	110.0	0.0537	0.0016	0.23	10.23	10.00	**5%**
CB-2 TO SDMH-1	2	2.09	0.6	1.25	1.49	1.82	2.72	18	0.0030	400	1.20	3.2	0.48	110.0	1.0836	0.0027	2.08	12.31	11.00	**47%**
SDMH-1 TO CB-4	-	0.00	0.6	0	1.49	1.78	2.65	18	0.0030	32	0.10	3.2	0.48	110.0	0.0860	0.0027	0.17	12.48	12.00	**46%**
CB-3 TO CB-4	3	0.87	0.6	0.52	0.52	1.78	0.93	18	0.0030	35	0.11	2.4	0.27	110.0	0.0550	0.0016	0.24	12.72	12.00	**16%**
CB-4 TO SDMH-2	4	0.44	0.6	0.26	2.28	1.82	4.15	18	0.0030	229	0.69	3.5	0.63	110.0	0.7475	0.0033	1.08	13.80	11.00	**72%**
CB-5 TO CB-6	5	2.07	0.6	1.24	1.24	1.78	2.21	18	0.0030	37	0.11	3.0	0.43	110.0	0.0904	0.0024	0.20	14.01	12.00	**38%**
CB-6 TO CB-6A	6	0.96	0.6	0.58	1.82	1.78	3.23	18	0.0030	227	0.68	3.3	0.54	110.0	0.6689	0.0029	1.13	15.14	12.00	**56%**
CB-6A TO SDMH-2	6A	0.38	0.6	0.23	2.05	1.73	3.55	18	0.0030	218	0.65	3.4	0.57	110.0	0.6677	0.0031	1.06	16.20	13.00	**62%**
SDMH-2 TO CB-8	-	0.00	0.6	0	4.33	1.73	7.50	24	0.0030	155	0.47	4.1	0.56	110.0	0.4812	0.0031	0.63	16.82	13.00	**61%**
CB-7 TO CB-8	7	1.20	0.6	0.72	0.72	1.69	1.22	18	0.0030	35	0.11	2.6	0.31	110.0	0.0634	0.0018	0.23	17.05	14.00	**21%**
CB-8 TO CB-11	8	0.64	0.6	0.38	5.43	1.69	9.19	24	0.0030	61	0.18	4.3	0.64	110.0	0.2058	0.0034	0.24	17.29	14.00	**74%**
CB-9 TO CB-10	9	0.93	0.6	0.56	0.56	1.69	0.94	18	0.0030	38	0.11	2.4	0.27	110.0	0.0597	0.0016	0.27	17.55	14.00	**16%**
CB-10 TO CB-11	10	0.63	0.6	0.38	0.94	1.69	1.58	18	0.0030	229	0.69	2.8	0.36	110.0	0.4737	0.0021	1.38	18.93	14.00	**28%**
CB-11 TO CB-12	11	0.87	0.6	0.52	6.89	1.65	11.37	24	0.0060	239	1.43	5.9	0.59	110.0	1.4507	0.0061	0.67	19.60	15.00	**65%**
CB-12 TO CB-15	12	0.35	0.6	0.21	7.10	1.65	11.71	24	0.0060	106	0.64	6.0	0.60	110.0	0.6504	0.0061	0.30	19.90	15.00	**67%**
CB-14 TO CB-15	14	0.17	0.6	0.10	0.10	1.65	0.17	18	0.0100	33	0.33	2.2	0.09	110.0	0.0429	0.0013	0.26	20.16	15.00	**2%**
CB-15 TO CB-16	15	0.31	0.6	0.19	7.39	1.65	12.19	24	0.0060	196	1.18	6.0	0.61	110.0	1.2212	0.0062	0.54	20.70	15.00	**70%**
CB-17 TO CB-16	17	1.22	0.6	0.73	0.73	1.73	1.27	18	0.0060	41	0.25	3.3	0.27	110.0	0.1200	0.0029	0.20	20.90	13.00	**16%**
CB-16 TO SDMH-3	16	0.92	0.6	0.55	8.67	1.78	15.40	24	0.0080	68	0.54	7.1	0.65	110.0	0.5730	0.0084	0.16	21.06	12.00	**76%**
SDMH-3 TO OUTFALL	-	0.00	0.6	0	8.67	1.78	15.40	24	0.0080	59	0.47	7.1	0.65	110.0	0.4971	0.0084	0.14	21.20	12.00	**76%**

APPENDIX B: TRIBUTARY AREA MAP



PLAN REVISIONS

NO.	DATE	REVISION

O'DELL ENGINEERING
1165 Scenic Drive, Suite A
Modesto, CA 95350
odellengineering.com

VESTING TENTATIVE MAP
OAKLEY VILLAGE
OAKLEY, CALIFORNIA

PRELIMINARY STORM DRAIN TRIBUTARY AREA MAP

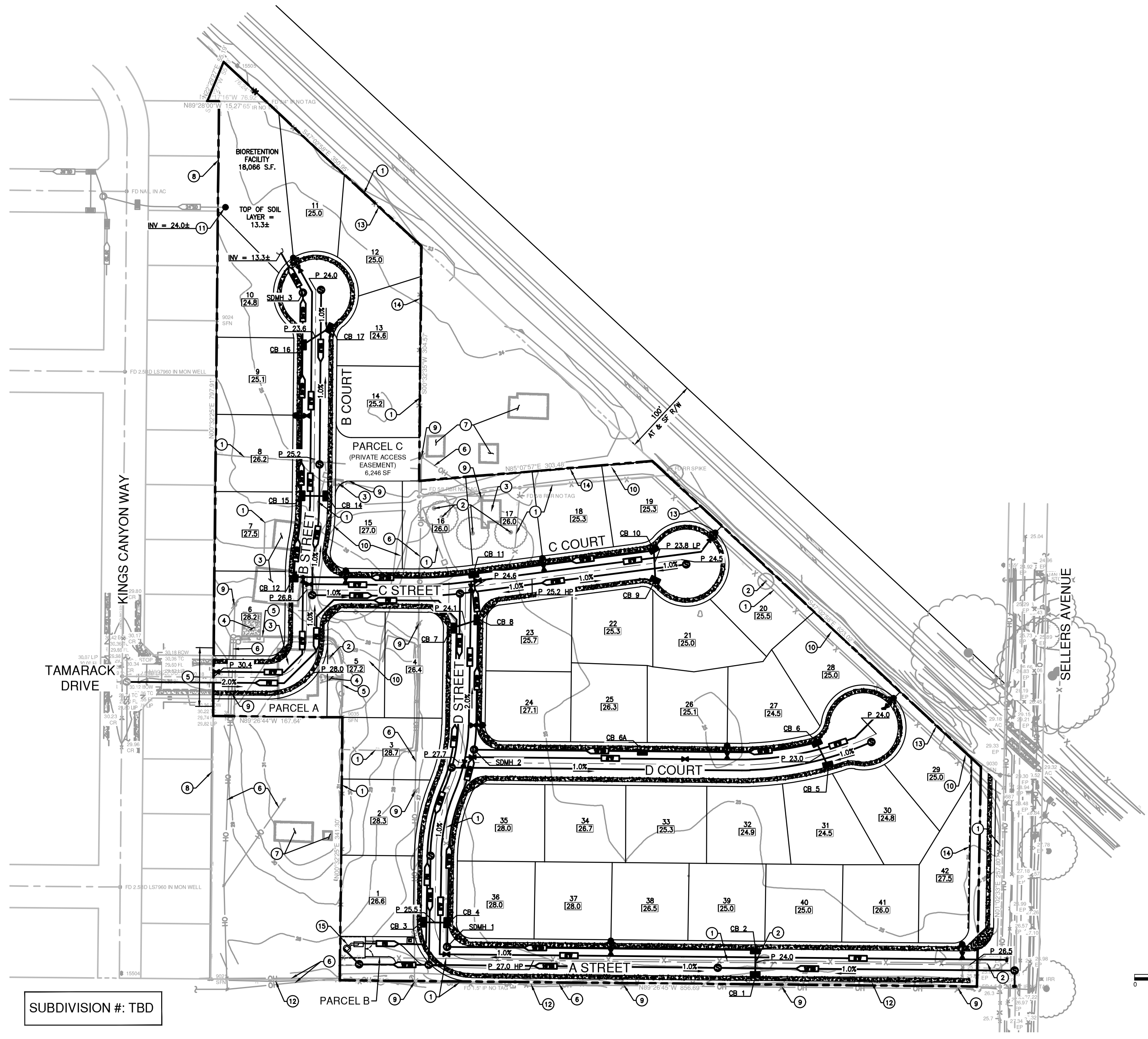
APPROVED:

DESIGNED:	MP
DRAWN:	JJB
CHECKED:	MP
SCALE:	NTS
DATE:	4/16/2021
JOB NO.:	JOB NO.:35750
FILE NO.:	35750-SD-TRIB-MAP.DWG

SHEET NO.
1
OF
1

811 Know what's below. Call before you dig.

APPENDIX C: PRELIMINARY GRADING PLAN



LEGEND

- CATCH BASIN
- STORM DRAIN MANHOLE
- FIRE HYDRANT
- SANITARY SEWER MANHOLE
- WATER VALVE
- XX"UT — UNDERGROUND UTILITY AND DIRECTION
- XX"W — UNDERGROUND WATER PIPE PIPE AND SIZE
- FM — FORCE MAIN
- XX.X — PAD ELEVATION
- MASONRY SOUND WALL
- XX.X — PAVEMENT ELEVATION
- —X— 6' CHAIN LINK FENCE

SHEET NOTES

1. EX. FENCE TO BE REMOVED
2. EX. TREE TO BE REMOVED
3. EX. STRUCTURE TO BE REMOVED
4. EX. CONCRETE TO BE REMOVED
5. 76 LF OF EX. WALL TO BE REMOVED
6. EX. OVERHEAD UTILITY TO BE REMOVED/UNDERGOUNDED
7. EX. STRUCTURE TO REMAIN
8. EX. WALL TO REMAIN
9. EX. UTILITY POLE TO BE REMOVED/RELOCATED
10. EX. ASPHALT TO BE REMOVED
11. BASIN OVERFLOW RELEASE
12. EX. FENCE TO BE PROTECTED IN PLACE
13. 10' MASONRY SOUND WALL
14. 6' MASONRY SOUND WALL
15. SEWER LIFT STATION

811 Know what's below. Call before you dig.

PLAN REVISIONS

NO.	DATE	REVISION

O'DELL ENGINEERING
1165 Scenic Drive, Suite A
Modesto, CA 95350
odellengineering.com

VESTING TENTATIVE MAP
OAKLEY VILLAGE
OAKLEY, CALIFORNIA

PRELIMINARY GRADING & DRAINAGE

APPROVED:

DESIGNED:	MP
DRAWN:	JJB
CHECKED:	MP
SCALE:	1" = 60'
DATE:	4/16/2021
JOB NO.:	JOB NO.:35750
FILE NO.:	TENATIVE MAP8-1 35750.DWG

SHEET NO.
2
OF
2

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Appendix G
Stormwater Control Plan

Stormwater Control Plan

Oakley Village
Oakley, CA

SUBMITTAL DATE: April 15, 2021

Prepared by:
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Modesto, CA 95350
209.571.1765

Client:
Edgemont Station, LLC
8880 Cal Center Drive, Suite 400
Sacramento, CA 95826

O'DELL
ENGINEERING

Table of Contents

1.0 Project Data

Table 1.1 - Project Data

Project Name	Oakley Village
Application Submittal Date	April 15, 2021
Project Location	Oakley, California
Name of Developer	Edgemont Station, LLC
Project Phase Number	Not Applicable
Project Type and Description	42 single-family homes with public streets, associated infrastructure and a bioretention facility
Project Watershed	Marsh Creek
Total Project Site Area (acres)	14.82
Total Area of Land Disturbed (acres)	14.82
Total New Impervious Surface Area (sf)	263,527 sf
Total Replaced Impervious Area Surface (sf)	96,253 sf
Total Pre-Project Impervious Surface Area (sf)	96,253 sf
Total Post-Project Impervious Surface Area (sf)	263,527sf
50% Rule	Not Applicable
Project Density	FAR = 0.34
Applicable Special Project Categories	None
Percent LID and Non-LID Treatment	100% LID Treatment
HMP Compliance	Exempt-connects to hardened channel.

2.0 Setting

2.1 Project Location and Description

Oakley Village consists of 42 single family homes, four (4) roads with sidewalks and accompanying infrastructure. The site is on a 14.82-acre parcel located in Oakley, California. It is east of Sellers Avenue and south of the AT&SF railroad tracks. There is an existing subdivision to the west. See Figures 2.0 and 2.1.

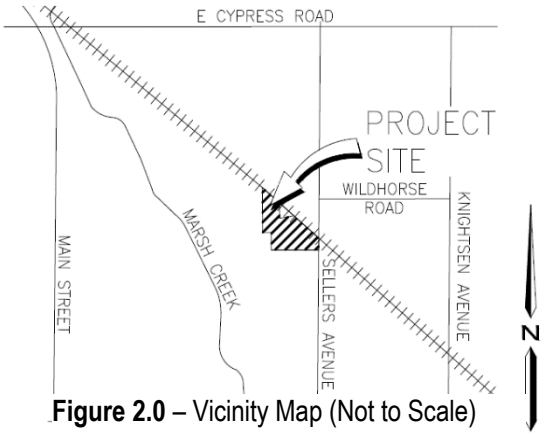


Figure 2.0 – Vicinity Map (Not to Scale)

2.2 Existing Site Features and Conditions

The 14.82-acre site is mainly undeveloped; however, there are some buildings that will need to be removed to accommodate the new development. The rest of the site is used for livestock. There are only a few trees, which will have to be removed. The topography is practically flat with relatively porous soil near the surface. The west side of the site, adjacent to the existing subdivision, is the high point currently. The low area is located in the center. The soils are mostly in Hydrologic Soil Groups C. Groundwater depths have been estimated to be between 13 and 17 feet per the geotechnical report prepared by Geocon Consultants, Inc. in May 2019. There are no swales or natural drainage features, and there is not an existing storm drain system on site. See Figure 2.1.

2.3 Opportunities and Constraints for Stormwater Control

The amount of impervious area on the site has been minimized to the extent possible by providing the opportunity for large front and rear yards on each lot. There is also landscaping on both sides of the roads in accordance with the City of Oakley Standards. It is a relatively small site that does not allow for large pervious areas.

The site contains soils with high porosity levels.

Runoff will be captured in the storm drain system in the roadways, which will be directed to a bioretention facility located in the northwest corner of the site. (See Appendix A for the location.)

Figure 2.1 – Existing Conditions (Not to Scale)

The triangular shaped Yerena property along the railroad tracks currently drains east, and the rectangular shaped Stuart property naturally drains to the south. These drainage patterns will not be altered with the development of Oakley Village. If either of these properties is developed in the future, those developers will be required to provide stormwater detention and treatment on-site for their respective runoff.

3.0 Low Impact Development Design Strategies

3.1 Optimization of Site Layout

Oakley Village is being designed to reflect the density of the surrounding developments and is consistent with the current zoning. In order to minimize street lengths and pavement area, the streets will be designed with driveways on both sides of the street. Street and sidewalk widths and the cul-de-sacs are at the minimum allowable according to City Standards and fire district requirements for residential streets. The existing low area of the site will be filled in so the drainage will flow towards the northwest corner of the site where the bioretention facility is located. (See Appendix A for the proposed site layout.)

3.2 Use of Permeable Pavements

Conventional concrete and asphalt will be used to construct the streets, sidewalks and driveways. Permeable pavements will not be cost effective for this site.

3.3 Dispersal of Runoff to Pervious Areas

Section 6.14.2 of the geotechnical report recommends that drainage should not be allowed to pond near foundations of the houses, and the City of Oakley does not support the use detention or retention on individual lots. For these reasons, dispersal of runoff to pervious areas on individual lots is not being utilized on this site. Water from individual lots and the roadways will be collected in the public storm drain system and directed to the bioretention facility.

3.4 Bioretention or Other Integrated Management Practices

A 18,066 sf bioretention facility has been designed to accommodate runoff from all 42 residential lots and the roadways on the site. Runoff will enter the facility through a storm drain pipe, where the water will be treated before it enters into the public storm drain system in Kings Canyon Way. (See Appendix A for the location of the facility and Appendix C for the Bioretention Facility Calculations.)

4.0 Documentation of Drainage Design

4.1 Descriptions of Each Drainage Management Area

The houses for the lots will be selected by the homeowner; however, the Stormwater Management Exhibit (See Appendix A) gives a reasonable assumption each lot layout. Table 4.1 shows the descriptions of the drainage management areas on the site. The entire site is draining to the bioretention facility.

Table 4.1 – Descriptions of Each Drainage Management Area

DMA Name	DMA Area (sf)	Post-Project Surface Type	Drains To
Roof	84,000	Conventional Roof	Bioretention Facility
Concrete	54,118	Concrete (Driveways/Walkways/Sidewalks)	Bioretention Facility
Pavement	125,409	Asphalt (Roadways)	Bioretention Facility
Landscaping	364,944	Landscape (Yards and in ROW)	Bioretention Facility

4.2 Drainage Management Area Descriptions

Roofs (84,000sf) drain via roof gutters to driveways and then to the street gutters and the public storm drain system, which route water to the bioretention facility.

Concrete (54,118 sf) driveways and walkways on the individual lots along with sidewalks in the right-of-way drain to the street gutters and the public storm drain system, which direct water to the bioretention facility.

Pavement (125,409 sf) in the roadways (asphalt) drains to the street gutters and the public storm drain system, which route water to the bioretention facility.

Landscaping (364,944 sf) in the rear and front yards of the individual lots and in the right-of-way drains to the street gutters and the public storm drain system, which direct water to the bioretention facility.

4.3 Integrated Management Practices

Runoff from the yards, roofs, and driveways on each individual lot will be routed to the street gutters and the public storm drain system. Runoff in the right-of-way (landscaping, sidewalks and roadways) will also be directed to the gutters and the public storm drain system. This combined runoff will drain to the bioretention facility.

The bioretention facility, which is located in the northwest corner of the site (See Appendix A), will be designed and constructed according to the criteria in the Stormwater C.3 Guidebook. The following features will be included:

- Each layer will be built flat, level and to the elevations specified in the construction plans:
  - Bottom of Gravel Layer (BGL)
  - Top of Gravel Layer (TGL)
  - Top of Soil Layer (TSL),
- A minimum of 12" of Class 2 permeable layer,
- A minimum 2" freeboard,

- A minimum of 18" of specified soil mix meeting the specifications approved by the Regional Water Quality Control Board,
- 4" diameter PVC SDR 35 perforated pipe underdrain, installed with the invert at the top of the Class 2 permeable layer with holes facing down, and connect to the overflow structure at that same elevation,
- A minimum of 6" ponding depth between the top of the soil elevation and the overflow grate elevation,
- A concrete drop inlet or manhole overflow structure with a grate set to a specified elevation and connected to the existing storm drain system,
- Plantings selected for water conservation, and
- An irrigation system with drip emitters and "smart" irrigation controllers.

These features are shown in the cross section in Appendix B.

4.4 Tabulation and Sizing Calculations

See Appendix C for the output from the IMP Sizing Calculator.

5.0 Source Control Measures

5.1 Site Activities and Potential Sources of Pollutants

On-site activities that could potentially produce stormwater pollutants include:

- On-site storm drain inlets,
- Indoor and structural pest control, and
- Landscape maintenance.

5.2 Source Control Table

Table 5.1 – Source Control Table

Potential Source of Runoff Pollutants	Permanent Source Control BMPs	Operational Source Control BMPs
On-site storm drain inlets	All inlets will be marked with the words "No Dumping! Flows to Bay" or similar.	• Maintain or periodically repaint or replace inlet markings and • Provide stormwater pollution prevention information to new homeowners.
Indoor and structural pest control	New construction will minimize the potential for pest entry	Integrated Pest Management (IPM) information will be given to new homeowners
Landscape maintenance	Final landscape plans will: • Design landscaping to minimize irrigation and runoff, promote surface infiltration where appropriate and minimize the use of fertilizers and pesticides that can contribute to stormwater pollution; • Identify pest-resistant plants, especially adjacent to hardscape, and • Select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	• Maintain landscaping using minimal or no pesticides and • Provide (IPM) information to new homeowners.

6.0 Stormwater Facility Maintenance

6.1 Ownership and Responsibility for Maintenance in Perpetuity

The bioretention facility will be located on a separate parcel in the northwest corner of the property (See Appendix A). Maintenance for the bioretention facility will be handled by a newly created Homeowners Association (HOA), subject to the provisions in the tentative map and Conditions, Covenants and Restrictions (CC&Rs) recorded against the subdivision. The applicant has reviewed the map provisions and CC&Rs provided by the City of Oakley for the applicant's review and commits to execute any additional agreements necessary to ensure uninterrupted maintenance of the facility. Applicant accepts responsibility for interim operation and maintenance of bioretention facility until this responsibility is formally transferred to the HOA.

6.2 Summary of Maintenance Requirements for the Stormwater Basin

The bioretention facility will be maintained on the following schedule at a minimum. Details of the maintenance responsibilities and procedures will be included in a Stormwater Facility Operation and Maintenance Plan to be submitted for approval as required in the conditions of approval.

At no time will synthetic pesticides or fertilizers be applied, nor will any soil amendments, other than aged compost mulch or sand/compost mix, be introduced.

Weekly: The facility will be examined for visible trash during regular policing of the site, and trash will be removed. The facility and the facility sign will be inspected for graffiti or vandalism, and any problems will be corrected.

After Significant Rain Events: A significant rain event is one that produces approximately a half-inch or more rainfall in a 24-hour period. Within 24 hours after each such event, the following will be conducted:

- The surface of the facility will be observed to confirm there is no ponding.
- Inlets will be inspected and any accumulation of trash or debris will be removed.
- The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.

Prior to the Start of the Rainy Season: In September of each year, the facility will be inspected to confirm there is no accumulation of debris that would block flow and that the growth and spread of plantings does not block inlets or the movement of runoff across the surface of the facility.

Annual Landscape Maintenance: In December – February of each year, vegetation will be cut back as needed, debris removed and plants and mulch replaced as needed. The concrete work will be inspected for damage. The elevation of the top of the soil and mulch layer will be confirmed to be consistent with the 12-inch reservoir depth.

6.3 Construction Plan C.3 Checklist

Table 6.1 – Construction Plan C.3 Checklist

Stormwater Control Plan Page #	BMP Description	See Plan Sheet #s
3, 4, 5, Appendix A, B & C	Bioretention facility constructed per criteria in the Stormwater C.3 Guidebook.	

7.0 Certifications

The selection, sizing and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049.

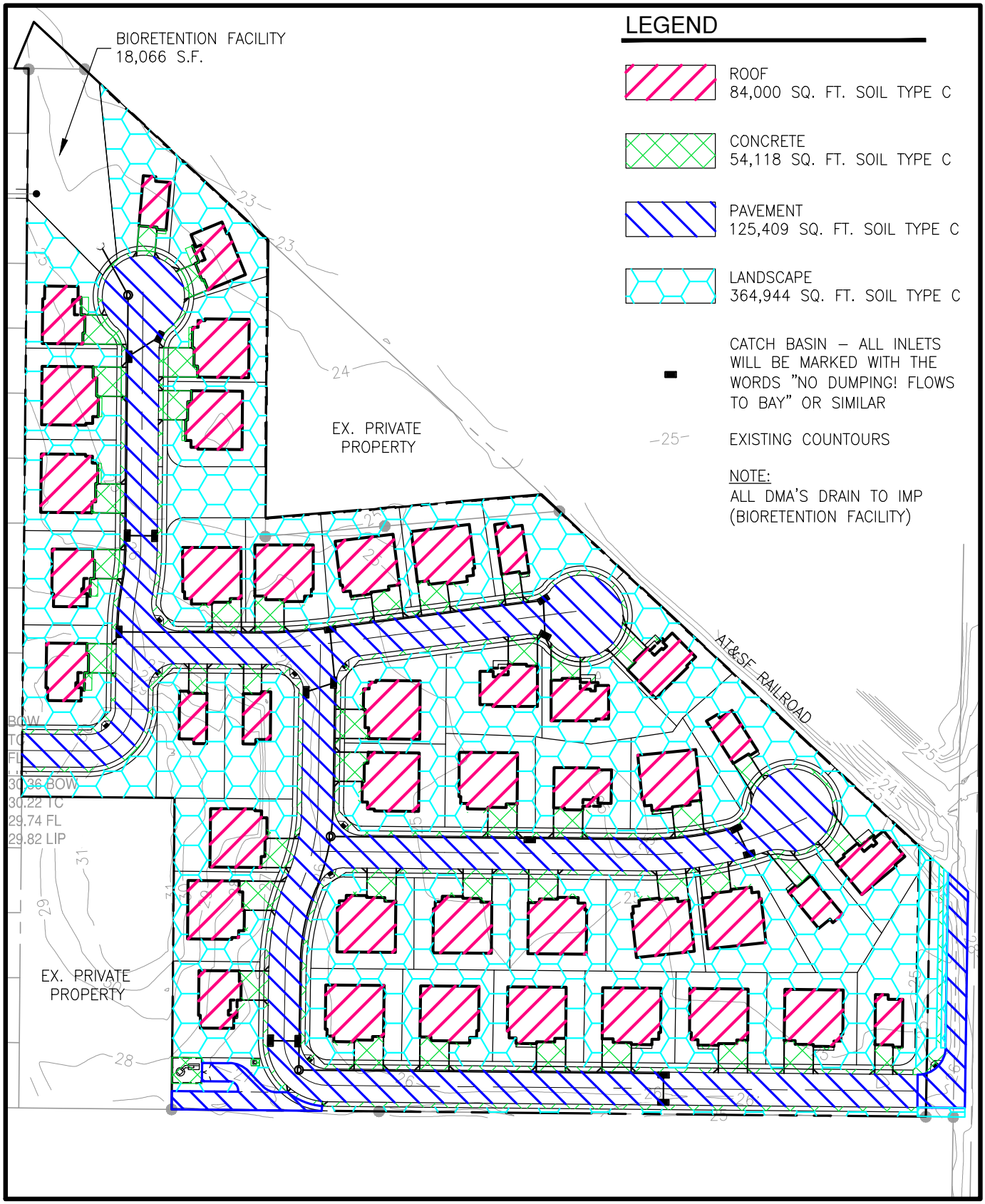
_____

Certified By

_____

Date

APPENDIX A: STORMWATER CONTROL PLAN EXHIBIT



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STORM WATER CONTROL PLAN EXHIBIT			
SCALE:	1"=150'	DATE:	4/16/2021
JOB NO.:	35750		
FILE:	DMA EXHIBIT 35750.DWG		

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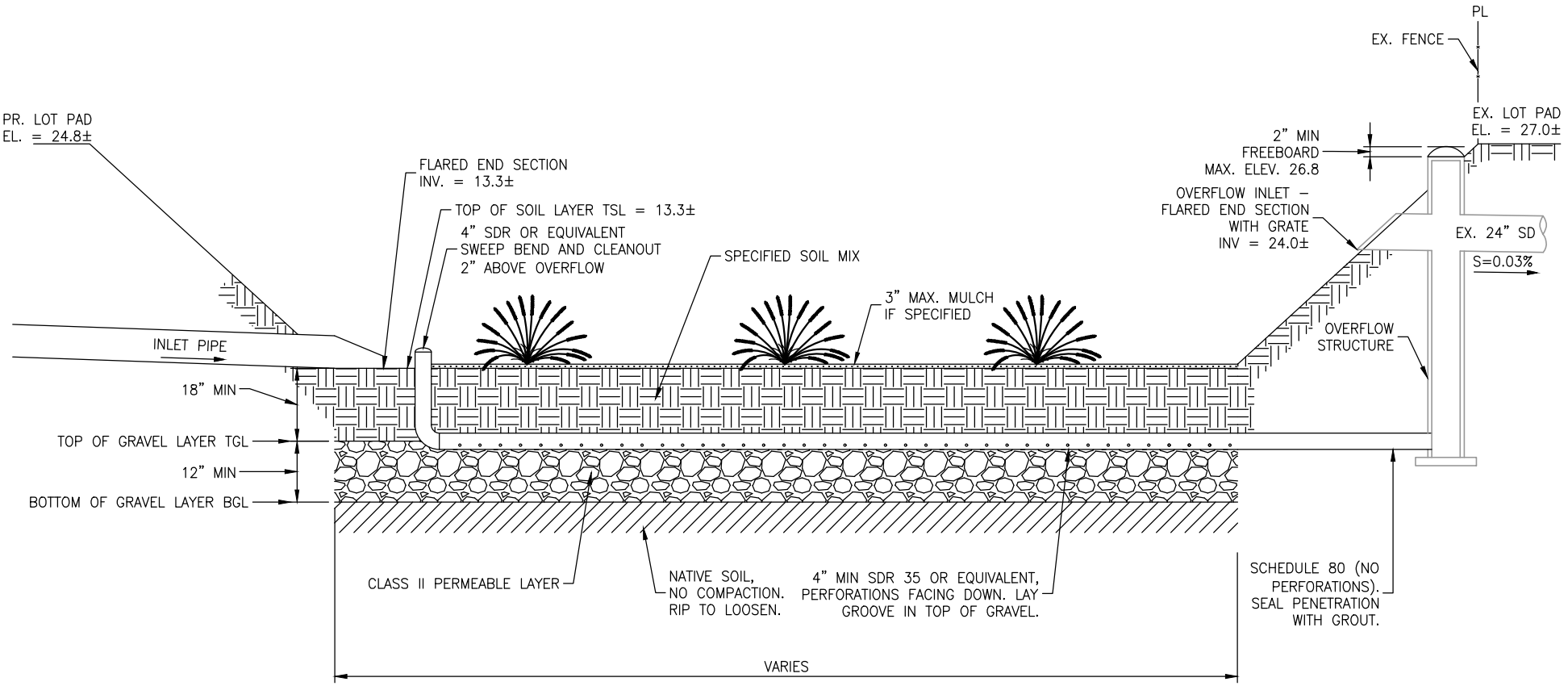
APPENDIX B: BIORETENTION FACILITY CROSS-SECTION



NOTES:

1. NO LINER, FILTER FABRIC OR LANDSCAPE CLOTH.
2. MAINTAIN BGL, TGL, TSL THROUGHOUT FACILITY AREA.
3. ELEVATION OF PERFORATED PIPE UNDERDRAIN IS ATOP GRAVEL LAYER.
4. THE RIM OF THE BIORETENTION FACILITY MUST PROVIDE A CONSISTENT 2" MINIMUM FREEBOARD.

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OAKLEY VILLAGES

OAKLEY, CALIFORNIA

BIORETENTION FACILITY CROSS SECTION

DATE:	04/14/2021	DRAWN:	AM,JJB
JOB NO:	35750	CHECKED:	VJA
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APPENDIX C: BIORETENTION FACILITY CALCULATIONS

Project Name: Oakley Villages (35750)
Project Type: Treatment Only
Location: Oakley, CA
APN: 033-150-011 & 033-150-018
Drainage Area: 646537 sf
Mean Annual Precipitation: 11 in

IV. Areas Draining to IMPs

IMP Name: Bioretention Facility (Soil Type: C)

IMP Type: Bioretention Facility
Soil Type: C

DMA Name	DMA Area (sq ft)	Post-Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
					IMP Sizing Factor	Rain Adjust-ment Factor	Minimum Area or Volume	Proposed Area or Volume
Roof	84,000	Conventional Roof	1.00	84,000				
Concrete	54,118	Concrete or Asphalt	1.00	54,118				
Pavement	125,409	Concrete or Asphalt	1.00	125,409				
Landscape	364,944	Landscape	0.10	36,494				
			Total	300,021				
				Area	0.040	1.000	12,001	18,066

Software Tool Warnings

No warnings to report.

Appendix H
Environmental Noise Assessment

Environmental Noise Assessment

Oakley Village Subdivision

City of Oakley, California

June 14, 2021

Project #210508

Prepared for:

Raney Planning and Management
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Sacramento, CA 95834

Prepared by:

Saxelby Acoustics LLC

Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

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INTRODUCTION

The Oakley Village Subdivision project consists of the development of a 42 single-family home subdivision on a 14.4-acre lot. The proposed homes will be located approximately 100 feet from the centerline of the BNSF railroad line. The project is located south of the BNSF Railroad and west of Sellers Avenue in the City of Oakley, California.

Figure 1 shows the project site plan. **Figure 2** shows an aerial photo of the project site.

ENVIRONMENTAL SETTING

BACKGROUND INFORMATION ON NOISE

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.

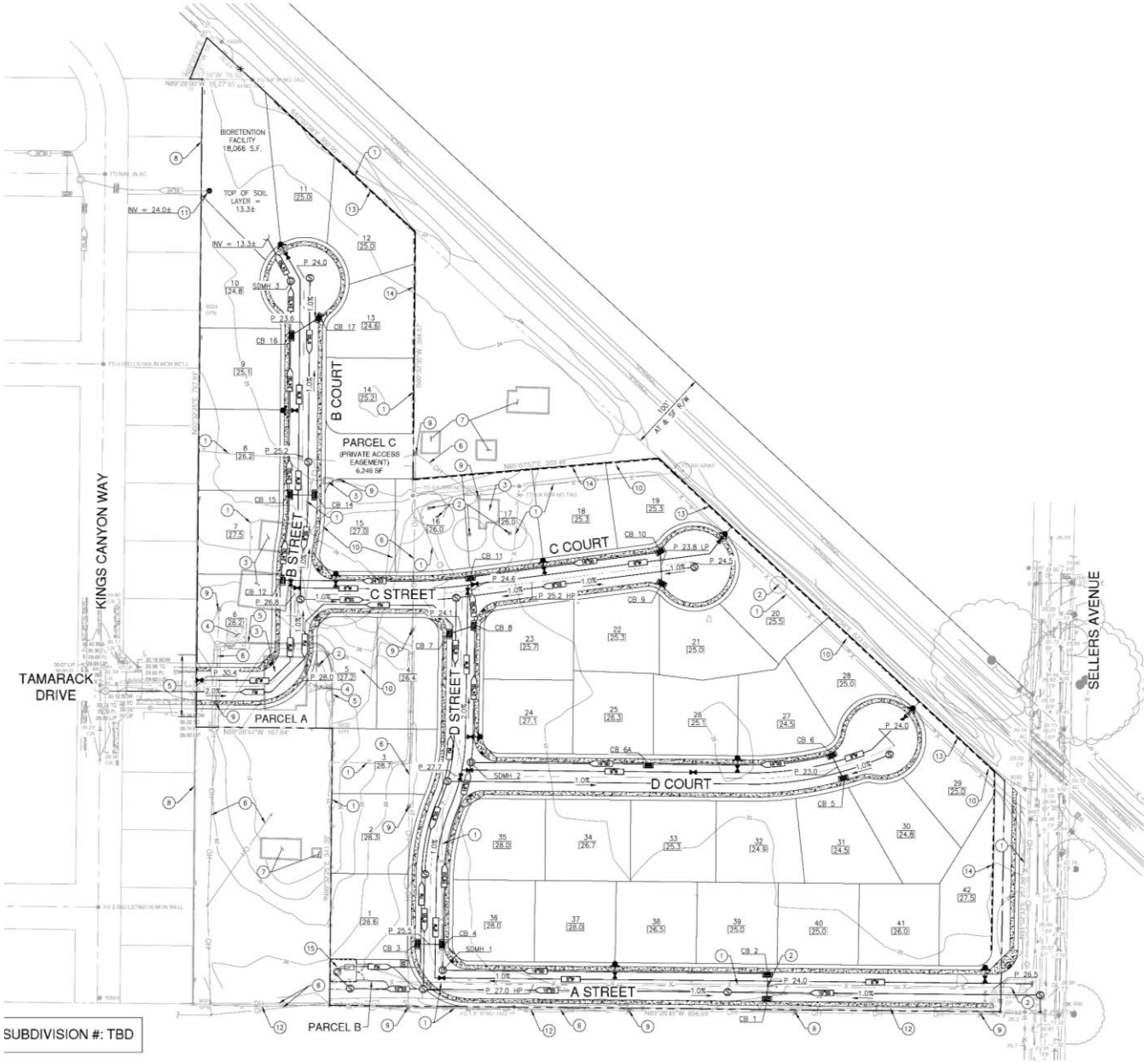
The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong 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.

Oakley Village Subdivision

City of Oakley, California

Figure 1

Project Site Plan



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Oakley Village Subdivision

Oakley, California

Figure 2

Noise Measurement Sites

Legend

- Project Site
- Noise Measurement - Long Term

0 ft 500 ft 1000 ft 1500 ft 2000 ft 2500 ft

Projection: UTM Zone 10 / WGS84 / meters
Rev. Date: 06/09/2021

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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 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 (DNL or 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.

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. September, 2013.

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.

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 AND FUTURE NOISE AND VIBRATION ENVIRONMENTS

EXISTING NOISE RECEPTORS

Some land uses are considered more sensitive to noise 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.

Sensitivity is a function of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities involved. In the vicinity of the project site, sensitive land uses include existing single-family residential uses located west and north of the project site.

EXISTING GENERAL AMBIENT NOISE LEVELS

The existing noise environment in the project area is primarily defined by rail activity on the adjacent BNSF Railroad line located along the west side of the project site. Sellers Avenue to the east of the project site also contributes to the ambient noise environment to a lesser extent.

To quantify the existing ambient noise environment in the project vicinity, Saxelby Acoustics conducted a continuous (24-hr.) noise level measurement at two locations on the project site. Noise measurement locations are shown on **Figure 2**. A summary of the noise level measurement survey results is provided in **Table 2**. **Appendix B** contains the complete results of the noise monitoring.

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 L_{50}, represents the sound level exceeded 50 percent of the time during the monitoring period.

Larson Davis Laboratories (LDL) model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with a B&K Model 4230 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).

TABLE 2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

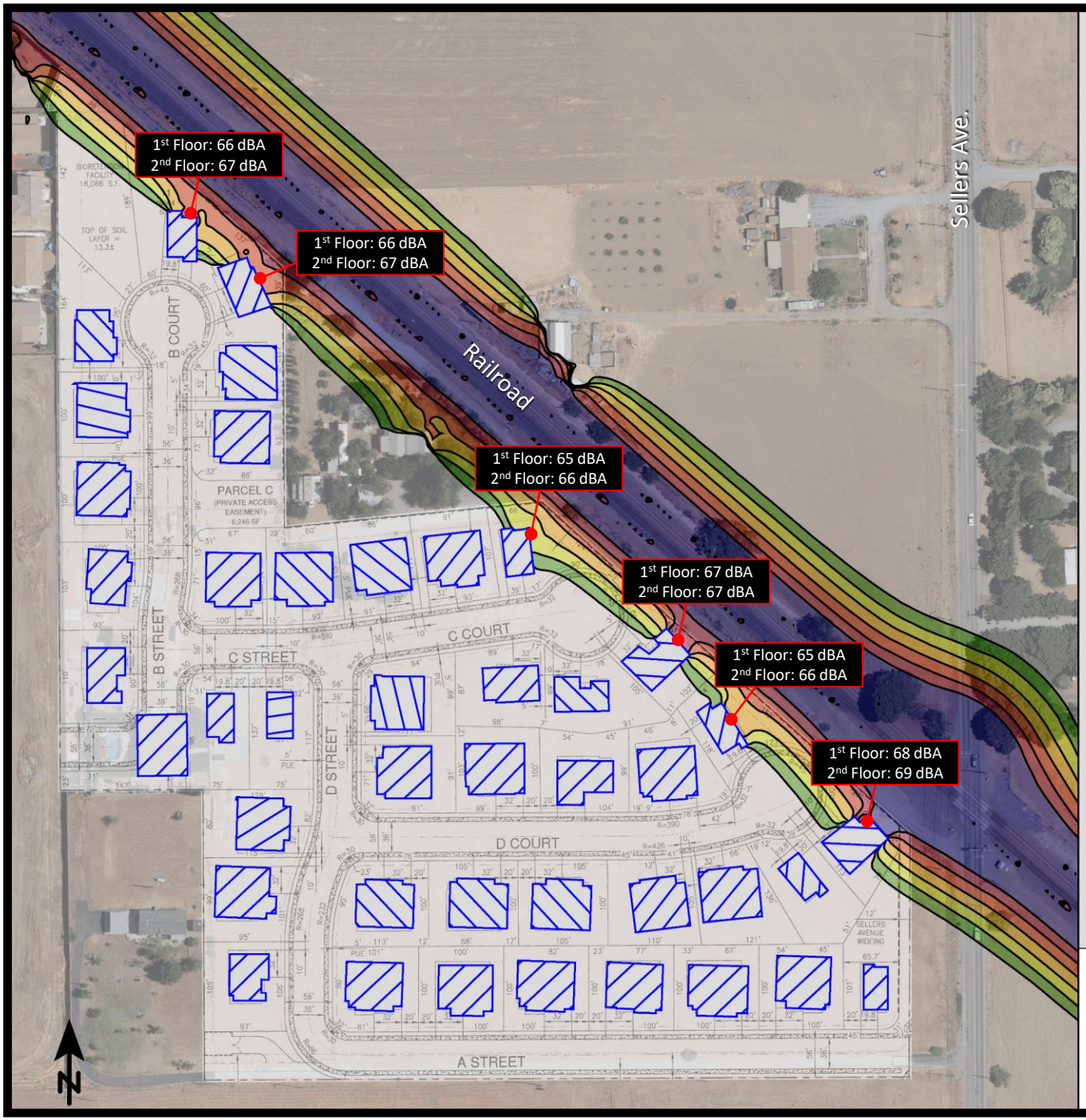
Site	Date	Average Measured Hourly Noise Levels, dBA						
			Daytime (7:00 am - 10:00 pm)			Nighttime (10:00 pm – 7:00 am)		
		CNEL/L_{dn}	L_{eq}	L_{50}	L_{max}	L_{eq}	L_{50}	L_{max}
LT-1	6/4/21	67	69	43	89	49	41	68
LT-1	6/5/21	71	70	45	87	62	39	78
LT-1	6/6/21	70	68	45	82	63	75	39
LT-1	6/7/21	73	66	47	86	67	42	70
LT-2	6/4/21	71	71	56	95	61	43	82
LT-2	6/5/21	72	72	56	97	63	43	81
LT-2	6/6/21	74	70	54	91	67	42	88
LT-2	6/7/21	73	69	56	93	67	46	84
Source: Saxelby Acoustics – 2021								

RAILROAD NOISE

To quantify noise exposure from existing train operations, a continuous (24-hour) noise level measurement survey was conducted along the existing BNSF Railroad tracks, located to the west of the project site. Based upon the noise measurement data, an average of approximately 15 freight trains traveled this line during daytime (7:00 a.m. to 10:00 p.m.) each day with 4 nighttime (10:00 p.m. to 7:00 a.m.) trains each day.

Noise measurement equipment consisted of Larson Davis Laboratories (LDL) model 820 precision integrating sound level meters. The meters were calibrated using a CAL200 acoustical calibrator before and after testing. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Based upon the 24-hour noise measurement data, Saxelby Acoustics used the SoundPLAN noise model to calculate existing railroad noise levels across the proposed project site. 1 dB was added to existing noise levels to account for potential future increases in railroad activity. The results of this analysis are shown graphically on **Figure 3**.



Oakley Village Subdivision

City of Oakley, California

Figure 3

Future (2042) Transportation Noise Contours (dBA L_{dn})

Signs and symbols

Proposed Building

Levels in dB(A)

<= 65
65 - 66
66 - 67
67 - 68
68 - 69
69 - 70
> 70

1 : 2000

0 10 20 40 60 80 m

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FUTURE TRAFFIC NOISE ENVIRONMENT AT OFF-SITE RECEPTORS

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at sensitive receptors for existing and existing plus project conditions.

Existing noise levels due to traffic are calculated using the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108). The 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 traffic noise levels in terms of L_{dn}, it is necessary to adjust the input volume to account for the day/night distribution of traffic.

Project trip generation volumes were provided by the project traffic engineer. Truck usage and vehicle speeds on the local area roadways were estimated from field observations. The predicted increases in traffic noise levels on the local roadway network for Existing and Existing Plus Project conditions which would result from the project are provided in terms of L_{dn}.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each project-area roadway segment. In some locations sensitive receptors may not receive full shielding from noise barriers, or may be located at distances which vary from the assumed calculation distance.

Table 4 summarizes the modeled traffic noise levels at the nearest sensitive receptors along Sellers Avenue in the Project area. **Appendix C** provides the complete inputs and results of the FHWA traffic modeling.

TABLE 3: EXISTING TRAFFIC NOISE LEVEL AND PROJECT-RELATED TRAFFIC NOISE LEVEL INCREASES

Roadway	Segment	Predicted Exterior Noise Level (dBA L_{dn}) at Closest Sensitive Receptors		
		Existing No Project	Existing + Project	Change
Sellers Avenue	E Cypress Road to Delta Road	62.7	63.1	0.4

CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed project, including roads, water and sewer lines, and related infrastructure, noise from construction activities would temporarily add to the noise environment in the project vicinity. As shown in **Table 4**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 4: CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dBA at 50 feet
Auger Drill Rig	84
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: *Roadway Construction Noise Model User's Guide*. Federal Highway Administration. FHWA-HEP-05-054. January 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed project would occur during construction when activities such as grading, utilities placement, and parking lot construction occur. **Table 5** shows the typical vibration levels produced by construction equipment.

TABLE 5: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

Type of Equipment	Peak Particle Velocity at 25 feet (inches/second)	Peak Particle Velocity at 50 feet (inches/second)	Peak Particle Velocity 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 (Less than 0.20 at 26 feet)	0.074	0.026

Source: *Transit Noise and Vibration Impact Assessment Guidelines.* Federal Transit Administration. May 2006.

REGULATORY CONTEXT

FEDERAL

There are no federal regulations related to noise that apply to the Proposed Project.

STATE

There are no state regulations related to noise that apply to the Proposed Project.

LOCAL

City of Oakley General Plan

The 2020 Oakley General Plan Noise Element outlines criteria for "non-transportation" or "locally regulated" noise sources. The noise level performance standards for non-transportation noise in Oakley are shown in **Table 6**.

TABLE 6: NOISE LEVEL PERFORMANCE STANDARDS FOR NEW PROJECTS AFFECTED BY OR INCLUDING NON-TRANSPORTATION NOISE SOURCES

Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq}, dB	55	45

1. Each of the noise levels specified above shall be lowered by five dB for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises (e.g., humming sounds, outdoor speaker systems). These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).

2. The City can impose noise level standards which are more restrictive than those specified above based upon determination of existing low ambient noise levels.

3. Fixed noise sources which are typically of concern include, but are not limited to the following:

HVAC Systems	Cooling Towers/Evaporative Condensers
Pump Stations	Lift Stations
Emergency Generators	Boilers
Steam Valves	Steam Turbines
Generators	Fans
Air Compressors	Heavy Equipment
Conveyor Systems	Transformers
Pile Drivers	Grinders
Drill Rigs	Gas or Diesel Motors
Welders	Cutting Equipment
Outdoor Speakers	Blowers

4. The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities including pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.

Table 7 shows the City of Oakley's maximum allowable noise exposure to transportation sources at outdoor and indoor spaces. For single-family residential uses, the maximum transportation noise level allowed at outdoor activity areas is 65 dBA L_{dn} and the maximum interior noise level allowed is 45 dBA L_{dn}.

TABLE 7: MAXIMUM ALLOWABLE NOISE EXPOSURE TRANSPORTATION NOISE SOURCES

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces	
		L_{dn}/CNEL,dB	L_{eq}, dB[2]
Residential	65	45	--
Transient Lodging	65[3]	45	--
Hospitals, Nursing Homes	65	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

1. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
   Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
2. As determined for a typical worst-case hour during periods of use.
3. In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.

The 2020 Oakley General Plan Noise Element also provides Land Use Compatibility guidelines. The chart is used to determine the compatibility of a project use with the ambient noise environment. These guidelines are shown in **Figure 4**. Based upon **Figure 4**, residential uses are considered normally acceptable in ambient noise environments up to 60 dBA L_{dn}, and conditionally acceptable in noise environments up to 70 dBA L_{dn}.

FIGURE 4: OAKLEY LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS

Criteria for Acceptable Vibration

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 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.

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 8**, 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 8 indicates that the threshold for architectural damage to structures is 0.20 in/sec p.p.v. A threshold of 0.2 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 8: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

Peak Particle Velocity		Human Reaction	Effect on Buildings
mm/second	in/second		
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. TAV-02-01-R9601. February 20, 2002.

IMPACTS AND MITIGATION MEASURES

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-c]).

Would the project:

a. Generate 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?

b. Generate excessive groundborne vibration or groundborne noise levels?

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?

Noise Level Increase Criteria for Long-Term Project-Related Noise Level Increases

The California Environmental Quality Act (CEQA) guidelines define a significant impact of a project if it "increases substantially the ambient noise levels for adjoining areas." Generally, a project may have a significant effect on the environment if it will substantially increase the ambient noise levels for adjoining areas or expose people to severe noise levels. In practice, more specific professional standards have been developed. These standards state that a noise impact may be considered significant if it would generate noise that would conflict with local project criteria or ordinances, or substantially increase noise levels at noise sensitive land uses. The potential increase in traffic noise from the project is a factor in determining significance. Research into the human perception of changes in sound level indicates the following:

- A 3-dB change is barely perceptible,
- A 5-dB change is clearly perceptible, and
- A 10-dB change is perceived as being twice or half as loud.

A limitation of using a single noise level increase value to evaluate noise impacts is that it fails to account for pre-project noise conditions. **Table 9** is based upon recommendations made by the City of Oakley General Plan Noise Element to provide guidance in the assessment of changes in ambient noise levels resulting from roadway improvement projects.

TABLE 9: SIGNIFICANCE OF CHANGES IN NOISE EXPOSURE

Ambient Noise Level Without Project, Ldn	Increase Required for Significant Impact
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more

Source: City of Oakley General Plan Noise Element

Based on the **Table 9** data, an increase in the traffic noise level of 5 dB or more would be significant where the pre-project noise levels are less than 60 dB Ldn, or 3 dB or more where existing noise levels are between 60 to 65 dB Ldn. Extending this concept to higher noise levels, an increase in the traffic noise level of 1.5 dB or more may be significant where the pre-project traffic noise level exceeds 65 dB Ldn. The rationale for the **Table 9** criteria is that, as ambient noise levels increase, a smaller increase in noise resulting from a project is sufficient to cause annoyance.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

IMPACT 1: WOULD THE PROJECT GENERATE 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?

Traffic Noise Increases

Based upon the **Table 9** criteria, where existing traffic noise levels are greater than 65 dB L_{dn}, at the outdoor activity areas of noise-sensitive uses, a +1.5 dB L_{dn} increase in roadway noise levels will be considered significant. As shown in **Table 3**, the maximum increase in traffic noise at the nearest sensitive receptor is predicted to be 0.4 dBA under the proposed project. Therefore, impacts resulting from increased traffic noise would be considered ***less-than-significant***.

Operational Noise at Existing Sensitive Receptors

The proposed project would include typical residential noise which would be compatible with the adjacent existing residential uses. Therefore, impacts resulting from project operational noise would be considered ***less-than-significant***.

Construction Noise

During the construction phases of the project, noise from construction activities would add to the noise environment in the immediate project vicinity. As indicated in **Table 4**, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dBA L_{max} at a distance of 50 feet. Construction activities would also 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 project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from the construction site. This noise increase would be of short duration, and would occur during daytime hours.

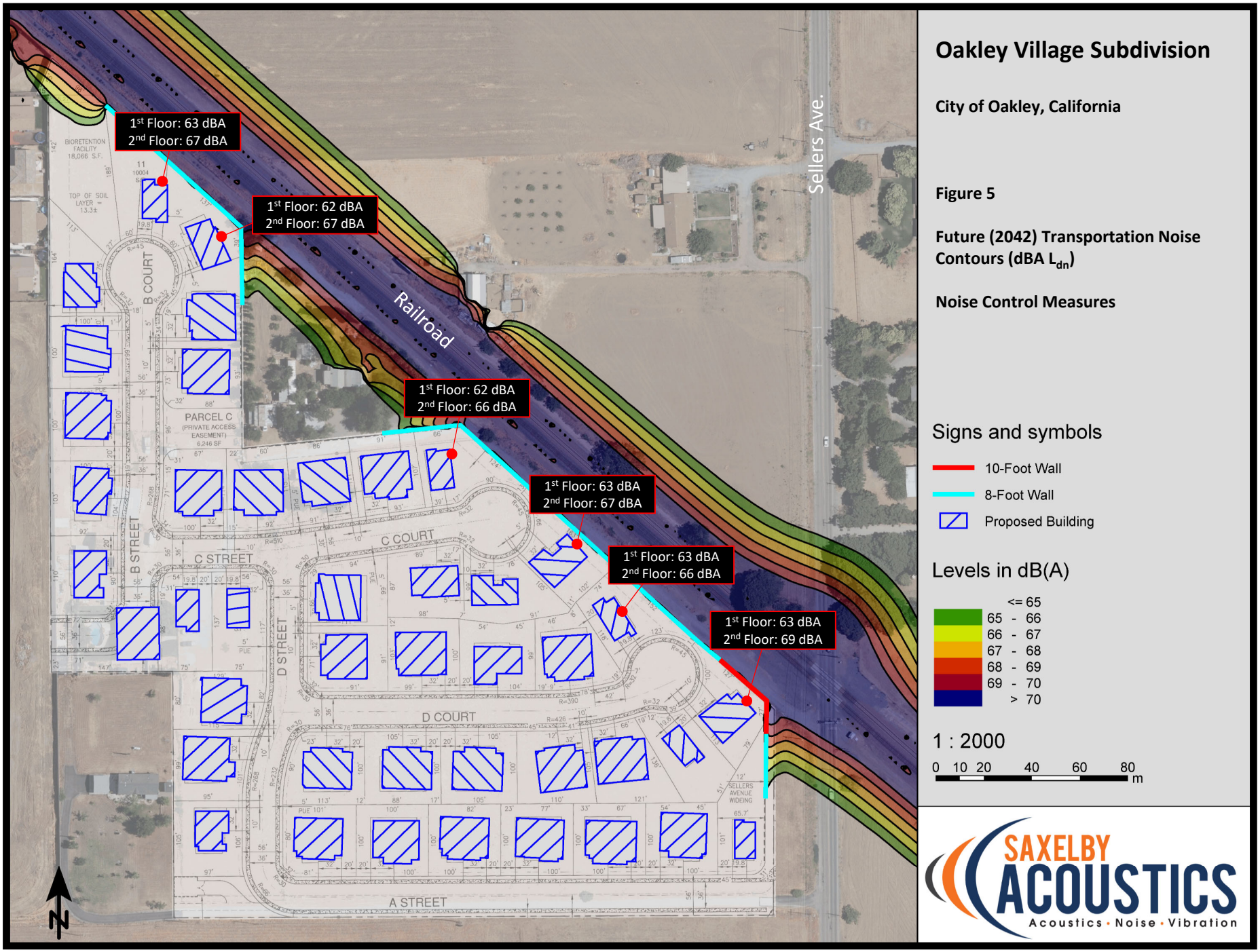
Noise from localized point sources (such as construction sites) typically decreases by approximately 6 dBA with each doubling of distance from source to receptor. Given this noise attenuation rate and assuming no noise shielding from either natural or human-made features (e.g., trees, buildings, fences), outdoor receptors within approximately 1,600 feet of construction sites could experience maximum instantaneous noise levels of greater than 60 dBA when on-site construction-related noise levels exceed approximately 90 dBA at the boundary of the construction site. As previously discussed, nearby noise-sensitive receptors consist predominantly of residential dwellings located near the western and northern boundaries of the project site.

The City of Oakley Noise Ordinance places limitations on the acceptable hours of construction. During development of the proposed project, construction activities may not occur outside of the hours of 7:30 a.m. to 7:00 p.m. Monday through Friday, and 9:00 a.m. to 7:00 p.m. on Saturdays, Sundays, and holidays. Additionally, there are several residential uses approximately 30 feet from the project site which may be subject to construction noise. As a result, noise-generating construction activities would be considered to have a potentially significant short-term impact.

Exterior noise at New Sensitive Receptors (Non-CEQA Issue)

Exterior Transportation Noise

As shown on **Figure 3**, the western boundary of the project site is predicted to be exposed to exterior noise levels up to approximately 70 dBA L_{dn}. This would exceed the 65 dB limit for outdoor activity areas of new residential uses. Exterior noise control measures would be recommended to ensure that future residents are not exposed to exterior noise levels exceeding City standards. Various sound wall heights were analyzed using the SoundPLAN noise modeling software. As shown in **Figure 5**, future exterior noise levels can be reduced to less than 65 dBA L_{dn} along the western project boundary with the use of 8-foot and 10-foot-tall sound walls.



Oakley Village Subdivision

City of Oakley, California

Figure 5

Future (2042) Transportation Noise Contours (dBA L_{dn})

Noise Control Measures

Signs and symbols

- 10-Foot Wall
- 8-Foot Wall
- Proposed Building

Levels in dB(A)

<= 65
65 - 66
66 - 67
67 - 68
68 - 69
69 - 70
> 70

1 : 2000

0 10 20 40 60 80 m

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Interior Transportation Noise

Based upon **Figure 3**, the proposed project would be exposed to exterior noise levels of up to 68 dBA L_{dn} at the ground floor building facades closest to the BNSF railroad. Second floor locations would be exposed to noise levels up to 69 dBA L_{dn}.

Modern building construction methods typically yield an exterior-to-interior noise level reduction of 25 dBA. Therefore, where exterior noise levels are 70 dBA L_{dn}, or less, no additional interior noise control measures are typically required. For this project, exterior noise levels are predicted to be up to 69 dBA L_{dn}, resulting in an interior noise level of 44 dBA L_{dn} based on typical building construction. This would comply with the City's 45 dBA L_{dn} interior noise level standard.

Therefore, no additional noise control measures would be required.

Mitigation Measure

1(a) The County shall establish the following as conditions of approval for any permit that results in the use of construction equipment:

- Construction activities shall be limited to between the daytime hours of 7:30 a.m. to 7:00 p.m. Monday through Friday, and 9:00 a.m. to 7:00 p.m. on Saturdays, Sundays, and holidays.
- Construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- When not in use, motorized construction equipment shall not be left idling for more than 5 minutes.
- Stationary equipment (power generators, compressors, etc.) shall be located at the furthest practical distance from nearby noise-sensitive land uses or sufficiently shielded to reduce noise-related impacts.

Timing/Implementation: Implemented prior to approval of grading and/or building permits
Enforcement/Monitoring: City of Oakley Community Development Services Department

Implementation of mitigation measure 1(a) would help to reduce construction-generated noise levels. With mitigation, this impact would be considered ***less-than-significant***.

Recommended Condition of Approval

Prior to approval of project improvement plans, the plans for the proposed project shall show that the first-row lots shall be shielded from the BNSF railroad through the use of minimum masonry sound walls per the approval of the City Engineer. The heights and approximate locations of these barriers are shown on ***Figure 5****. Other types of barrier may be employed but shall be reviewed by an acoustical engineer prior to being constructed.*

IMPACT 2: WOULD THE PROJECT GENERATE EXCESSIVE GROUNDBORNE VIBRATION OR GROUNDBORNE NOISE LEVELS?

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.

The **Table 5** data indicate that construction vibration levels anticipated for the project are less than the 0.2 in/sec threshold at distances of 26 feet. Sensitive receptors which could be impacted by construction related vibrations, especially vibratory compactors/rollers, are located approximately 26 feet, or further, from typical construction activities. 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.

This is a **less-than-significant** impact and no mitigation is required.

IMPACT 3: 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?

There are no airports within two miles of the proposed project. Therefore, this is a **less-than-significant** impact and no mitigation is required.

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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.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
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 +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	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 L50 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.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
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.
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 pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
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. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
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.

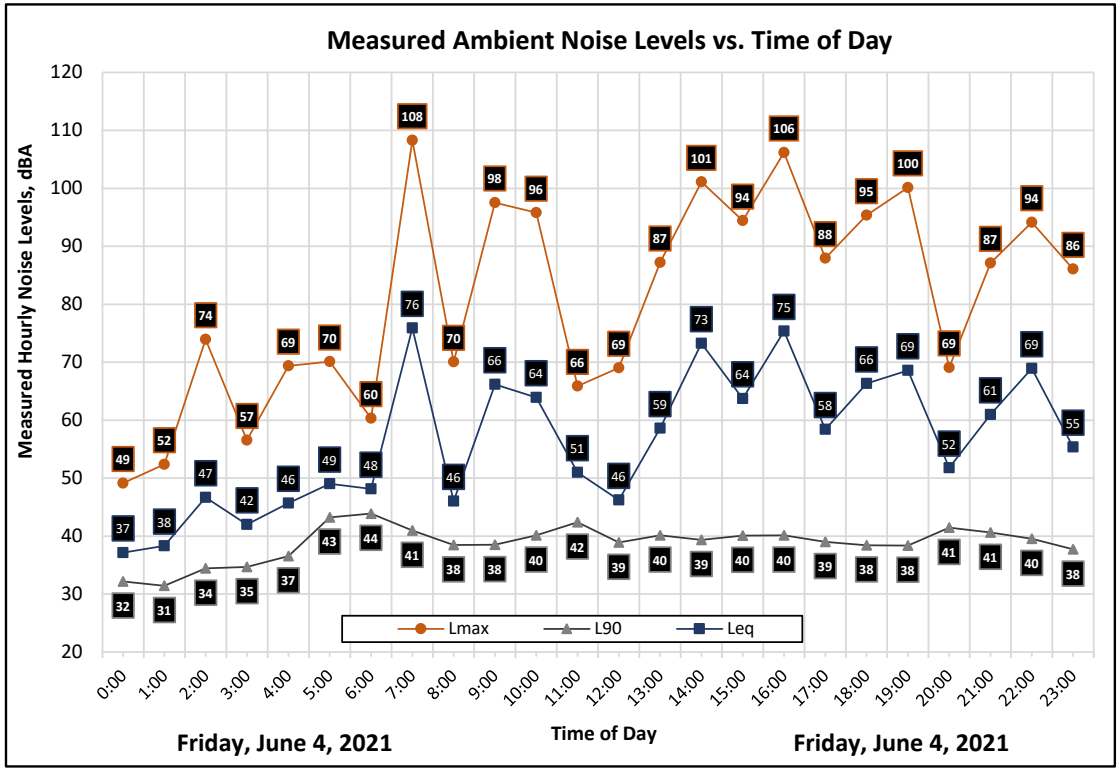
Appendix B: Continuous Ambient Noise Measurement Results

Appendix B1a: Continuous Noise Monitoring Results

Site: LT-1
Project: Oakley Village Subdivision
Meter: LDL 820-4
Location: Northeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9801085°, -121.6791566°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Friday, June 4, 2021	0:00	37	49	35	32
Friday, June 4, 2021	1:00	38	52	34	31
Friday, June 4, 2021	2:00	47	74	38	34
Friday, June 4, 2021	3:00	42	57	38	35
Friday, June 4, 2021	4:00	46	69	42	37
Friday, June 4, 2021	5:00	49	70	47	43
Friday, June 4, 2021	6:00	48	60	47	44
Friday, June 4, 2021	7:00	76	108	44	41
Friday, June 4, 2021	8:00	46	70	42	38
Friday, June 4, 2021	9:00	66	98	42	38
Friday, June 4, 2021	10:00	64	96	44	40
Friday, June 4, 2021	11:00	51	66	49	42
Friday, June 4, 2021	12:00	46	69	43	39
Friday, June 4, 2021	13:00	59	87	44	40
Friday, June 4, 2021	14:00	73	101	44	39
Friday, June 4, 2021	15:00	64	94	44	40
Friday, June 4, 2021	16:00	75	106	44	40
Friday, June 4, 2021	17:00	58	88	42	39
Friday, June 4, 2021	18:00	66	95	41	38
Friday, June 4, 2021	19:00	69	100	43	38
Friday, June 4, 2021	20:00	52	69	45	41
Friday, June 4, 2021	21:00	61	87	44	41
Friday, June 4, 2021	22:00	69	94	42	40
Friday, June 4, 2021	23:00	55	86	42	38

Statistics	Leq	Lmax	L50	L90
Day Average	69	89	43	40
Night Average	49	68	41	37
Day Low	46	66	41	38
Day High	76	108	49	42
Night Low	37	49	34	31
Night High	55	94	47	44
Ldn	67	Day %		99
CNEL	68	Night %		1

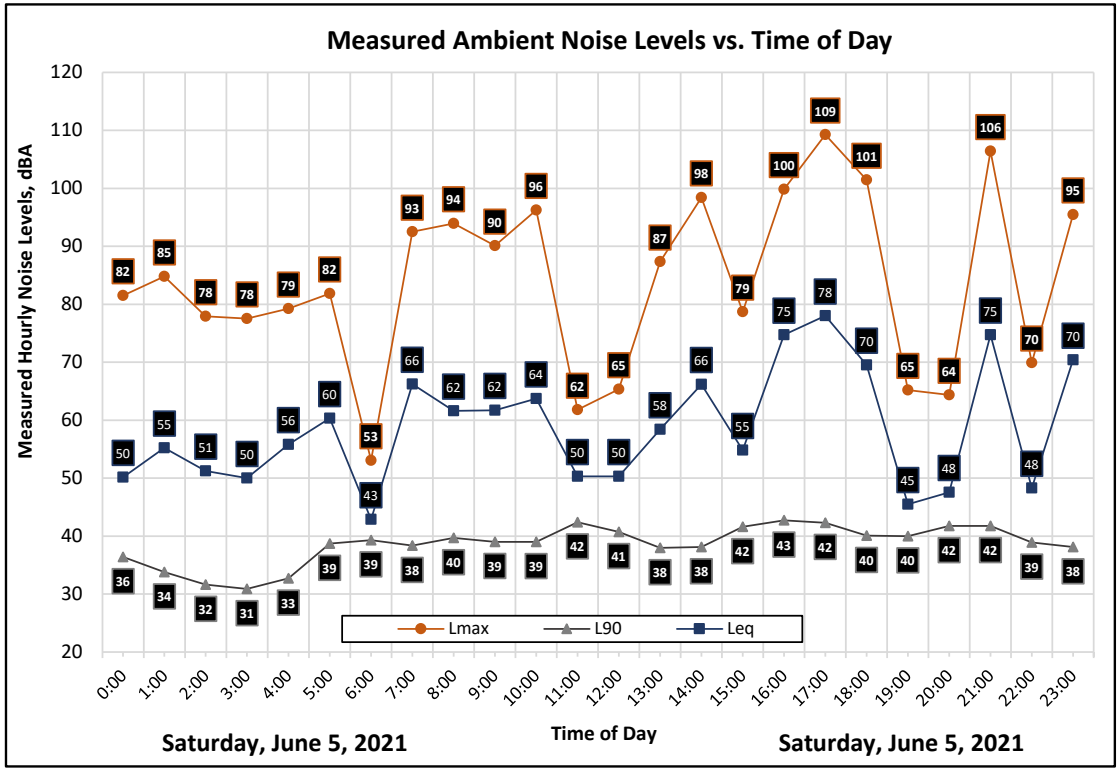


Appendix B1b: Continuous Noise Monitoring Results

Site: LT-1
Project: Oakley Village Subdivision
Meter: LDL 820-4
Location: Northeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9801085°, -121.6791566°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, June 5, 2021	0:00	50	82	41	36
Saturday, June 5, 2021	1:00	55	85	37	34
Saturday, June 5, 2021	2:00	51	78	35	32
Saturday, June 5, 2021	3:00	50	78	34	31
Saturday, June 5, 2021	4:00	56	79	36	33
Saturday, June 5, 2021	5:00	60	82	42	39
Saturday, June 5, 2021	6:00	43	53	42	39
Saturday, June 5, 2021	7:00	66	93	41	38
Saturday, June 5, 2021	8:00	62	94	42	40
Saturday, June 5, 2021	9:00	62	90	43	39
Saturday, June 5, 2021	10:00	64	96	45	39
Saturday, June 5, 2021	11:00	50	62	48	42
Saturday, June 5, 2021	12:00	50	65	46	41
Saturday, June 5, 2021	13:00	58	87	42	38
Saturday, June 5, 2021	14:00	66	98	42	38
Saturday, June 5, 2021	15:00	55	79	48	42
Saturday, June 5, 2021	16:00	75	100	49	43
Saturday, June 5, 2021	17:00	78	109	49	42
Saturday, June 5, 2021	18:00	70	101	44	40
Saturday, June 5, 2021	19:00	45	65	43	40
Saturday, June 5, 2021	20:00	48	64	45	42
Saturday, June 5, 2021	21:00	75	106	44	42
Saturday, June 5, 2021	22:00	48	70	43	39
Saturday, June 5, 2021	23:00	70	95	41	38

Statistics	Leq	Lmax	L50	L90
Day Average	70	87	45	40
Night Average	62	78	39	36
Day Low	45	62	41	38
Day High	78	109	49	43
Night Low	43	53	34	31
Night High	70	95	43	39
Ldn	71	Day %		92
CNEL	72	Night %		8

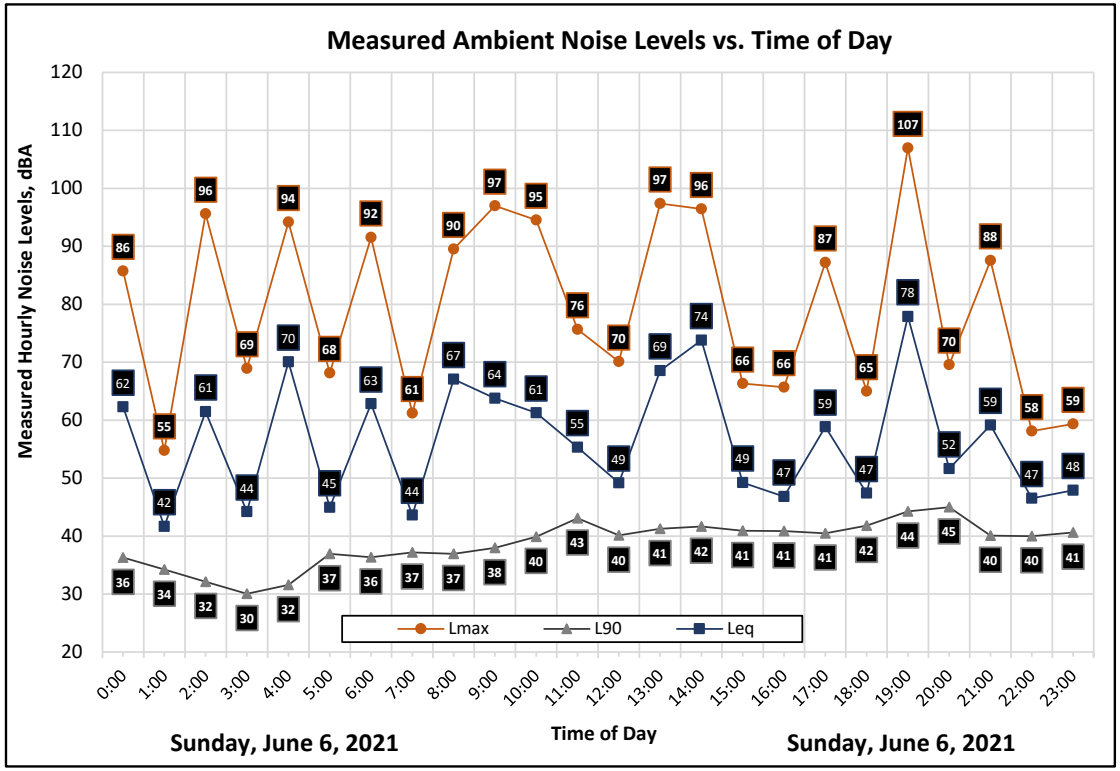


Appendix B1c: Continuous Noise Monitoring Results

Site: LT-1
Project: Oakley Village Subdivision
Meter: LDL 820-4
Location: Northeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9801085°, -121.6791566°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, June 6, 2021	0:00	62	86	41	36
Sunday, June 6, 2021	1:00	42	55	39	34
Sunday, June 6, 2021	2:00	61	96	35	32
Sunday, June 6, 2021	3:00	44	69	33	30
Sunday, June 6, 2021	4:00	70	94	35	32
Sunday, June 6, 2021	5:00	45	68	40	37
Sunday, June 6, 2021	6:00	63	92	39	36
Sunday, June 6, 2021	7:00	44	61	40	37
Sunday, June 6, 2021	8:00	67	90	40	37
Sunday, June 6, 2021	9:00	64	97	44	38
Sunday, June 6, 2021	10:00	61	95	45	40
Sunday, June 6, 2021	11:00	55	76	51	43
Sunday, June 6, 2021	12:00	49	70	44	40
Sunday, June 6, 2021	13:00	69	97	45	41
Sunday, June 6, 2021	14:00	74	96	47	42
Sunday, June 6, 2021	15:00	49	66	45	41
Sunday, June 6, 2021	16:00	47	66	44	41
Sunday, June 6, 2021	17:00	59	87	44	41
Sunday, June 6, 2021	18:00	47	65	45	42
Sunday, June 6, 2021	19:00	78	107	48	44
Sunday, June 6, 2021	20:00	52	70	49	45
Sunday, June 6, 2021	21:00	59	88	45	40
Sunday, June 6, 2021	22:00	47	58	45	40
Sunday, June 6, 2021	23:00	48	59	46	41

Statistics	Leq	Lmax	L50	L90
Day Average	68	82	45	41
Night Average	63	75	39	35
Day Low	44	61	40	37
Day High	78	107	51	45
Night Low	42	55	33	30
Night High	70	96	46	41
Ldn	70	Day %		87
CNEL	72	Night %		13

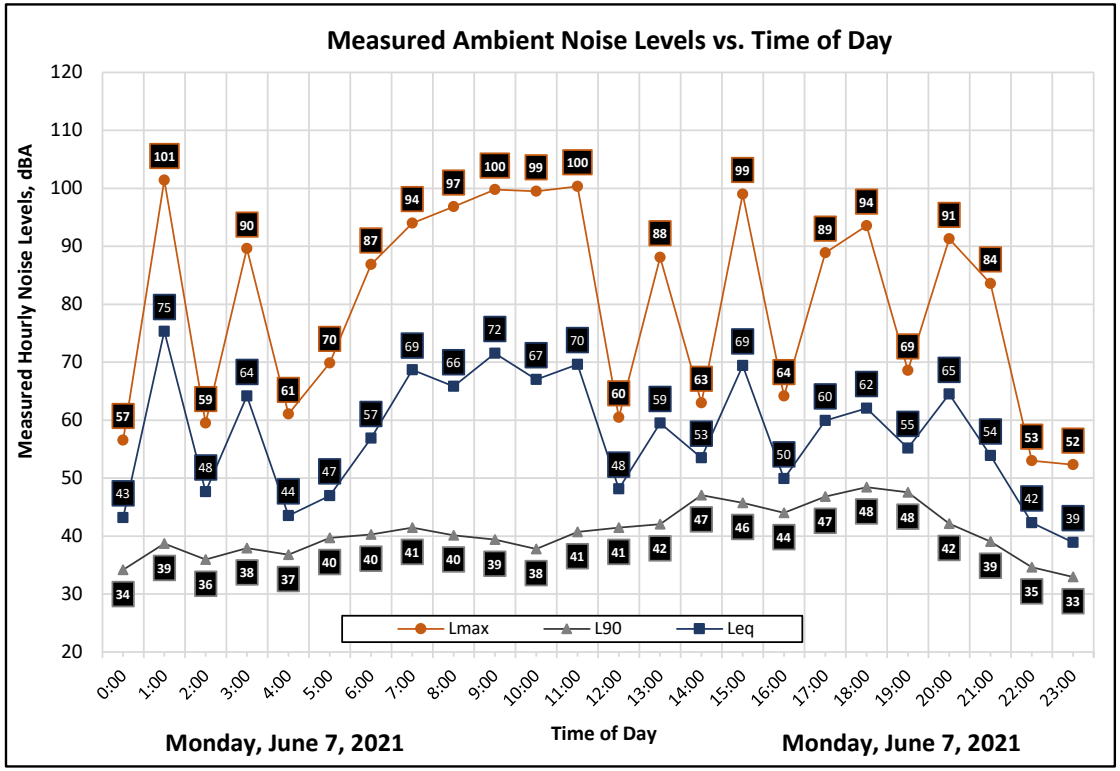


Appendix B1d: Continuous Noise Monitoring Results

Site: LT-1
Project: Oakley Village Subdivision
Meter: LDL 820-4
Location: Northeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9801085°, -121.6791566°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, June 7, 2021	0:00	43	57	39	34
Monday, June 7, 2021	1:00	75	101	43	39
Monday, June 7, 2021	2:00	48	59	44	36
Monday, June 7, 2021	3:00	64	90	43	38
Monday, June 7, 2021	4:00	44	61	41	37
Monday, June 7, 2021	5:00	47	70	43	40
Monday, June 7, 2021	6:00	57	87	44	40
Monday, June 7, 2021	7:00	69	94	45	41
Monday, June 7, 2021	8:00	66	97	43	40
Monday, June 7, 2021	9:00	72	100	43	39
Monday, June 7, 2021	10:00	67	99	40	38
Monday, June 7, 2021	11:00	70	100	44	41
Monday, June 7, 2021	12:00	48	60	46	41
Monday, June 7, 2021	13:00	59	88	48	42
Monday, June 7, 2021	14:00	53	63	52	47
Monday, June 7, 2021	15:00	69	99	50	46
Monday, June 7, 2021	16:00	50	64	48	44
Monday, June 7, 2021	17:00	60	89	51	47
Monday, June 7, 2021	18:00	62	94	53	48
Monday, June 7, 2021	19:00	55	69	53	48
Monday, June 7, 2021	20:00	65	91	47	42
Monday, June 7, 2021	21:00	54	84	43	39
Monday, June 7, 2021	22:00	42	53	39	35
Monday, June 7, 2021	23:00	39	52	36	33

Statistics	Leq	Lmax	L50	L90
Day Average	66	86	47	43
Night Average	67	70	42	37
Day Low	48	60	40	38
Day High	72	100	53	48
Night Low	39	52	36	33
Night High	75	101	44	40
Ldn	73	Day %		60
CNEL	73	Night %		40

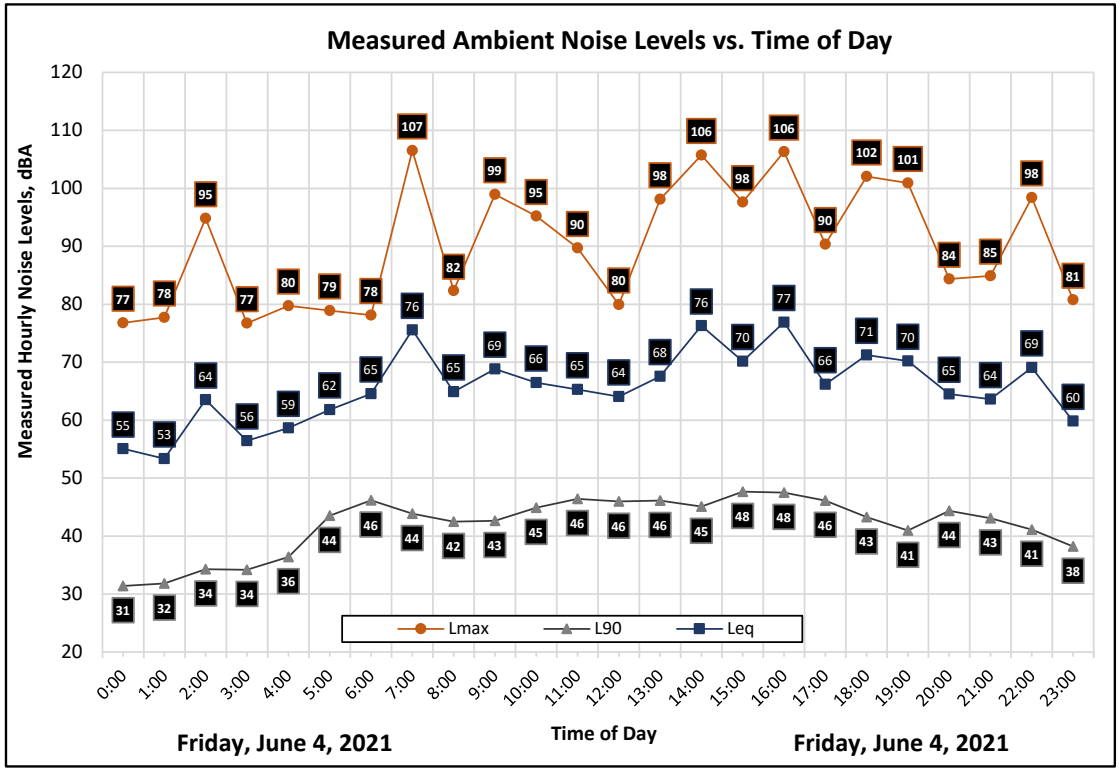


Appendix B2a: Continuous Noise Monitoring Results

Site: LT-2
Project: Oakley Village Subdivision
Meter: LDL 820-3
Location: Southeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9794093°, -121.6776901°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Friday, June 4, 2021	0:00	55	77	37	31
Friday, June 4, 2021	1:00	53	78	35	32
Friday, June 4, 2021	2:00	64	95	37	34
Friday, June 4, 2021	3:00	56	77	38	34
Friday, June 4, 2021	4:00	59	80	44	36
Friday, June 4, 2021	5:00	62	79	50	44
Friday, June 4, 2021	6:00	65	78	55	46
Friday, June 4, 2021	7:00	76	107	56	44
Friday, June 4, 2021	8:00	65	82	55	42
Friday, June 4, 2021	9:00	69	99	54	43
Friday, June 4, 2021	10:00	66	95	56	45
Friday, June 4, 2021	11:00	65	90	57	46
Friday, June 4, 2021	12:00	64	80	56	46
Friday, June 4, 2021	13:00	68	98	56	46
Friday, June 4, 2021	14:00	76	106	57	45
Friday, June 4, 2021	15:00	70	98	59	48
Friday, June 4, 2021	16:00	77	106	60	48
Friday, June 4, 2021	17:00	66	90	59	46
Friday, June 4, 2021	18:00	71	102	56	43
Friday, June 4, 2021	19:00	70	101	55	41
Friday, June 4, 2021	20:00	65	84	55	44
Friday, June 4, 2021	21:00	64	85	54	43
Friday, June 4, 2021	22:00	69	98	50	41
Friday, June 4, 2021	23:00	60	81	45	38

Statistics	Leq	Lmax	L50	L90
Day Average	71	95	56	45
Night Average	61	82	43	37
Day Low	64	80	54	41
Day High	77	107	60	48
Night Low	53	77	35	31
Night High	65	98	55	46
Ldn	71	Day %		96
CNEL	71	Night %		4

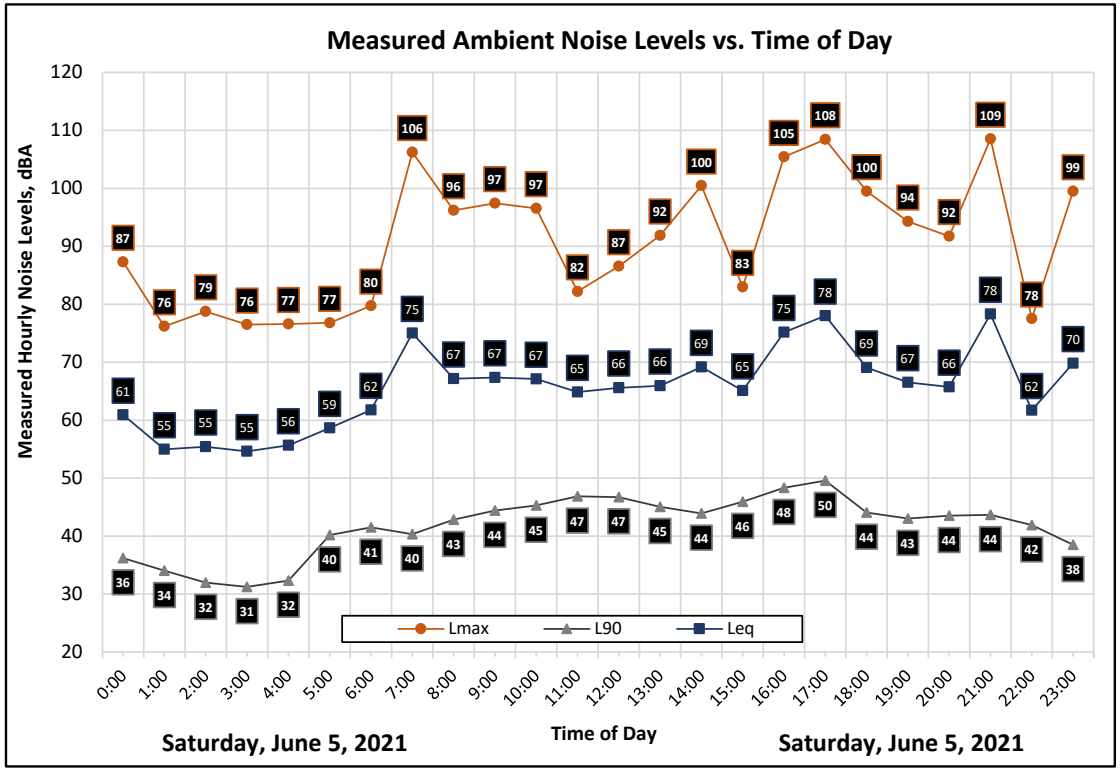


Appendix B2b: Continuous Noise Monitoring Results

Site: LT-2
Project: Oakley Village Subdivision
Meter: LDL 820-3
Location: Southeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9794093°, -121.6776901°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Saturday, June 5, 2021	0:00	61	87	43	36
Saturday, June 5, 2021	1:00	55	76	38	34
Saturday, June 5, 2021	2:00	55	79	35	32
Saturday, June 5, 2021	3:00	55	76	34	31
Saturday, June 5, 2021	4:00	56	77	37	32
Saturday, June 5, 2021	5:00	59	77	47	40
Saturday, June 5, 2021	6:00	62	80	49	41
Saturday, June 5, 2021	7:00	75	106	51	40
Saturday, June 5, 2021	8:00	67	96	55	43
Saturday, June 5, 2021	9:00	67	97	56	44
Saturday, June 5, 2021	10:00	67	97	56	45
Saturday, June 5, 2021	11:00	65	82	57	47
Saturday, June 5, 2021	12:00	66	87	57	47
Saturday, June 5, 2021	13:00	66	92	58	45
Saturday, June 5, 2021	14:00	69	100	56	44
Saturday, June 5, 2021	15:00	65	83	58	46
Saturday, June 5, 2021	16:00	75	105	59	48
Saturday, June 5, 2021	17:00	78	108	59	50
Saturday, June 5, 2021	18:00	69	100	56	44
Saturday, June 5, 2021	19:00	67	94	55	43
Saturday, June 5, 2021	20:00	66	92	55	44
Saturday, June 5, 2021	21:00	78	109	55	44
Saturday, June 5, 2021	22:00	62	78	52	42
Saturday, June 5, 2021	23:00	70	99	50	38

Statistics	Leq	Lmax	L50	L90
Day Average	72	97	56	45
Night Average	63	81	43	36
Day Low	65	82	51	40
Day High	78	109	59	50
Night Low	55	76	34	31
Night High	70	99	52	42
Ldn	72	Day %		95
CNEL	74	Night %		5

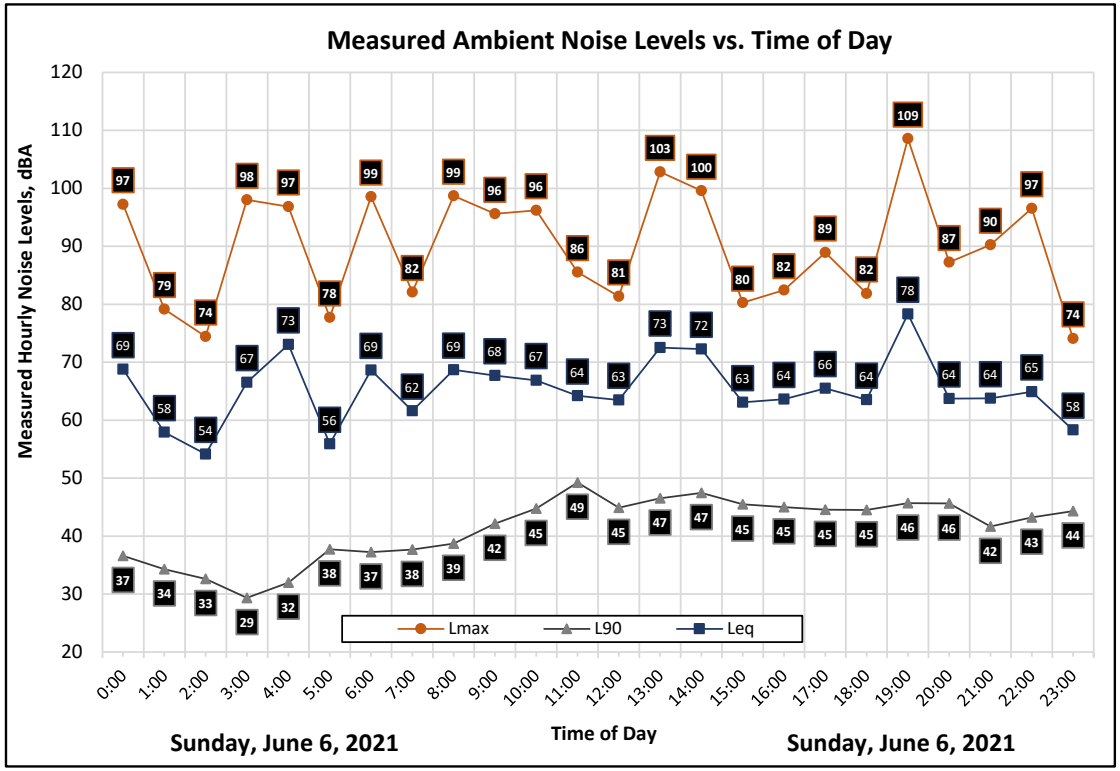


Appendix B2c: Continuous Noise Monitoring Results

Site: LT-2
Project: Oakley Village Subdivision
Meter: LDL 820-3
Location: Southeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9794093°, -121.6776901°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Sunday, June 6, 2021	0:00	69	97	44	37
Sunday, June 6, 2021	1:00	58	79	40	34
Sunday, June 6, 2021	2:00	54	74	37	33
Sunday, June 6, 2021	3:00	67	98	32	29
Sunday, June 6, 2021	4:00	73	97	37	32
Sunday, June 6, 2021	5:00	56	78	43	38
Sunday, June 6, 2021	6:00	69	99	42	37
Sunday, June 6, 2021	7:00	62	82	45	38
Sunday, June 6, 2021	8:00	69	99	50	39
Sunday, June 6, 2021	9:00	68	96	54	42
Sunday, June 6, 2021	10:00	67	96	55	45
Sunday, June 6, 2021	11:00	64	86	57	49
Sunday, June 6, 2021	12:00	63	81	55	45
Sunday, June 6, 2021	13:00	73	103	55	47
Sunday, June 6, 2021	14:00	72	100	57	47
Sunday, June 6, 2021	15:00	63	80	55	45
Sunday, June 6, 2021	16:00	64	82	54	45
Sunday, June 6, 2021	17:00	66	89	56	45
Sunday, June 6, 2021	18:00	64	82	53	45
Sunday, June 6, 2021	19:00	78	109	56	46
Sunday, June 6, 2021	20:00	64	87	55	46
Sunday, June 6, 2021	21:00	64	90	53	42
Sunday, June 6, 2021	22:00	65	97	51	43
Sunday, June 6, 2021	23:00	58	74	52	44

Statistics	Leq	Lmax	L50	L90
Day Average	70	91	54	44
Night Average	67	88	42	36
Day Low	62	80	45	38
Day High	78	109	57	49
Night Low	54	74	32	29
Night High	73	99	52	44
Ldn	74	Day %		77
CNEL	75	Night %		23

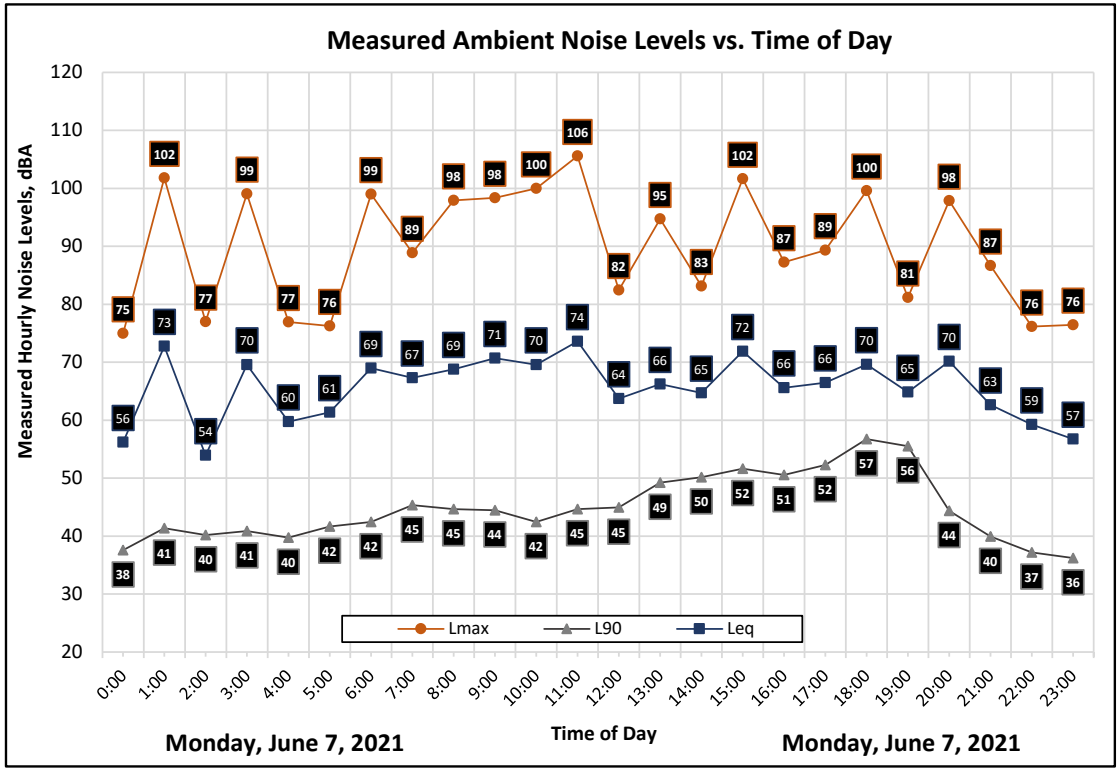


Appendix B2d: Continuous Noise Monitoring Results

Site: LT-2
Project: Oakley Village Subdivision
Meter: LDL 820-3
Location: Southeastern Project Boundary
Calibrator: CAL200
Coordinates: 37.9794093°, -121.6776901°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Monday, June 7, 2021	0:00	56	75	44	38
Monday, June 7, 2021	1:00	73	102	48	41
Monday, June 7, 2021	2:00	54	77	48	40
Monday, June 7, 2021	3:00	70	99	48	41
Monday, June 7, 2021	4:00	60	77	45	40
Monday, June 7, 2021	5:00	61	76	48	42
Monday, June 7, 2021	6:00	69	99	53	42
Monday, June 7, 2021	7:00	67	89	54	45
Monday, June 7, 2021	8:00	69	98	54	45
Monday, June 7, 2021	9:00	71	98	54	44
Monday, June 7, 2021	10:00	70	100	52	42
Monday, June 7, 2021	11:00	74	106	53	45
Monday, June 7, 2021	12:00	64	82	53	45
Monday, June 7, 2021	13:00	66	95	57	49
Monday, June 7, 2021	14:00	65	83	58	50
Monday, June 7, 2021	15:00	72	102	60	52
Monday, June 7, 2021	16:00	66	87	60	51
Monday, June 7, 2021	17:00	66	89	61	52
Monday, June 7, 2021	18:00	70	100	62	57
Monday, June 7, 2021	19:00	65	81	61	56
Monday, June 7, 2021	20:00	70	98	55	44
Monday, June 7, 2021	21:00	63	87	48	40
Monday, June 7, 2021	22:00	59	76	44	37
Monday, June 7, 2021	23:00	57	76	39	36

Statistics	Leq	Lmax	L50	L90
Day Average	69	93	56	48
Night Average	67	84	46	40
Day Low	63	81	48	40
Day High	74	106	62	57
Night Low	54	75	39	36
Night High	73	102	53	42
Ldn	73	Day %		74
CNEL	74	Night %		26



Appendix C: Traffic Noise Calculation Inputs and Results

Appendix C-1
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 210508
Description: Oakley Village Subdivision - Existing Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Sellers Ave	E Cypress Rd to Delta Rd	3,537	95	0	5	1.0%	1.0%	55	50	0	75	35	16	62.7

Appendix C-2
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 210508
Description: Oakley Village Subdivision - Existing Plus Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Sellers Ave	E Cypress Rd to Delta Rd	3,934	95	0	5	1.0%	1.0%	55	50	0	81	38	17	63.1

Appendix I
Traffic Impact Assessment Memorandum

TJKM VISION THAT MOVES YOUR COMMUNITY

June 9, 2020

Shahriar Monfared
Edgemont Station, LLC
8880 Cal Center Drive, Suite 400
Sacramento, CA 95826

Dear Shahriar:

This is regarding your proposed 42 lot residential development in the City of Oakley. The development is proposed for property located at 5681 Sellers Avenue. The preliminary site plan and vicinity map are attached.

According to the Institute of Transportation Engineers document *Trip Generation, 10th Edition,* a single family dwelling unit will generate 9.44 trips per day, 0.74 trips in the a.m. peak and 0.99 trips in the p.m. peak hour. For your development, that will generate 397 daily trips, 32 a.m. peak hour trips and 42 p.m. peak hour trips. Since this is fewer than the standard 100 peak hour trip threshold, the City may not require a comprehensive traffic study.

Based on your site plan, the subdivision will access Sellers Avenue via a new street to be constructed. At Sellers Avenue, traffic may either go south to connect with Delta Road or go north to connect with E. Cypress Road. Both streets connect with Main Street and other roadways.

The BNSF railroad borders the property on the north east corner. There is a nearby at-grade crossing with Sellers Avenue which is equipped with crossing gates and warning signs.

Please contact me if there are any questions on this matter.

Very truly yours,

Chris D. Kinzel

Chris D. Kinzel, P.E.

Vice President

LOT SUMMARY	
LOT AREA (SF)	NUMBER OF LOTS
10,000-11,000	41
12,001-13,000	1
TOTAL	42

GENERAL NOTES

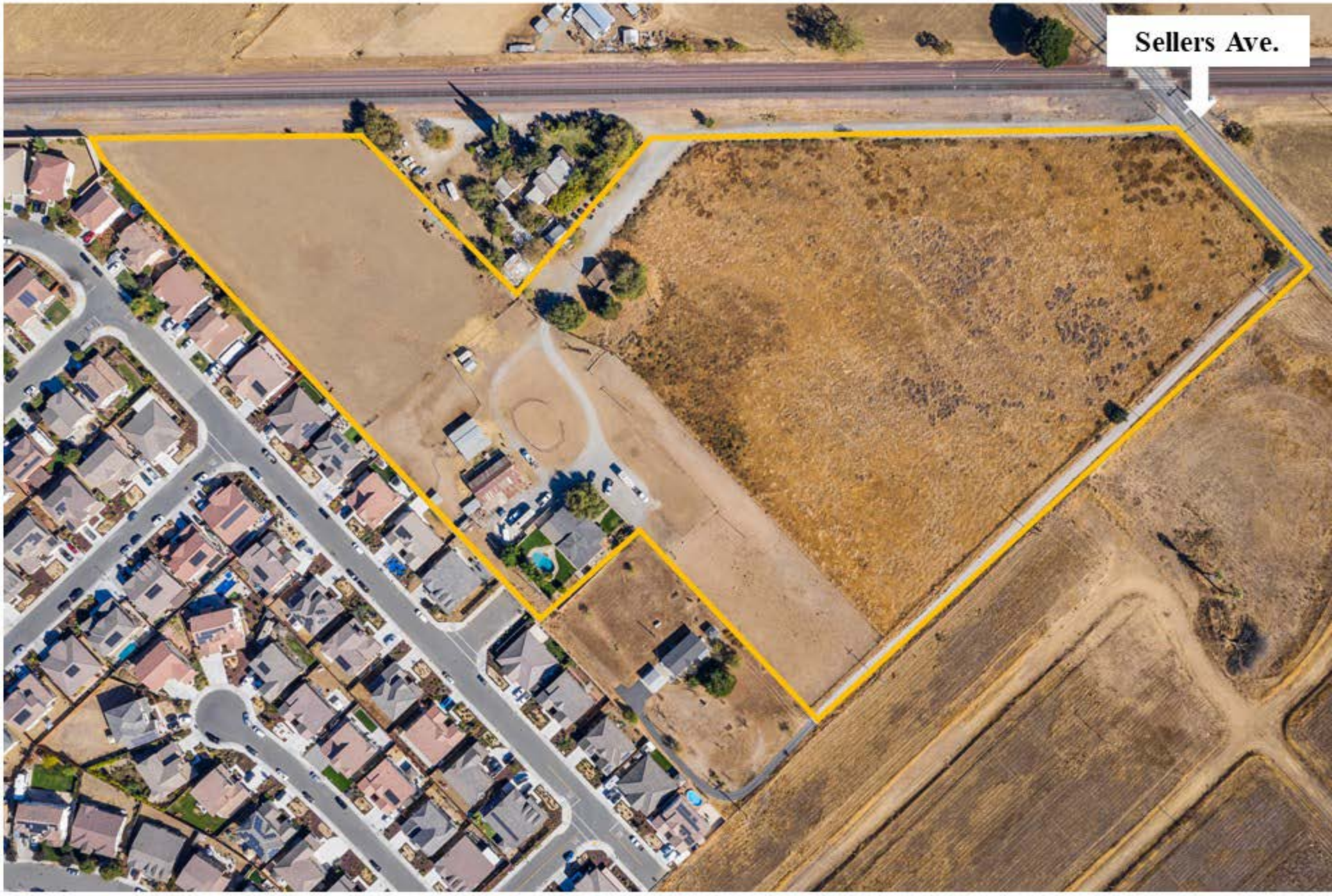
CONTACT INFORMATION

O'DELL ENGINEERING
1165 Scenic Drive, Suite A
Modesto, CA 95350
odellengineering.com

VESTING TENTATIVE MAP
OAKLEY VILLAGE
OAKLEY, CALIFORNIA

VESTING TENTATIVE MAP

SHEET NO.
1
OF
2


Sellers Ave.