DEER VALLEY ESTATES PROJECT
INITIAL STUDY

ANTIOCH, CALIFORNIA

LSA

December 2020

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INITIAL STUDY

ANTIOCH, CALIFORNIA

Submitted to:

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Project No. CAN2002

LSA

December 2020

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LIST OF ABBREVIATIONS AND ACRONYMS

2008 IS/MND	Initial Study/Mitigated Negative Declaration (February 26, 2008)
2008 Project	Deer Valley Estates Master Development Plan Project
µg/m^3	micrograms per cubic meter
APN	Assessor's Parcel Number
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practices
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CARB	California Air Resources Board
CARP	City of Antioch Climate Action and Resilience Plan
CBC	California Building Code
CCCFPD	Contra Costa County Fire Protection District
CCCWP	Contra Costa Clean Water Program
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	Methane
City	City of Antioch
Clean Air Plan	BAAQMD 2017 Clean Air Plan
CNEL	community noise equivalent level
CO	carbon monoxide
CO_2	Carbon dioxide
CO_2e	CO_2 equivalents
dB	decibel

dBA	A-weighted (sound level) decibels
FTA	Federal Transit Administration
GHG	Greenhouse gas
GSAs	groundwater sustainability agencies
GWh	gigawatt hours
GWP	Global Warming Potential
HFCs	Hydrofluorocarbons
HOA	homeowners association
HVAC	heating, ventilation, and air condition
in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration
Kaiser Medical Center	Kaiser Permanente Antioch Medical Center
kWh	kilowatt hours
L_{dn}	day-night average level
L_{eq}	equivalent continuous sound level
L_{max}	Maximum instantaneous noise level
LOS	Level of Service
MEI	maximally exposed individual
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
mpg	miles per gallon
MRP	Central Valley Regional Water Quality Control Board Municipal Regional Permit
N_2O	Nitrous oxide
NAHC	Native American Heritage Commission

NO_2	nitrogen dioxide
NO_x	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
P-D	Planned Development (Zoning)
Pb	lead
PFCs	Perfluorocarbons
PM_{10}	respirable particulate matter
$PM_{2.5}$	fine particulate matter
POTWs	publicly owned treatment works
PPV	peak particle velocity
project	Deer Valley Estates Project
Regional Water Board	Central Valley Regional Water Quality Control Board
RMS	root-mean-square
ROG	Reactive organic gases
WWTP	wastewater treatment plant
S	Study Zone (Zoning)
SB	Senate Bill
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SO_2	sulfur dioxide
SR 4	State Route 4
SRA	State responsibility area
TACs	toxic air contaminants

TIA	Transportation Impact Analysis
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VdB	vibration velocity in decibels
VMT	vehicle miles traveled
ZE	zero emission

1.0 PROJECT INFORMATION

1. **Project Title:**

   Deer Valley Estates Project

2. **Lead Agency Name and Address:**

   City of Antioch
   200 H Street
   Antioch, CA 94509

3. **Contact Person and Email Address:**

   Zoe Merideth, Associate Planner
   zmerideth@antiochca.gov

4. **Project Location:**

   6100 Deer Valley Road
   Antioch, Contra Costa County
   Assessor's Parcel Numbers (APN): 055-071-026, 057-022-013

5. **Project Sponsor's Name and Address:**

   Blue Mountain Communities
   707 Aldridge Avenue
   Vacaville, CA 95688

6. **General Plan Designation:**

   Sand Creek Focus Area – Low Density Residential

7. **Zoning:**

   Planned Development (P-D)

8. **Description of Project:**

   The proposed project involves the construction of 121 new single-family homes and associated open space, roadway, and utility improvements. Please refer to Section 2.0, Project Description, for a complete description of the proposed project.

9. **Surrounding Land Uses and Setting:**

   The project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. Please refer to Section 2.0, Project Description, for a complete description of the surrounding land uses and setting.

10. **Other Public Agencies Whose Approval is Required (e.g., permits, financial approval, or participation agreements):**

    Contra Costa Fire Protection District, California Department of Conservation

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resource Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

The Native American Heritage Commission (NAHC) in West Sacramento was provided with information about the proposed project and was requested to provide a list of tribes eligible to consult with the City, pursuant to Public Resources Code Section 21080.3.1. On September 1, 2020, the City sent letters to these tribes via certified mail notifying them of the proposed project. Per Public Resources Code, Section 21080.3.1(d), a request for consultation must be submitted within 30 days of the receipt the letter. Two letters, submitted to the Confederated Villages of Lisjan and the Canyon Mutsun Band of Costanoan, were returned as undeliverable and unable to be forwarded with a stamp stating "unclaimed." The City attempted to contact the tribal representatives via email on October 2 and October 21, 2020. On November 3, 2020, Ms. Gould, representative of the Confederated Villages of Lisjan, responded to the City's email and requested additional information regarding the proposed project but did not request to initiate consultation. The City did not receive a response from Ms. Sayers, the listed representative for the Canyon Mutsun Band of Costanoan.

2.0 PROJECT DESCRIPTION

The following describes the proposed Deer Valley Estates Project (project) that is the subject of this Initial Study prepared pursuant to the California Environmental Quality Act (CEQA). The proposed project would result in the construction of 121 new single-family homes on the project site. The City of Antioch (City) is the Lead Agency for review of the proposed project under CEQA.

2.1 PROJECT SITE

The following section describes the project location, existing site conditions, surrounding land uses, and regulatory setting.

2.1.1 Project Location

The approximately 37.56-acre project site consists of two parcels of undeveloped land located at 6100 Deer Valley Road in the southern portion of the City of Antioch, Contra Costa County (Assessor's Parcel Number [APN] 055-071-026 and 057-022-013). The project site is bounded by single-family residential uses to the north, the under construction Aviano Farms Project[1] to the east, Wellness Way and the Kaiser Permanente Antioch Medical Center (Kaiser Medical Center) to the south, and Deer Valley Road to the west.

Regional vehicular access to the project site is provided by State Route 4 (SR 4), which is located both east and north of the project site; the nearest access is located on Lone Tree Way, approximately 2.6 miles to the east of the site. Bus stops along Deer Valley Road, including adjacent to Kaiser Medical Center and at its intersection with Prewett Ranch Drive, provide transit service to the project site. Figure 2-1 shows the regional and local context of the project site. Figure 2-2 depicts an aerial photograph of the project site and surrounding land uses.

2.1.2 Existing Conditions

The rectangular project site is generally flat, with gently rolling topography that slopes from east to west. Site elevations range from approximately 195 to 225 feet above mean sea level. The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation.

There are a number of existing utility easements on the project site which generally run along the northern border and through the center of the project site. Specifically, a buried petroleum pipeline runs in a north-south direction through the approximate center of the site and continues west along the site's northern boundary within a 25-foot-wide easement. Additional easements on the project site include 10- to 16-foot-wide easements in this area for pipelines and telephones lines, and a 25-foot storm drain easement along the eastern boundary.

[1] The Aviano Farms Project, which was approved by the Antioch City Council on September 8, 2015, consists of approximately 553 one- to two-story single-family detached homes.

2.1.3 Surrounding Land Uses

As shown in Figure 2-2, the project site is generally surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. To the north, the project site is bounded by a single-family residential neighborhood with one- to two-story homes. Further north are Prewett Ranch Drive and Deer Valley High School. The project site is bordered immediately to the east by the Aviano Farms Project, which is currently under construction with 533 residential units. Further east is the approved Vineyards at Sand Creek project, which is also under construction and consists of 641 residential units. To the south is Wellness Way and the Kaiser Medical Center, past which is Sand Creek Road. The project site is bound to the west by Deer Valley Road, across which is the site of The Ranch Project, which is a master planned residential community that was approved by City Council in July 2020 and could be under construction by 2023. The Ranch Project will consist of 1,177 one- to two-story residential units, 5 acres of commercial, office, and retail space, 3 acres of public services facilities, and approximately 22.5 acres of public parks and landscaped areas. It is anticipated that initial occupancy of the first phase of The Ranch Project would begin in Fall 2023,[2] and occupancy of the Aviano Farms Project is set to begin by the end of 2020.[3]

2.1.4 Circulation and Access

The project site is currently vacant and no interior vehicular access is available. However, Deer Valley Road provides access to the eastern edge of the project site, and Wellness Way provides access to the southern edge.

2.1.5 Project Background and Regulatory Setting

On February 26, 2008, an Initial Study/Mitigated Negative Declaration (2008 IS/MND) for the proposed Deer Valley Estates Master Development Plan Project (2008 Project) was adopted by the Antioch City Council. The 2008 IS/MND evaluated the potential impacts associated with the development of 136 single-family residential units and an approximately 1.69-acre park on the project site. The 2008 Project included a rezoning of the project site from Study Zone (S) to the site's current zoning of P-D and the approval of a Master Development Plan.[4]

Per CEQA Guidelines Section 15152, "where an EIR [or negative declaration] has been prepared and certified [or adopted] for a program… consistent with the requirements of this section, any lead agency for a later project pursuant to or consistent with the program… should limit the EIR… on the later project to effects which: (1) were not examined as significant effects on the environment in the prior EIR; or (2) are susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." The analysis provided in this Initial Study tiers from the 2008 IS/MND, as appropriate. The Mitigation Monitoring and Reporting Program (MMRP) prepared for the 2008 IS/MND is included as Appendix A. The MMRP

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2 Antioch, City of. 2020a. *Draft Environmental Impact Report, The Ranch Project.* State Clearinghouse Number 2019060012. Prepared by FirstCarbon Solutions. March 20.

3 Denova Homes. 2020. Stella at Aviano. Website: www.denovahomes.com/new-homes/ca/antioch/stella-at-aviano/5618 (accessed August 2020).

4 Antioch, City of. 2007. *Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration*. Prepared by LSA Associates, Inc. December.

lists each of the mitigation measures identified by the 2008 IS/MND, as well as any modifications required for the proposed project identified in this Initial Study.

The City of Antioch General Plan Land Use Map designates the project site as Sand Creek Focus Area – Low Density Residential.[5] The Low Density Residential designation is generally characterized by single-family homes in traditional subdivisions, which are generally located on gently rolling terrain.

The Sand Creek Focus Area overlay sets policy direction for the 2,712-acre Sand Creek Focus Area, which is generally bounded by existing residential neighborhoods to the north, Black Diamond Mines Regional Preserves to the west, the city limits to the south, and the City of Brentwood to the east. The Sand Creek Focus Area is intended to function as a large-scale planned community, providing needed housing and employment opportunities. [6] The zoning on the project site is the P-D district established as a part of the 2008 Project.[7] The P-D district is intended to enable and encourage flexibility in the design and development of land so as to promote its most appropriate use.

2.2 PROPOSED PROJECT

The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements. Individual components of the proposed project are discussed below.

2.2.1 Building Program

As previously discussed, the proposed project would result in the subdivision of the project site to allow construction of a total of 121 single-family residential units, each of which would either be one or two stories and include a two- or three-car garage. The single-family residential units would range in size from approximately 2,252 square feet to approximately 3,445 square feet and would be located on individual lots that would be a minimum of 7,000 square feet. All of the residential units would front to internal streets within the project site, discussed below, and none would front to either Deer Valley Road or Wellness Way.

The proposed project would include six different plan types, each of which would have three different architectural styles: contemporary ranch, modern prairie, and mid-century modern. The layout and size of each residence would vary based on the plan type, but would range from three bedrooms and two bathrooms in the smallest plan type to five bedrooms and four bathrooms in the largest. The proposed project would have an overall density of 3.2 dwelling units per acre.

All of the single-family residential units on the project site would have a minimum setback of 20 feet for both the front yard and the garage, and a minimum of 10 feet where the side yard abuts a street. Single-story units would include a minimum setback of 5 feet for side yards adjacent to other residential units, which two-story units would include a minimum 10-foot setback. Units that would

5 Antioch, City of. 2020b. Interactive Zoning Map & Information. Website: www.antiochca.gov/community-development-department/planning-division (accessed August 2020).
6 Antioch, City of. 2003. *City of Antioch General Plan*. November 24.
7 Antioch, City of. 2020b, op. cit.

be adjacent to Deer Valley Road and Wellness Way would have a minimum rear yard setback of 30 feet, while all other units would have a minimum rear yard setback of 25 feet.

Figure 2-3 shows the conceptual site plan for the proposed project. Typical building elevations representing the residential units are shown in Figure 2-4, and typical renderings are shown in Figures 2-5 through 2-7.

2.2.2 Open Space and Landscaping

Each of the residential lots on the project site would include private backyards that would be an average of 2,240 square feet in size. In total, the proposed project would provide approximately 15.2 acres (662,380 square feet) of private open space, including backyards.

The proposed project would include multiple common open space areas for project residents, including an approximately 1.12-acre park, which would be located in the approximate center of the project site (as shown on Figure 2-3) and would include a dog park and a playground. An approximate total of 1.5 acres of the site would be improved with landscaping, including street trees and native grasses and an approximately 4- to 6-foot-wide trail that would run through the northwest and center portions of the site and connect the proposed park to Deer Valley Road. Access to the proposed trail would be provided by a tubular steel fence with an access gate in the northwest corner of the project site.

Finally, the proposed project would include a landscaped detention basin, as further described below, which would be approximately 1.51 acres in size. A total of approximately 298 trees would be planted as part of the proposed project. The proposed park and common landscaped areas would be maintained by a homeowners association (HOA).

2.2.3 Access, Circulation, and Parking

As shown on Figure 2-3, access to the project site would be provided at four points, including from Wellness Way to the south and from extensions of Piute Way, Mojave Way, and Oneida Way, all of which are existing streets that currently have a terminus at the northern boundary of the project site. Interior streets would provide vehicular access to each of the proposed residential units. As noted above, each of the residential units would include either a two- or three-car parking garage, for a total of 267 parking spaces. An additional 232 guest parking spaces would be provided on the internal streets for a total capacity of 495 parking spaces on the project site.

2.2.4 Utilities and Infrastructure

The project site is located in a developed area that is currently served by existing utilities, including water, sanitary sewer, storm drainage, electricity, gas, and telecommunications infrastructure. Existing and proposed utility connections are discussed below.

2.2.4.1 Water

Water service to the project site is provided by the City. The proposed project would include the installation of new 8- and 12-inch water lines on the site that would connect to the existing 12-inch mains located within Wellness Way, Mojave Way, and Oneida Way.

2.2.4.2 Wastewater

The City maintains existing sanitary sewer lines within the vicinity of the project site, including a 10-inch line within the existing portion of Oneida Way adjacent to the northeast corner of the project site. New 8-inch lines would be installed throughout the project site and would tie into the existing 10-inch line.

2.2.4.3 Stormwater

As previously noted, the project site is currently undeveloped and covered in non-native grassland, and therefore does not contain any impervious surfaces. Stormwater infrastructure on the project site currently consists of two 72-inch stormwater mains that run north-south through the project site near the eastern border. Additionally, a 36-inch stormwater main runs through Wellness Way, which ties into the 72-inch mains.

Upon construction of the proposed project, approximately 48 percent (18 acres) of the project site would be covered with impervious surfaces, and the remaining 52 percent (19.5 acres) would be covered by pervious surfaces, consisting of the park and landscaped areas. As previously noted, the proposed project would include approximately 1.51 acres of bioretention space on the project site that would be used for stormwater control. The proposed project would include catch basins and storm drains throughout the project site which would connect to the bioretention basin and existing stormwater facilities.

2.2.4.4 Electricity and Gas

Electricity and gas service is provided to the project site by Pacific Gas & Electric. The proposed project would include connections to the existing electricity and natural gas lines that run adjacent to the project site, which could include the lines within Deer Valley Road, Wellness Way, Piute Way, Mojave Way, or Oneida Way.

2.2.4.5 Soundwall

The proposed project would include a 6-foot precast soundwall that be located along the northern, western, and half of the southern property line.

2.2.5 Construction

Cut and fill from project grading would be balanced on-site. It is anticipated that the maximum depth of excavation for building pads would be approximately 17 feet and the maximum depth of utility trenching would be approximately 25 feet. Construction of the proposed project is anticipated to begin in Fall 2021 and would occur over two phases, consisting of 63 units in the first phase and 58 units in the second phase, and each lasting approximately one year. Initial occupancy would occur in approximately Fall 2022, and the final phase of construction is expected to be completed in Fall 2023.

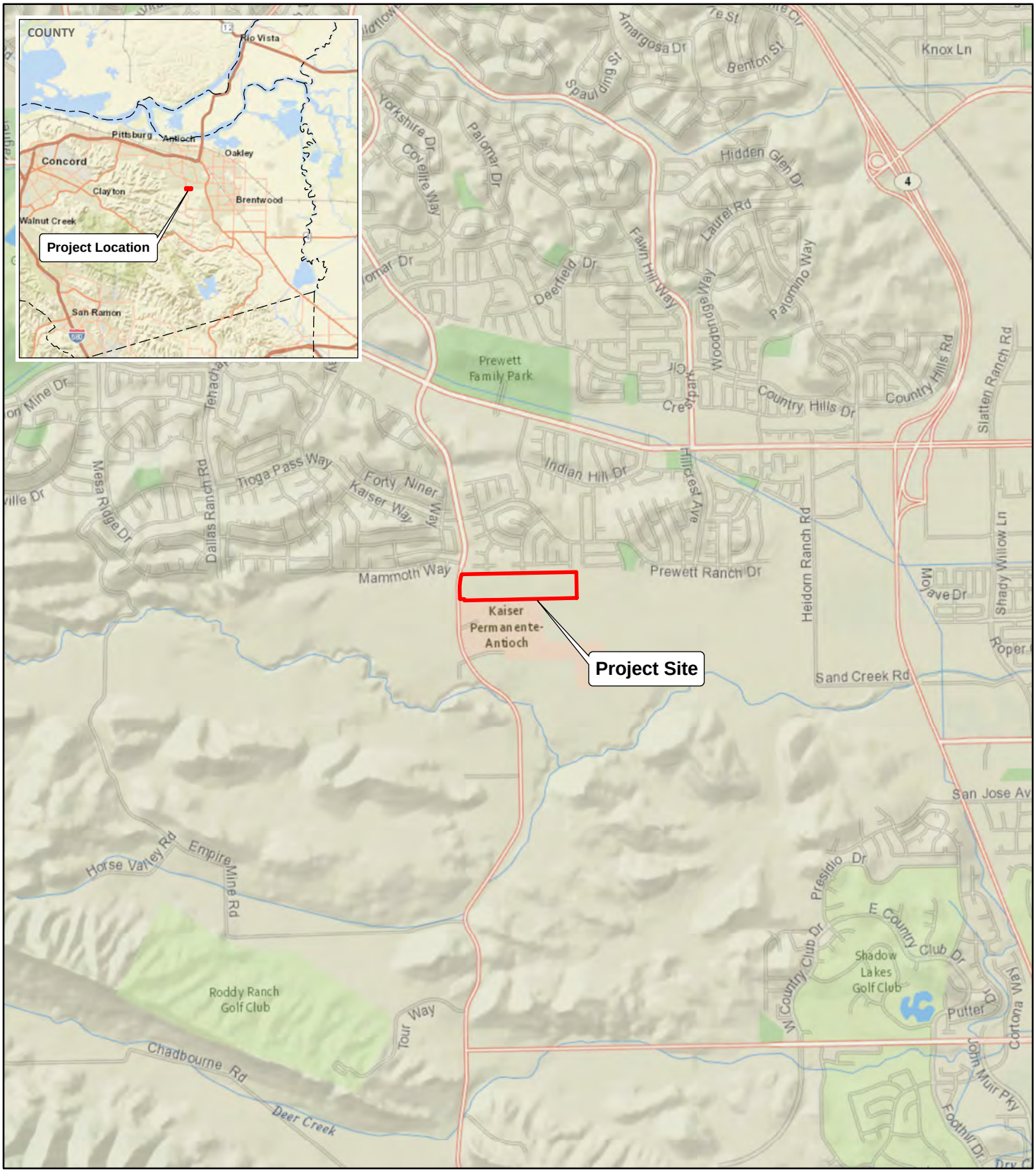
2.3 PROJECT APPROVALS

While the City is the CEQA Lead Agency for the proposed project, other agencies also have discretionary authority related to the project and approvals, or serve as a responsible and/or trustee agency in connection to the proposed project. A list of these agencies and potential permits and approvals that may be required is provided in Table 2.A.

Table 2.A: Potential Permits and Approvals

Lead Agency	Permits/Approvals
City of Antioch	● Environmental Review ● Tentative Map Approval ● Final Development Plan ● Use Permit ● Design Review
Other Agencies	
Contra Costa County Fire Protection District	● Review/Approve fire truck access and site fire flow design
California Department of Conservation	● Approve oil well abandonment

Source: LSA (2020).



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FIGURE 2-1

N

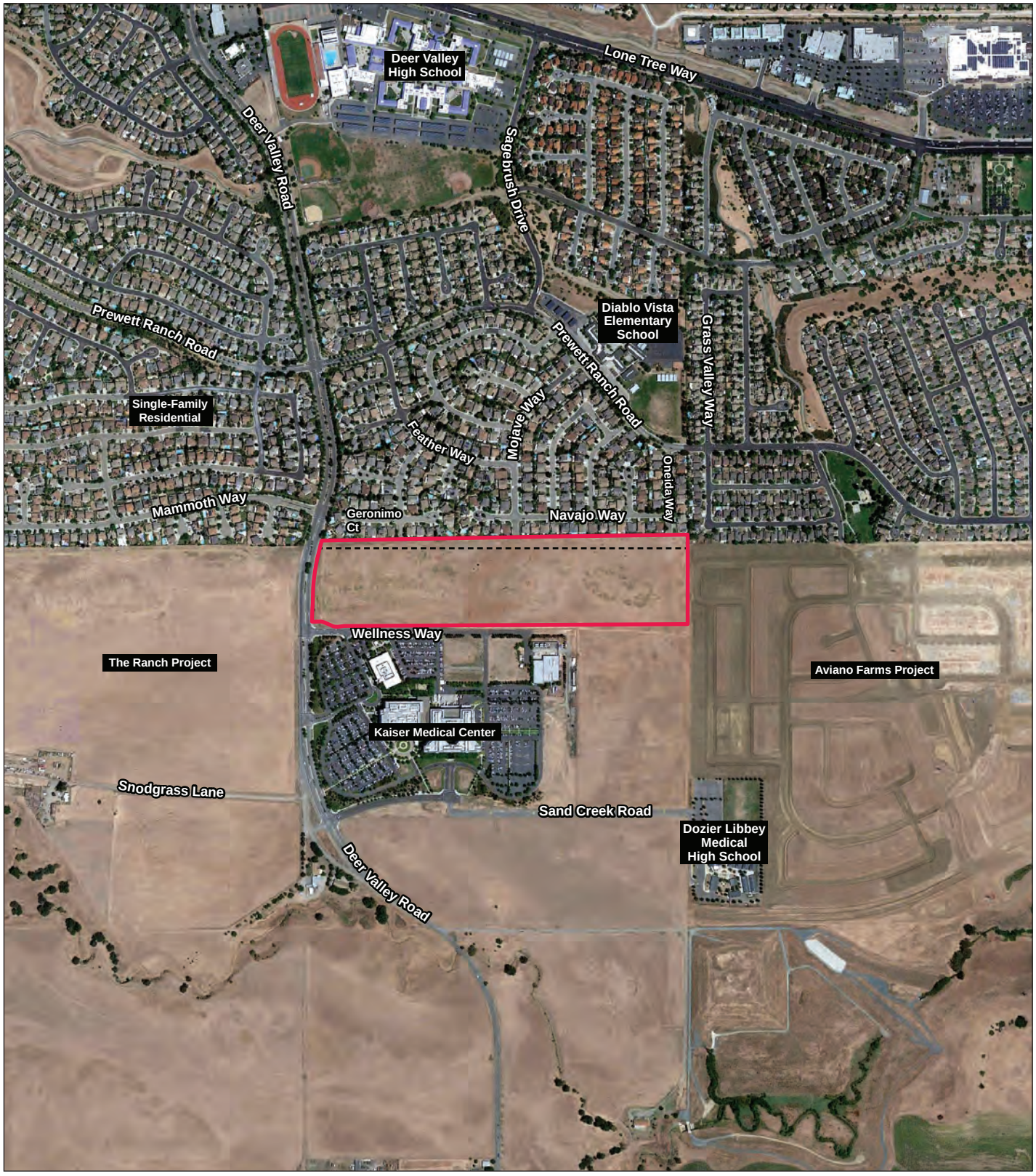
0 1500 3000
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SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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Deer Valley Estates Project

Project Location and Regional Vicinity



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FIGURE 2-2

0 500 1000
FEET

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Project Site

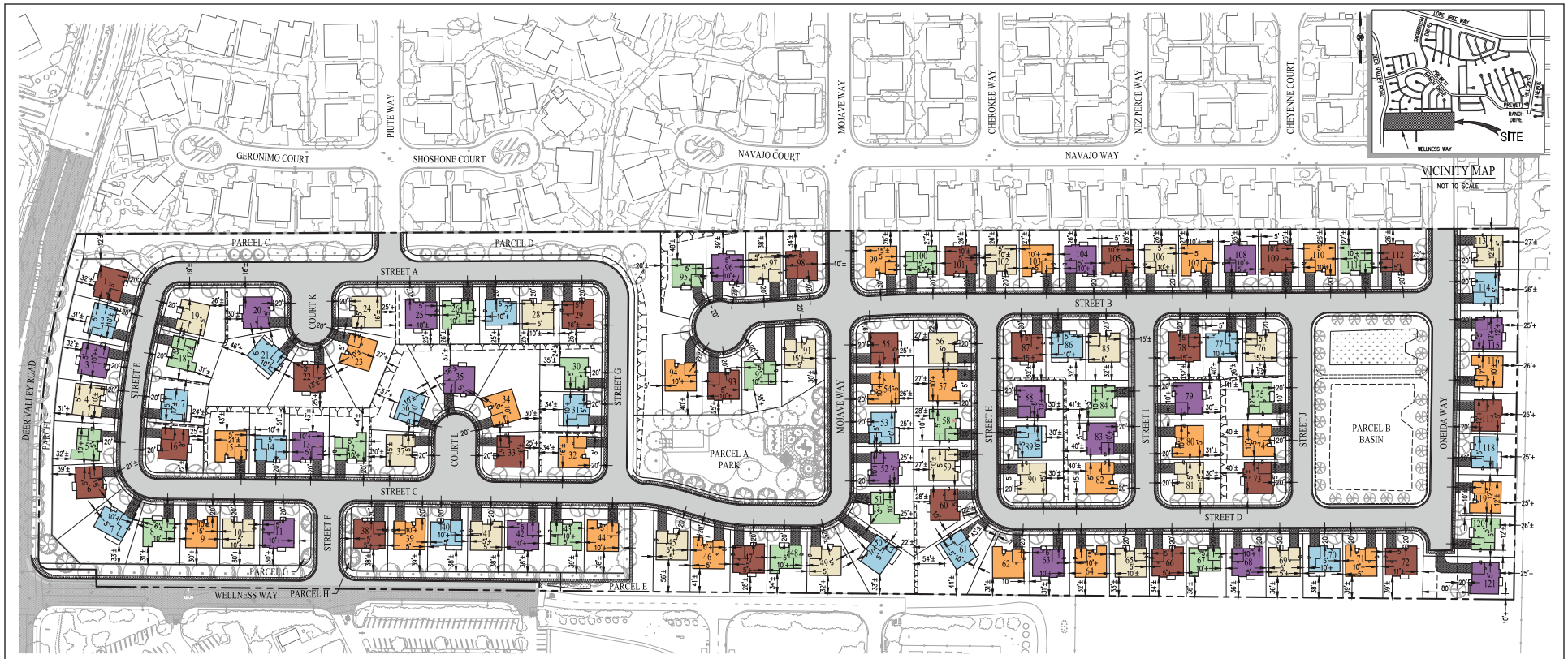
Parcel Boundary

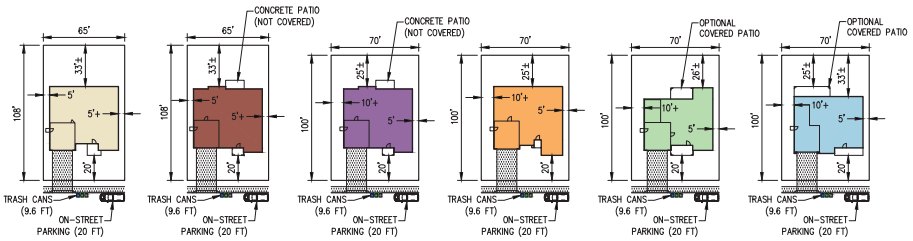
Deer Valley Estates Project

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Google Earth, 6/19/19; LSA, 2020.

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TYPICAL FIT ILLUSTRATION

SUBDIVISION 9518

PLAN	# OF LOTS	% OF TOTAL
1	22	18%
2	22	18%
2X	18	15%
3	23	19%
4	18	15%
5	18	15%
TOTAL	121	100%

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FIGURE 2-3

0 160 320
FEET

N

Deer Valley Estates Project
Conceptual Site Plan

SOURCE: CBG Civil Engineering, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 2B
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN



PLAN 3C
MID-CENTURY MODERN



PLAN 4A
CONTEMPORARY RANCH



PLAN 5B
MODERN PRAIRIE

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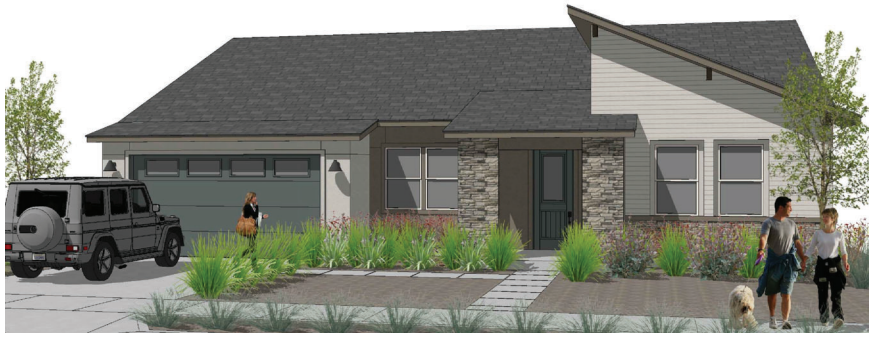
FIGURE 2-4

0 6 12
FEET

Deer Valley Estates Project
Conceptual Building Elevations

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 1A
CONTEMPORARY RANCH



PLAN 1B
MODERN PRAIRIE



PLAN 1C
MID-CENTURY MODERN

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FIGURE 2-5

Deer Valley Estates Project
Conceptual Renderings - Plan 1

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 2XA
CONTEMPORARY RANCH



PLAN 2XB
MODERN PRAIRIE



PLAN 2XC
MID-CENTURY MODERN

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FIGURE 2-6

Deer Valley Estates Project
Conceptual Renderings - Plan 2X

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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PLAN 4A
CONTEMPORARY RANCH



PLAN 4B
MODERN PRAIRIE



PLAN 4C
MID-CENTURY MODERN

LSA

FIGURE 2-7

Deer Valley Estates Project
Conceptual Renderings - Plan 4

SOURCES: KTGY; Blue Mountain Communities, May 2020.

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3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist in Chapter 3.0.

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

3.1 DETERMINATION

On the basis of this initial evaluation:

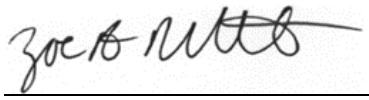
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ 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 project proponent. 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" impact 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



Signature

December 16, 2020
Date

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4.0 CEQA ENVIRONMENTAL CHECKLIST

4.1 AESTHETICS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Except as provided in Public Resources Code Section 21099, would the project:				
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 a 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?	☐	☐	☐	☒

a. Would the project have a substantial effect on a scenic vista? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not adversely affect important public view corridors within the vicinity of the project site, including Lone Tree Way, Hillcrest Avenue, and Deer Valley Road as the one- and two-story homes would blend in with surrounding development including residential uses immediately to the north and the Kaiser Medical Facility to the south. The 2008 IS/MND determined that views from existing residences immediately north of the project site would be obstructed by the proposed project, but that these views are not from public spaces. The proposed project is located on the same site at the 2008 Project and would not include buildings higher than those included in the 2008 Project. In addition, the proposed project would include fewer residential units than the 2008 Project. Therefore, similar to the 2008 Project, the proposed project would have a less-than-significant impact on scenic vistas and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ***(No New Impact)***

The 2008 IS/MND determined that the project site would not be visible from the closest State scenic highways, which are portions of SR 24 and Interstate 680 (I-680). There are no new State scenic highways within the vicinity of the project site.[8] Therefore, similar to the 2008 Project, the proposed

[8] California Department of Transportation. 2020. *Scenic Highways*. Website: dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways (accessed September 2020).

project would have no impact on scenic resources within State scenic highways and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. In non-urbanized areas, would the project 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 a 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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be subject to design review, which utilizes the General Plan's design policies when evaluating building and landscape design. Building permits are not issued until design approval has been obtained, which ensures that development projects comply with the City's objectives and policies related to project design. The proposed project would also be subject to design review. Therefore, similar to the 2008 Project, the proposed project would have a less-than-significant impact on regulations governing scenic quality and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? ***(No New Impact)***

The 2008 IS/MND determined that indoor and exterior lighting included in the 2008 Project would generally blend in with surrounding development, but that there would be a potentially significant impact related to daytime glare due to sun reflecting off of windows. However, the 2008 IS/MND identified Mitigation Measure AES-1, which is described in the MMRP for the 2008 IS/MND (included as Appendix A), to reduce this impact to a less-than-significant level. The proposed project would be located on the same site as the 2008 Project and would include a similar level of lighting and new windows, although slightly less than the 2008 Project. Therefore, implementation of Mitigation Measures AES-1 would be required to ensure this impact would be less than significant. With implementation of Mitigation Measure AES-1, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.2 AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the State's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

a. Would the project 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? ***(No New Impact)***

The 2008 IS/MND determined that there would be no impact to agricultural resources with development of the 2008 project. Similar to the 2008 Project, the proposed project would not include or otherwise adversely affect agricultural uses. The project site is located in an urban area and is designated as "Farmland of Local Importance" by the California State Department of Conservation. Farmland of Local Importance is defined by the Department of Conservation's Farmland Mapping and Monitoring Program as land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee.

Past uses at the site have included orchards and possibly hay cultivation. The project site is not currently in agricultural production and had previously been used for seasonal cattle grazing for more than 30 years, though it has not been used for grazing for at least the last two years. Conditions on the project site remain essentially unchanged since 2008. Therefore, similar to the 2008 Project, the proposed project would have no impact related to the conversion of agricultural resources and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? ***(No New Impact)***

As part of the 2008 Project, the project site was rezoned from S, Study District, to its current zoning of P-D, Planned Development, to allow development of residential uses. As stated in Section 4.2.a, conditions at the project site generally remain unchanged since 2008, and the site is not under a Williamson Act contract. Therefore, similar to the 2008 Project, the proposed project would not conflict with the existing zoning for agricultural use or a Williamson Act contract and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project conflict with existing zoning for, or cause rezoning of, forestland (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))? ***(No New Impact)***

Impacts to forestry resources were not considered in the 2008 IS/MND, as the CEQA Guidelines did not require evaluation of this topic at that time. However, as previously described, the currently undeveloped project site consists of non-native annual grassland and ruderal vegetation and site conditions have remained essentially unchanged since 2008. Additionally, the site is zoned as P-D to allow residential development and is not zoned as forest or timberland. Therefore, the proposed project would not conflict with existing zoning for, or cause rezoning of, forest or timberland and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project result in the loss of forest land or conversion of forestland to non-forest use? ***(No New Impact)***

Refer to Section 4.2.c. The proposed project would not result in the loss of or conversion of forestland to non-forest uses and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project 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? ***(No New Impact)***

Refer to Sections 4.2.a and 4.2.c. The proposed project would not involve changes in the existing environment that could result in the conversion of farmland or forestland and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.3 AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

The project site is located in the City of Antioch and is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which regulates air quality in the San Francisco Bay Area. Air quality conditions in the San Francisco Bay Area have improved significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen substantially. In Antioch, and the rest of the air basin, exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons.

Within the BAAQMD, ambient air quality standards for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10}, $PM_{2.5}$), and lead (Pb) have been set by both the State of California and the federal government. The State has also set standards for sulfate and visibility. The BAAQMD is under State non-attainment status for ozone and particulate matter standards. The BAAQMD is classified as non-attainment for the federal ozone 8-hour standard and non-attainment for the federal $PM_{2.5}$ 24-hour standard.

Based on the BAAQMD attainment status and ambient air quality monitoring data, ambient air quality in the vicinity of the project site has basically remained unchanged since approval of the 2008 IS/MND. However, the BAAQMD has made two key regulatory changes since the 2008 IS/MND was adopted. The updated Clean Air Plan was adopted in April 2017 and revised BAAQMD CEQA Guidelines were adopted in May 2017. These changes in the project circumstances, as well as changes to the proposed project itself, are discussed and evaluated in the following section.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan? ***(No New Impact)***

An air quality plan describes air pollution control strategies to be implemented by a city, county, or region classified as a non-attainment area. The main purpose of an air quality plan is to bring an area into compliance with the requirements of federal and State air quality standards. The 2008 IS/MND evaluated the 2008 Project's potential to conflict with or obstruct implementation of the Bay Area 2005 Ozone Strategy, which was the applicable clean air plan at the time. The 2008 IS/MND found that City of Antioch General Plan was consistent with the Bay Area 2005 Ozone Strategy and that the 2007 Project would be consistent with the land use designations identified in the General Plan, thus resulting in a less-than-significant impact related to consistency with the applicable clean air plan.

The BAAQMD's current clean air plan is the BAAQMD 2017 Clean Air Plan (Clean Air Plan),[9] which was adopted on April 19, 2017. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines control strategies to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest heath risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project: (1) supports the goals of the Clean Air Plan; (2) includes applicable control measures from the Clean Air Plan; and (3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan. As discussed below, the proposed project would not conflict with or obstruct implementation of the Clean Air Plan.

Clean Air Plan Goals. The primary goals of the Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect climate.

The BAAQMD has established significance thresholds for project construction and operational impacts at a level at which the cumulative impact of exceeding these thresholds would have an adverse impact on the region's attainment of air quality standards. The health and hazards thresholds were established to help protect public health. As discussed in Section 4.3.b, below, implementation of the proposed project would result in less-than-significant operation-period emissions and, with implementation of Modified Mitigation Measure AIR-1, the project would result in less-than-significant construction-period emissions. Therefore, the project would not conflict with the Clean Air Plan goals.

Clean Air Plan Control Measures. The control strategies of the Clean Air Plan include measures in the following categories: Stationary Source Measures, Transportation Measures, Energy Measures, Building Measures, Agriculture Measures, Natural and Working Lands Measures, Waste Management Measures, Water Measures, and Super-Greenhouse Gas (GHG) Pollutants Measures. The proposed project's potential to conflict with each of these measures is discussed below.

[9] Bay Area Air Quality Management District. 2017. *Clean Air Plan*. April 19.

Stationary Source Control Measures. The Stationary Source Measures, which are designed to reduce emissions from stationary sources such as metal melting facilities, cement kilns, refineries, and glass furnaces, are incorporated into rules adopted by the BAAQMD and then enforced by the BAAQMD's Permit and Inspection programs. Since the project would not include any stationary sources of emissions, the Stationary Source Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. The BAAQMD identifies Transportation Measures as part of the Clean Air Plan to decrease emissions of criteria pollutants, toxic air contaminants (TACs), and GHGs by reducing demand for motor vehicle travel, promoting efficient vehicles and transit service, decarbonizing transportation fuels, and electrifying motor vehicles and equipment. Vehicle miles traveled (VMT) per capita associated with the proposed project are anticipated to exceed average VMT per capita in both the City and Contra Costa County in 2020 and 2040. However, the proposed project would develop new residences that would locate residents near existing and under-construction residential uses, commercial, office, and retail space uses, and public parks, reducing the demand for travel by single occupancy vehicles. The proposed project would also provide pedestrian and bicyclist amenities, including sidewalks, shading, and landscaping which would also help to reduce the demand for travel by single occupancy vehicles, to the extent feasible. Therefore, the project would not substantially conflict with the BAAQMD's initiatives to reduce vehicle trips and vehicle miles traveled and would increase the use of alternate means of transportation.

Energy Control Measures. The Clean Air Plan also includes Energy Control Measures, which are designed to reduce emissions of criteria air pollutants, TACs, and GHGs by decreasing the amount of electricity consumed in the Bay Area, as well as decreasing the carbon intensity of the electricity used by switching to less GHG-intensive fuel sources for electricity generation. Since these measures apply to electrical utility providers and local government agencies (and not individual projects), the Energy Control Measures of the Clean Air Plan are not applicable to the project.

Building Control Measures. The BAAQMD has authority to regulate emissions from certain sources in buildings such as boilers and water heaters, but has limited authority to regulate buildings themselves. Therefore, the strategies in the control measures for this sector focus on working with local governments that do have authority over local building codes, to facilitate adoption of best GHG control practices and policies. The proposed project would be required to comply with the latest California Green Building Standards Code (CALGreen) standards. Therefore, the Building Control Measures of the Clean Air Plan are not applicable to the project.

Agriculture Control Measures. The Agriculture Control Measures are designed to primarily reduce emissions of methane. Since the project does not include any agricultural activities, the Agriculture Control Measures of the Clean Air Plan are not applicable to the project.

Natural and Working Lands Control Measures. The Natural and Working Lands Control Measures focus on increasing carbon sequestration on rangelands and wetlands, as well as encouraging local governments to ordinances that promote urban-tree plantings. Since the

project does not include the disturbance of any rangelands or wetlands, the Natural and Working Lands Control Measures of the Clean Air Plan are not applicable to the project.

Waste Management Control Measures. The Waste Management Measures focus on reducing or capturing methane emissions from landfills and composting facilities, diverting organic materials away from landfills, and increasing waste diversion rates through efforts to reduce, reuse, and recycle. The project would comply with local requirements for waste management (e.g., recycling and composting services). Therefore, the project would be consistent with the Waste Management Control Measures of the Clean Air Plan.

Water Control Measures. The Water Control Measures focus on reducing emissions of criteria pollutants, TACs, and GHGs by encouraging water conservation, limiting GHG emissions from publicly owned treatment works (POTWs), and promoting the use of biogas recovery systems. Since these measures apply to POTWs and local government agencies (and not individual projects), the Water Control Measures are not applicable to the project.

Super GHG Control Measures. The Super-GHG Control Measures are designed to facilitate the adoption of best GHG control practices and policies through the BAAQMD and local government agencies. Since these measures do not apply to individual projects, the Super-GHG Control Measures are not applicable to the project.

Clean Air Plan Implementation. As discussed above, the proposed project would generally implement the applicable measures outlined in the Clean Air Plan, including Transportation Control Measures. Therefore, the project would not disrupt or hinder implementation of a control measure from the Clean Air Plan. This impact would remain less than significant and the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

b. Would the project 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? ***(No New Impact)***

Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants: CO, ozone (O_3), NO_2, SO_2, Pb, and suspended particulate matter (PM_{10}, and $PM_{2.5}$). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. As identified above, the BAAQMD is under State non-attainment status for ozone, PM_{10}, and $PM_{2.5}$ standards. The Air Basin is also classified as non-attainment for both the federal ozone 8-hour standard and the federal $PM_{2.5}$ 24-hour standard.

Air quality standards for the proposed project are regulated by the BAAQMD CEQA Air Quality Guidelines. According to the BAAQMD CEQA Air Quality Guidelines, to meet air quality standards for operational-related criteria air pollutant and air precursor impacts, the project must not:

- Contribute to CO concentrations exceeding the State ambient air quality standards;
- Generate average daily construction emissions of reactive organic gases (ROG), nitrogen oxides (NO_x) or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
- Generate average operational emissions of ROG, NO_x or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.

The following sections describe the proposed project's construction- and operation-related air quality impacts and CO impacts.

Construction Emissions. The 2008 IS/MND did not quantify construction emissions; however the 2008 IS/MND determined that construction period emissions would result from implementation of the 2008 Project. Construction activities are a source of organic gas emissions. Solvents in adhesives, non-water-based paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

In addition, the 2008 IS/MND found that construction dust would affect local air quality at various times during construction of the proposed project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed. Clearing, grading and earthmoving activities have a high potential to generate dust whenever soil moisture is low and particularly when the wind is blowing. The effects of construction activities would be increased dustfall and locally elevated levels of particulates downwind of construction activity. Construction dust has the potential to create a nuisance at nearby properties. In addition to nuisance effects, excess dustfall can increase maintenance and cleaning requirements and could adversely affect sensitive electronic devices. As such, the 2008 IS/MND identified Mitigation Measure AIR-1 to reduce construction impacts to a less-than-significant level.

Similar to the 2008 Project, during construction of the proposed project, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs, such as diesel exhaust particulate matter.

Site preparation and project construction would involve grading, paving, and other activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction site. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near

the source, while fine particles would be dispersed over greater distances from the construction site.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of these Basic Construction Mitigation Measures, fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, ROGs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod) version 2016.3.2, consistent with BAAQMD recommendations. Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, consisting of 63 units in the first phase and 58 units in the second phase, and each lasting approximately 1 year. Initial occupancy would occur in approximately Spring 2022, and the final phase of construction is expected to be completed in Spring 2023. Construction-related emissions are presented in Table 4.A. CalEEMod output sheets are included in Appendix B.

Table 4.A: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	NO_x	Exhaust PM_{10}	Fugitive Dust PM_{10}	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$
Phase 1 Emissions	5.2	18.3	0.6	0.6	0.6	0.3
Phase 2 Emissions	4.9	18.2	0.6	0.6	0.6	0.3
BAAQMD Thresholds	54.0	54.0	82.0	BMP	54.0	BMP
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (September 2020).
BMP = best management practices

As shown in Table 4.A, construction emissions associated with the project would be less than significant for ROG, NO_x, $PM_{2.5}$, and PM_{10} exhaust emissions. The BAAQMD requires the implementation of the BAAQMD Basic Construction Mitigation Measures (best management practices), to minimize construction fugitive dust impacts. These measures are similar to those identified in Mitigation Measure AIR-1 in the 2008 IS/MND, but are modified to conform to current best practices. These measures are currently required for all construction projects:

Modified Mitigation Measure AIR-1: In order to meet the BAAQMD fugitive dust threshold, the following BAAQMD Basic Construction Mitigation Measures shall be implemented:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-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.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- 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.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and person to contact at the City of Antioch regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

With implementation of Modified Mitigation Measure AIR-1, the proposed project would not result in any new or more severe construction-period air quality impacts compared to those previously identified in the 2008 IS/MND.

Operational Emissions. The 2008 IS/MND did not quantify operational emissions; however the 2008 IS/MND determined that increase in long-term vehicular emissions generated by the 2008 Project are not anticipated to exceed the BAAQMD's operations threshold and would have a less than significant impact on local and regional air quality.

Long-term air pollutant emission impacts associated with the proposed project are those related to mobile sources (e.g., vehicle trips), energy sources (e.g., electricity and natural gas), and area sources (e.g., architectural coatings and the use of landscape maintenance equipment).

PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline-powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles.

Energy source emissions result from activities in buildings for which electricity and natural gas are used. The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or computers. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources.

Typically, area source emissions consist of direct sources of air emissions located at the project site, including architectural coatings and the use of landscape maintenance equipment. Area source emissions associated with the project would include emissions from the use of landscaping equipment and the use of consumer products.

Emissions estimates for operation of the project were calculated using CalEEMod. Model results are shown in Table 4.B. Trip generation rates for the project were based on the project's trip generation estimate, as identified in the Transportation Analysis Scope prepared for the proposed project.[10] Based on the Transportation Analysis Scope, the proposed project would generate approximately 1,142 average daily trips.

[10] LSA. 2020. *Scope of Work for the Deer Valley Estates Transportation Analysis*. October 26.

Table 4.B: Project Operational Emissions

	ROG	NO_x	PM_{10}	$PM_{2.5}$
Pounds Per Day				
Area Source Emissions	6.0	1.7	0.2	0.2
Energy Source Emissions	0.1	0.5	<0.1	<0.1
Mobile Source Emissions	1.7	6.5	5.8	1.6
Total Project Emissions	**7.7**	**8.7**	**6.0**	**1.8**
BAAQMD Thresholds	54.0	54.0	82.0	54.0
Exceed Threshold?	**No**	**No**	**No**	**No**
Tons Per Year				
Area Source Emissions	1.0	<0.1	<0.1	<0.1
Energy Source Emissions	<0.1	0.1	<0.1	<0.1
Mobile Source Emissions	0.3	1.2	1.0	0.3
Total Project Emissions	**1.3**	**1.3**	**1.0**	**0.3**
BAAQMD Thresholds	10.0	10.0	15.0	10.0
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: LSA (September 2020).

The primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on release or, in the case of vehicle emissions associated with the project; emissions are released in other areas of the Air Basin. The daily and annual emissions associated with project operational trip generation, energy, and area sources are identified in Table 4.B for ROG, NO_x, PM_{10}, and $PM_{2.5}$. The results shown in Table 4.B indicate the project would not exceed the significance criteria for daily ROG, NO_2, PM_{10} or $PM_{2.5}$ emissions; therefore, the proposed project would not have a significant effect on regional air quality and this impact would be less than significant. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

Localized CO Impacts. The 2008 IS/MND determined that the primary mobile source pollutant of local concern is CO, which is a direct function of vehicle idling time caused by traffic flow conditions. As discussed in the 2008 IS/MND, typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. The 2008 IS/MND found that all intersections in the vicinity of the project site would operate at acceptable levels of service with implementation of mitigation measures identified in the transportation section. Therefore, the 2008 IS/MND determined that potential impacts related to CO emissions would be less than significant.

The 2017 BAAQMD CEQA Guidelines establishes a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the 2017 BAAQMD CEQA Guidelines, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

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

- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

- The project 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, bridge underpass, natural or urban street canyon, or below-grade roadway).

Implementation of the proposed project would not conflict with the applicable congestion management program established by the Contra Costa Transportation Authority. According to the Transportation Analysis Scope, the proposed project would generate approximately 90 AM peak hour trips and 120 PM peak hour trips; therefore, the project's contribution to peak hour traffic volumes at intersections in the vicinity of the project site would be well below 44,000 vehicles per hour. Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards and this impact would be less than significant. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

c. Would the project expose sensitive receptors to substantial pollutant concentrations? ***(New Mitigation Required)***

Sensitive receptors are defined as residential uses, schools, daycare centers, nursing homes, and medical centers. Individuals particularly vulnerable to diesel particulate matter are children, whose lung tissue is still developing, and the elderly, who may have serious health problems that can be aggravated by exposure to diesel particulate matter. Exposure from diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to TACs resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 micrograms per cubic meter ($\mu g/m^3$).

A significant cumulative impact would occur if the project, in combination with other projects located within a 1,000-foot radius of the project site, would expose sensitive receptors to TACs resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the hazard index (chronic), or an ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ on an annual average basis. Impacts from substantial pollutant concentrations are discussed below.

Short-Term Exposure of Sensitive Receptors to Toxic Air Contaminants. The 2008 IS/MND found that construction of the proposed project may expose surrounding, sensitive land uses to short term emissions of airborne particulates and fugitive dust, as well as a small quantity of pollutants associated with the use of construction equipment (e.g., diesel-fueled vehicles and equipment). The 2008 IS/MND determined that since residential and medical/hospital uses are located near the site, sensitive receptors could be exposed to increased pollutant concentrations, especially during construction. The 2008 IS/MND identified implementation of Mitigation Measure AIR-1 to reduce construction period impacts to sensitive receptors to a less-than-significant level.

At the time the 2008 IS/MND was prepared there were no adopted thresholds for short-term exposure to TACs. Since that time the BAAQMD has adopted thresholds for short-term inhalation risks, which are shown in Table 4.C.

The proposed project site is located in an urban area in close proximity to existing residential uses that could be exposed to diesel emission exhaust during the construction period. Residential uses are located immediately adjacent to the northern and southern borders of the project site. To estimate the potential cancer risk from project construction equipment exhaust (including diesel particulate matter), a dispersion model was used to translate an emission rate from the source location to a concentration at the receptor location (i.e., a nearby residential land use). Dispersion modeling varies from a simpler, more conservative screening-level analysis to a more complex and refined detailed analysis. This refined assessment was conducted using The California Air Resources Board (CARB) exposure methodology, with the air dispersion modeling performed using the United States Environmental Protection Agency (USEPA) dispersion model AERMOD. The model provides a detailed estimate of exhaust concentrations based on site and source geometry, source emissions strength, distance from the source to the receptor, and site-specific meteorological data. Table 4.C, below, identifies the results of the analysis utilizing the standard Tier 2 construction equipment. Model snap shots of the sources are provided in Appendix C.

Table 4.C: Unmitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximally Exposed Individual	30.10	0.026	0.000	0.132
Threshold	**10.0**	**1.0**	**1.0**	**0.30**

Source: LSA (October 2020).
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$\mu g/m^3$ = micrograms per cubic meter

As shown in Table 4.C, the risk associated with project construction at the maximally exposed individual (MEI) would be 30.10 in one million, which would exceed the BAAQMD cancer risk of 10 in one million, and would result in a potentially significant impact without mitigation. The total chronic hazard index would be 0.026, which would not exceed the threshold of 1.0. In addition, the total acute hazard index would be nominal (0.000), which would also not exceed the threshold of 1.0. The results of the analysis indicate that the total $PM_{2.5}$ concentration would be 0.132 $\mu g/m^3$, which would not exceed the BAAQMD significance threshold of 0.30 $\mu g/m^3$.

As previously described, the proposed project would include fewer residential units than the 2008 Project, and therefore less construction activity. However, because the BAAQMD has adopted new thresholds in the time since the 2008 IS/MND was adopted, and because the proposed project would exceed the newly applicable BAAQMD cancer risk threshold of 30.10 in one million, the proposed project would result in a new impact. Therefore, implementation of the following new

mitigation measure would be required to reduce pollutant concentrations during project construction.

Mitigation Measure AIR-2: During construction of the proposed project, the project contractor shall ensure all off-road diesel-powered construction equipment of 50 horsepower or more used for the project construction at a minimum meets the CARB Tier 2 emissions standards or equivalent equipped with Level 3 diesel particulate filters equipped with Level 3 diesel particulate filters.

Table 4.D identifies the results of the analysis with implementation of Mitigation Measure AIR-2.

As shown in Table 4.D, the mitigated cancer risk at the MEI would be 4.95 in one million, which would not exceed the BAAQMD cancer risk of 10.0 in one million. Therefore, with implementation of Mitigation Measure AIR-2, construction of the proposed project would not exceed BAAQMD thresholds and would not expose nearby sensitive receptors to substantial pollutant concentrations. Implementation of Mitigation Measure AIR-2 would ensure that the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

Table 4.D: Mitigated Inhalation Health Risks from Project Construction to Off-Site Receptors

	Carcinogenic Inhalation Health Risk in One Million	Chronic Inhalation Hazard Index	Acute Inhalation Hazard Index	Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximally Exposed Individual	4.95	0.004	0.000	0.021
Threshold	**10.0**	**1.0**	**1.0**	**0.30**

Source: LSA (October 2020).
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
$\mu g/m^3$ = micrograms per cubic meter

Long-Term Exposure of Sensitive Receptors to Toxic Air Contaminants. As discussed in the 2008 IS/MND, long-term air pollution associated with the 2008 Project would be primarily vehicle related, and would not necessarily be concentrated in the vicinity of the project site. Based on the minimal amount of traffic that the 2008 Project would generate, the 2008 IS/MND found that long-term emissions would be less than significant. Similar to the 2008 Project, once the proposed project is constructed, the proposed project would not be a source of substantial emissions. Therefore, implementation of the proposed project would not result in new sources of TACs. Therefore, the project would not expose sensitive receptors to substantial levels of TACs and this impact would continue to be less than significant. Therefore, the proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? ***(No New Impact)***

As discussed in the 2008 IS/MND, as a typical residential development without any industrial land uses, the 2008 Project would not generate objectionable odors. In addition, the 2008 IS/MND found that the 2008 Project is not located downwind from any significant odor sources (e.g., landfills, sewage treatment plants) that could affect persons within the project site. Therefore, the 2008 IS/MND determined that implementation of the 2008 Project would not create objectionable odors affecting a substantial number of people or subject people to objectionable odors.

Similar to the 2008 Project, during project construction, some odors may be present due to diesel exhaust. However, these odors would be temporary and limited to the construction period. The proposed project would not include any activities or operations that would generate objectionable odors and once operational, the project would not be a source of odors. Therefore, objectionable odors affecting a substantial number of people would not occur as a result of the project. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND.

4.4 BIOLOGICAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 Game 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, regulations or by the California Department of Fish and Game or U.S. 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 native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
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 Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Unless otherwise noted, the following section is based on the Biological Resources Assessment (included in Appendix D)[11] and Jurisdictional Delineation (included in Appendix E)[12] prepared for the currently proposed project.

a. Would the project 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 Game or U.S. Fish and Wildlife Service? ***(No New Impact)***

The 2008 IS/MND determined that the project site supported non-native grassland and approximately 0.37 acres of seasonal wetland habitats. The 2008 IS/MND determined that the following special-status species could be present at the project site: Vernal pool fairy shrimp (*Branchinecta lynchi*), Vernal pool tadpole shrimp (*Lepidurus packardi*), California tiger salamander

11 LSA. 2019. *Biological Resources Assessment, 1600 Deer Valley Road, Antioch, Contra Costa County*. January 24.

12 LSA. 2019. *CWA 404 Jurisdictional Delineation of 1600 Deer Valley Road, Antioch.* January 24.

(*Ambystoma californiense*), Burrowing owl (*Athene cunicularia*), and San Joaquin kit fox (*Vulpes macrotis mutica*). The 2008 IS/MND identified Mitigation Measures BIO-1a through 1-c, which require preconstruction surveys, avoidance of seasonal wetlands where feasible, and purchasing lands at a mitigation bank if avoidance is not feasible; Mitigation Measures BIO-2a through 2d, which requires protocol level preconstruction surveys for burrowing owls, implementation of passive relocation techniques, avoidance of burrows during construction activities, and removal of burrowing owls in accordance with the Staff Report on Burrowing Owl Mitigation; and Mitigation Measures BIO-3a through 3-c, which require pre-construction surveys for kit fox dens, implementing the United States Fish and Wildlife Service Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance, and purchasing lands at a mitigation bank if avoidance is not feasible; and Mitigation Measure BIO-4, which requires the implementation of a Resource Management Plan if mitigation lands are purchased.

The project site is currently vacant and generally consists of non-native annual grassland and ruderal vegetation. Site conditions are similar to those found in 2008, with the exception that approximately 0.37-acre of potential seasonal wetland habitats appear to be no longer present at the site. During the time of the survey conducted as part of the Biological Resources Assessment, the project site appeared to have been recently disked. Several common species of birds were observed flying over or in the vicinity of the project site and California ground squirrels (*Otospermophilus beecheyi*) and their characteristic burrows were present across the project site. Plant species observed on the site consist of common filaree (*Erodium cicutarium*), California burclover (*Medicago polymorpha*), shortpod mustard (*Hirschfeldia incana*), and gumplant (*Grindelia hirsutula*). A search of the California Natural Diversity Database indicated 25 special-status plant species and 19 special-status wildlife species within 5 miles of the project site.

Similar to the findings in the 2008 IS/MND, due to its disturbed nature, the site is unlikely to support any special-status plant species. Most of the special-status plant species in the area have very specific habitat needs (e.g., vernal pools, alkali, playa, thin rocky soil, brackish marshes) that are not present on the site. No special-status plant species are expected on the site due to the extensive disturbance that has occurred in the past, the isolated nature of the property, and the non-native, weedy plant cover that is current present. Therefore, there would be no impact to special-status plant species and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Of the 19 special-status wildlife species identified as potentially occurring within the project vicinity, the presence of 9 can be ruled out due to a lack of suitable habitat on or near the project site. The project site continues to provide suitable habitat for Vernal pool tadpole and fairy shrimp, California tiger salamander, Burrowing owl, and San Joaquin Kit Fox and may now provide suitable habitat for the following five special-status species: California red-legged frog (*Rana draytonii*), Swainson's hawk (*Buteo swainsoni*), Loggerhead shrike (*Lanius ludovicianus*), white-tailed kite (*Elanus leucurus*), and American badger (*Taxidea taxus*). As described in the Biological Resources Assessment, the American badger occurs in the same habitats as the burrowing owl and San Joaquin kit fox and California red-legged frog utilizes the same breeding habitat as the California tiger salamander. Therefore, Mitigation Measures BIO-1a through BIO-3c from the 2008 IS/MND, which are described above and in Appendix A, would continue to be applicable to the proposed project and would be

required to reduce potential impacts to Vernal pool fairy and tadpole shrimp, California tiger salamander, California red-legged frog, Burrowing owl, San Joaquin Kit Fox, and American badger to a less-than-significant level.

As described above, the project site provides suitable habitat for Swainson's hawk, Loggerhead shrike, and white-tailed kite, which were not identified in the 2008 IS/MND. Therefore, implementation of the proposed project could result in a new impact. Implementation of Mitigation Measure BIO-5, described below, would ensure this impact would be reduced to a less-than-significant level.

Mitigation Measure BIO-5: The proposed project shall avoid any construction activities that result in vegetation removal, including grading and other ground-disturbing activities, during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, the project applicant shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.

With implementation of Mitigation Measures BIO-1a through BIO-4 from the 2008 IS/MND (described in Appendix A) and Mitigation Measure BIO-5, the proposed project would not result in any new or more severe impacts compared to those previously analyzed in the 2008 IS/MND.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? ***(No New Impact)***

The 2008 IS/MND determined that the project site does not support any riparian habitat or other sensitive natural community. The Biological Resources Assessment did not identify any new riparian habitats or sensitive natural communities on the project site. Therefore, this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project 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? ***(Reduced Impact)***

The 2008 IS/MND identified an approximately 0.37-acre potential seasonal wetland on the project site, and identified Mitigation Measure BIO-5a, which required a formal wetland delineation to be conducted for the project site. The potential wetland was based on standing water observed on the project site in 2003 and the presence of hydrophytic vegetation. The Jurisdictional Delineation prepared for the project site in December 2019 (during the wet season) determined that due to the lack of hydric soils and wetland hydrology at this site, no State or federally protected wetlands are present on the project site, despite the presence of wetland vegetation. Therefore, no impact would occur and this impact would be reduced compared to the 2008 Project.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? ***(No New Impact)***

The project site is a vacant lot with a disked field situated within an urban/grassland setting, surrounded to the north and south by urban development, such as roads, buildings, and parking lots. The western side of the site is open grassland, and the property to the east is being graded at present. No significant wildlife movement corridors, such as stream channels or riparian corridors, occur at the site. Existing wildlife that currently move through the site are likely both rural and urban-adapted species that would likely continue to move through the site after project development. Additionally, implementation of Mitigation Measures BIO-1a through BIO-3c as identified in the 2008 IS/MND would further ensure that this impact would remain less than significant. Therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? ***(Reduced Impact)***

The project site does not currently contain any mature trees, and therefore the proposed project would not include the removal of any trees or require the issuance of a tree removal permit. The 2008 IS/MND required planting of a minimum of 36 new trees to mitigate for the loss of 12 mature trees that were removed from the site in approximately 2007 (Mitigation Measure BIO-6); however, this mitigation measure is no longer applicable as the proposed project would no longer include the removal of any trees. Additionally, the proposed project would include the planting of approximately 298 new trees. Therefore, this impact would be reduced compared to the 2008 Project and no impact would occur.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? ***(No New Impact)***

The project site is not located within the limits of any adopted conservation plan and therefore would not conflict with any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan. Therefore, there would be no impact and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.5 CULTURAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Unless otherwise noted, the following analysis is based on the Cultural Resources Report (included as Appendix F) prepared for the currently proposed project.[13]

*a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5? **(No New Impact)***

The 2008 IS/MND determined that the project site did not contain any historical resources. However, the 2008 IS/MND did identify potentially significant impacts related to the potential accidental discovery of archaeological resources or human remains during site preparation activities. However, with implementation of Mitigation Measures CULT-1 and CULT-3, these impacts would be reduced to a less-than-significant level. Conditions on the project site have not substantially changed since the preparation of the 2008 IS/MND. Therefore, the proposed project would not result in any substantial adverse changes to historical resources, but could adversely affect previously undiscovered archaeological resources and human remains. Therefore, Mitigation Measures CULT-1 and CULT-3 from the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? **(No New Impact)***

Refer to Section 4.5.a. Mitigation Measures CULT-1 and CULT-3 as identified in the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[13] LSA. 2019. *Cultural Resources Supplemental Report for APN 057-022-013, 1600 Deer Valley Road, Antioch, Contra Costa County, California.* January 28.

c. Would the project disturb any humans remains, including those interred outside of formal cemeteries? ***(No New Impact)***

Refer to Section 4.5.a. Mitigation Measures CULT-1 and CULT-as identified in the 2008 IS/MND would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.6 ENERGY

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Result in a 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?	☐	☐	☐	☒

At the time the 2008 IS/MND was prepared, the CEQA Guidelines did not require the evaluation of energy resources in the preparation of MNDs. As such, the 2008 IS/MND did not evaluate potential energy impacts. The following analysis was prepared consistent with the significance criteria identified in Appendix G of the CEQA Guidelines to evaluate the impacts of project-related energy demand.

*a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation? **(No New Impact)***

The proposed project would increase the demand for electricity, natural gas, and gasoline. The discussion and analysis provided below is based on data included in the CalEEMod output, which is included in Appendix B.

Construction-Period Energy Use. The anticipated construction schedule assumes that the proposed project would be built over 2 years. The proposed project would require grading, site preparation, and building activities during construction.

Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading activities, and construction of the single-family homes. Petroleum fuels (e.g., diesel and gasoline) would be the primary sources of energy for these activities. In order to increase energy efficiency on the site during project construction, equipment idling times would be restricted to 5 minutes or less and construction workers would be required to shut off idle equipment, as identified in Modified Mitigation Measure AIR-1. In addition, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Therefore, construction energy impacts would be less than significant. With implementation of Modified Mitigation Measure AIR-1, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Operational Energy Use. Energy use consumed by the proposed project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the project. Energy and natural gas consumption was estimated for the project using default energy intensities by building type in CalEEMod. In addition, the proposed buildings would be constructed to CALGreen standards, which was included in CalEEMod inputs. Electricity and natural gas usage estimates associated with the proposed project are shown in Table 4.E. In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. Based on the CalEEMod analysis, the proposed project would result in approximately 2,690,139 VMT per year.[14] The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 miles per gallon (mpg) in 1980 to 22.0 mpg in 2015.[15] Therefore, using the USEPA fuel economy estimates for 2015, the proposed project would result in the consumption of approximately 122,279 gallons of gasoline per year. Table 4.E, below, shows the estimated potential increased electricity and natural gas demand associated with the proposed project.

Table 4.E: Estimated Annual Energy Use of Proposed Project

Electricity Use (kWh per year)	Natural Gas Use (therms per year)	Gasoline (gallons per year)
958,068	18,557	122,279

Source: LSA (September 2020).

As shown in Table 4.E, the estimated potential increased electricity demand associated with the proposed project is 958,068 kilowatt hours (kWh) per year. In 2018, California consumed approximately 281,120 gigawatt hours (GWh) or 281,120,193,430 kWh.[16] Of this total, Contra Costa County consumed 16,668 GWh or 16,668,160,600 kWh.[17] Therefore, electricity demand associated with the proposed project would only be approximately 0.01 percent of Contra Costa County's total electricity demand.

The estimated potential increased natural gas demand associated with the proposed project is 18,557 therms per year, as shown in Table 4.E. In 2018, California consumed approximately 12,638 million therms or 12,638,157,740 therms, while Contra Costa County consumed approximately 440 million therms or approximately 440,030,822 therms.[18] Therefore, natural gas demand associated

14 It should be noted that a Transportation Impact Analysis (TIA) will be prepared as part of the EIR. The TIA and EIR may include a refined estimate of VMT; however, any variation in estimated VMT would not affect the analysis or conclusions related to energy as presented in this section.

15 U.S. Department of Transportation. 2017. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." Website: www.bts.gov/archive/publications/national_transportation_statistics/table_04_23 (accessed September 2020).

16 California Energy Commission. 2018. Energy Consumption Data Management Service. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed September 2020).

17 Ibid.

18 California Energy Commission. 2018. Energy Consumption Data Management Service. Gas Consumption by County. Website: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed September 2020).

with the proposed project would be less than 0.01 percent of Contra Costa County's total natural gas demand.

In addition, the proposed project would result in energy usage associated with gasoline to fuel project-related trips. As shown above in Table 4.E, vehicle trips associated with the proposed project would consume approximately 122,279 gallons of gasoline per year. In 2015, vehicles in California consumed approximately 15.1 billion gallons of gasoline.[19] Therefore, gasoline demand generated by vehicle trips associated with the proposed project would be a minimal fraction of gasoline and diesel fuel consumption in California.

The proposed project would be constructed to CALGreen standards, which would help to reduce energy and natural gas consumption. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of fuel or energy and would incorporate renewable energy or energy efficiency measures into building design, equipment use, and transportation. Construction and operation period impacts related to consumption of energy resources would be less than significant. Therefore, the proposed project would not result in any new or more severe impacts beyond those identified in the 2008 IS/MND.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? ***(No New Impact)***

In 2002, the Legislature passed Senate Bill (SB)1389, which required the California Energy Commission (CEC) to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero emission (ZE) vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The most recently adopted CEC energy report is the 2019 Integrated Energy Policy Report.[20] The 2019 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2019 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary

[19] California Energy Commission. 2017. California Gasoline Data, Facts, and Statistics. Website: www.energy.ca.gov/almanac/transportation_data/gasoline (accessed September 2020).

[20] California Energy Commission. 2019. *2019 Integrated Energy Policy Report.* California Energy Commission. Docket # 19-IEPR-01.

transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact to regional energy supplies would be minor, the proposed project would not conflict with California's energy conservation plans as described in the 2019 Integrated Energy Policy Report. Thus, as shown above, the project would avoid or reduce the inefficient, wasteful, and unnecessary consumption of energy and not result in any irreversible or irretrievable commitments of energy. Therefore, the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.7 GEOLOGY AND SOILS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 18-1-B 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 waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

a. Would the project 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? ***(No New Impact)***

The project site is not located within an Alquist-Priolo Earthquake Fault Zone[21] and therefore, similar to the 2008 Project, would not be subject to fault rupture. Similar to the 2008 Project, the proposed project would also be subject to strong seismic groundshaking. However, implementation of Mitigation Measure GEO-1 (described in Appendix A), which requires the project design to comply with the California Building Code (CBC), would ensure that this impact would remain less than significant.

[21] California Department of Conservation. 2020. *Earthquake Zones of Required Investigation.* Website: maps.conservation.ca.gov/cgs/EQZApp/app (accessed October 2020).

Soil liquefaction is primarily associated with saturated soil layers located close to the ground surface. During ground shaking, these soils lose strength and acquire "mobility" sufficient to permit both horizontal and vertical movements. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sands that lie relatively close to the ground surface. However, loose sands that contain a significant amount of fines (silt and clay) may also liquefy. The 2008 IS/MND determined that potential liquefaction hazards would be moderately low. However, new liquefaction maps published by the California Department of Conservation indicate the project site is located within a liquefaction zone.[22] As noted above, Mitigation Measure GEO-1 requires the project design to comply with the CBC. The CBC provides for stringent construction requirements on projects in areas of high seismic risk, including liquefaction zones. Therefore, with implementation of Mitigation Measure GEO-1 as identified in the 2008 IS/MND, this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project result in substantial soil erosion or the loss of topsoil? ***(No New Impact)***

The 2008 IS/MND determined that the project site would be susceptible to erosion based on the presence of Capay and Altamont clay. The 2008 IS/MND determined that implementation of Mitigation Measure HYD-3 (described in Appendix A), which requires a detailed hydraulic analysis that shows the proposed project would not create potential hydromodification impacts such as soil erosion, would reduce this impact to a less-than-significant level. As previously described, conditions on the project site are essentially unchanged since adoption of the 2008 IS/MND. Therefore, Mitigation Measure HYD-3 would continue to be required to ensure that impacts related to soil erosion would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project 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? ***(No New Impact)***

The 2008 IS/MND identified a potentially significant impact related to caving at excavations and trenches, as well as the potential for differential settlement to cause damage to site structures. Mitigation Measures GEO-2 and GEO-3 (described in Appendix A), which requires the implementation of shoring requirements for workers dealing with work in excavations and the incorporation of all recommendations in a final site-specific design-level geotechnical investigation, would continue to be required to ensure impacts related to unstable soils would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[22] Ibid.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? ***(No New Impact)***

Refer to Section 4.7.c. Mitigation Measure GEO-3 (described in Appendix A) requires the project applicant to incorporate all recommendations of a final site-specific design-level geotechnical investigation, including for the pretreatment of expansive soils. Conditions on the project site have not changed such that the characteristics of the soil would be different. Therefore, implementation of Mitigation Measure GEO-3 would still be required to ensure potential impacts related to expansive soils would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ***(No New Impact)***

Similar to the 2008 Project, the proposed project would connect to the City's wastewater infrastructure and would not require on-site treatment and disposal of wastewater. Therefore, there would be no impact and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? ***(No New Impact)***

The 2008 IS/MND determined that although no paleontological resources have been identified within the same geologic setting as the project site, there is a possibility that construction activities could impact previously unknown paleontological resources. The 2008 IS/MND identified Mitigation Measure CULT-2 (described in Appendix A) to reduce this impact to a less-than-significant level in the event that such resources are encountered during project construction activities. Implementation of Mitigation Measure CULT-2 would ensure this impact would remain less than significant; therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.8 GREENHOUSE GAS EMISSIONS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 gases?	☐	☐	☐	☒

At the time the 2008 IS/MND was prepared, the CEQA Guidelines did not require the evaluation of GHG emissions. In addition, no numeric significance thresholds had formally been adopted. Therefore, the following analysis was prepared consistent with the significance criteria identified in Appendix G of the CEQA Guidelines and CEQA Guidelines Section 15064.4 to evaluate the impacts of project-related GHG emissions based on the guidance in the BAAQMD 2017 CEQA Guidelines.[23]

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced global climate change are:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur Hexafluoride (SF_6).

Over the last 200 years, humans have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, believed to be causing global warming. While manmade GHGs include naturally occurring GHGs such as CO_2, methane, and N_2O, some gases, like HFCs, PFCs, and SF_6 are completely new to the atmosphere.

Certain gases, such as water vapor, are short-lived in the atmosphere. Others remain in the atmosphere for significant periods of time, contributing to climate change in the long term. Water vapor is

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

excluded from the list of GHGs above because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

These gases vary considerably in terms of Global Warming Potential (GWP), a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO_2 over a specified time period. GHG emissions are typically measured in terms of pounds or tons of "CO_2 equivalents" (CO_2e).

*a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? **(No New Impact)***

This section describes the proposed project's construction- and operational-related GHG emissions and contribution to global climate change. The 2017 CEQA Guidelines do not address emission thresholds for construction; however, the BAAQMD encourages quantification and disclosure. Thus, construction emissions are discussed in this section.

Construction Activities. Construction activities associated with the proposed project would produce combustion emissions from various sources. During construction, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. Furthermore, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction. Using CalEEMod, it is estimated that construction of the proposed project would generate approximately 379.9 metric tons of CO_2e during Phase 1 and 378.0 metric tons of CO_2e during Phase 2 of construction. Therefore, construction of the proposed project would generate a total of approximately 757.9 metric tons of CO_2e. Implementation of Modified Mitigation Measure AIR-1 would reduce GHG emissions by reducing the amount of construction vehicle idling and by requiring the use of properly maintained equipment. Therefore, construction-period GHG emission impacts would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Operational Emissions. Long-term GHG emissions are typically generated from mobile sources (e.g., cars, trucks and buses), area sources (e.g., maintenance activities and landscaping), indirect emissions from sources associated with energy consumption, waste sources (land filling and waste disposal), and water sources (water supply and conveyance, treatment, and distribution). Mobile-source GHG emissions would include project-generated vehicle trips to and from the project site. Area-source emissions would be associated with activities such as landscaping and maintenance on

the project site. Energy source emissions would be generated at off-site utility providers as a result of increased electricity demand generated by the project. Waste source emissions generated by the proposed project include energy generated by land filling and other methods of disposal related to transporting and managing project generated waste. In addition, water source emissions associated with the proposed project are generated by water supply and conveyance, water treatment, water distribution, and wastewater treatment.

Following guidance from the BAAQMD, GHG emissions were estimated using CalEEMod. Table 4.F shows the calculated GHG emissions for the proposed project. CalEEMod output sheets are included in Appendix B.

Table 4.F: GHG Emissions (Metric Tons Per Year)

Emissions Source	Operational Emissions				
	CO_2	CH_4	N_2O	CO_2e	Percent of Total
Area Source Emissions	6.5	<0.1	<0.1	11.8	1
Energy Source Emissions	115.9	<0.1	<0.1	243.6	18
Mobile Source Emissions	492.2	<0.1	0.0	1,027.7	78
Waste Source Emissions	3.5	0.2	0.0	18.3	1
Water Source Emissions	6.0	0.1	<0.1	20.7	2
Total Project Annual Emissions				**1,322.1**	**-**
BAAQMD Threshold				**1,100**	-
Exceed?				**Yes**	**-**
Total Annual Service Population Emissions (Metric Tons/Year/Service Population)				**3.6**	-
Service Population Threshold				**4.6**	**-**
Exceed?				**No**	**-**

Source: LSA (September 2020).

The 2017 CEQA Guidelines include quantitative GHG thresholds of significance adopted by the BAAQMD for operational emissions. The numeric thresholds set by the BAAQMD were calculated to achieve the State's 2020 target for GHG emissions levels (and not the SB 32 specified target of 40 percent below the 1990 GHG emissions level). The proposed project would not be fully constructed and operational until 2023. Because the project would begin operations in the post-2020 timeframe, the 2020 efficiency target of 1,100 metric tons of CO_2e per year threshold and 4.6 metric tons of CO_2e per year per service population, which has been the threshold most recently applied to development projects, would not apply.

CARB has completed a Scoping Plan, which will be utilized by the BAAQMD to establish the 2030 GHG efficiency threshold. BAAQMD has yet to publish a quantified GHG efficiency threshold for the 2030 target. A scaled threshold consistent with State goals detailed in SB 32, Executive Order B-30-15, and Executive Order S-3-05 to reduce GHG emissions by 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050, respectively was developed for 2023. Though the BAAQMD has not published a quantified threshold beyond 2020, this assessment uses a threshold of 968 metric tons of CO_2e per year or 4.1 metric tons of CO_2e per capita service population (employees plus residents) per year, which was calculated for the buildout year of 2023 based on the GHG reduction goals of SB 32 and Executive Order B-30-15.

Therefore, the proposed project would not have a significant effect on the environment if it would meet one of the following criteria:

- Result in operational-related GHG emissions of less than 968 metric tons of CO_2e a year; or
- Result in operational-related GHG emissions of less than 4.1 metric tons of CO_2e per capita service population (employees plus residents) per year.

As shown in Table 4.F, the proposed project would generate approximately 1,322.1 metric tons of CO_2e per year which would exceed the numeric threshold of 968 metric tons CO_2e. The proposed project would develop 121 residential units, which would provide residence for approximately 372 people. The proposed project would not result in the addition of any new employees; therefore the total service population (residents plus employees) would be 372 people. As such, the project's GHG emissions would result in a GHG efficiency of 3.6 metric tons CO_2e per service population, which would be below the 4.1 metric tons of CO_2e per service population threshold. Therefore, operation of the proposed project would not generate significant GHG emissions that would have a significant effect on the environment and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? ***(No New Impact)***

The City of Antioch Climate Action and Resilience Plan (CARP) was adopted on May 12, 2020. The purpose of the CARP is to begin preparing the Antioch community for hazards shocks such as drought, flood, and extreme heat that are expected to intensify in the future and to reduce the community's reliance on carbon-based energy sources. In addition, the CARP identifies GHG reduction strategies that work to reduce emissions associated with transportation, energy, waste, hazard preparedness, and community capacity building. The City of Antioch will be primarily responsible for implementation of the GHG reduction strategies. However, this analysis includes an evaluation of the proposed project's consistency with the goals of the GHG reduction strategies.

The goals of the transportation GHG reduction strategies are to reduce VMT in the Antioch community through encouraging transportation mode shift and reducing the emissions impact of VMT through vehicle electrification. The proposed project would develop new residences that would locate residents near existing and planned residential uses, commercial, office, and retail space uses, and public parks, reducing the demand for travel by single occupancy vehicles. The proposed project would also provide pedestrian and bicyclist amenities, including sidewalks, shading, and landscaping which would also help to reduce the demand for travel by single occupancy vehicles. Therefore, the project would be consistent with the transportation GHG reduction strategies to reduce VMT, to the extent that is feasible for single-family residential development in this location.

The goals of the energy GHG reduction strategies include increasing fuel switching from natural gas to electricity, increasing energy security by reducing energy demand, and reducing the impact of electricity use on GHG emissions. As described in Section 4.6, Energy, electricity demand associated

with the proposed project would only be approximately 0.01 percent of Contra Costa County's total electricity demand and natural gas demand associated with the proposed project would be less than 0.01 percent of Contra Costa County's total natural gas demand. The proposed project would be constructed to CALGreen standards, which would help to reduce energy and natural gas consumption. Therefore, the proposed project would be consistent with the goals of the energy GHG reduction strategies to reduce energy demand.

In addition, the goals of the waste GHG reduction strategies are to begin building the systems to transform Antioch into a low carbon, low waste community, contribute to a circular economy, and gather community engagement and support for a circular economy. The proposed project would be consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent. Therefore, the proposed project would be consistent with the goals of the waste GHG reduction Strategies.

The goals of the hazard preparedness GHG reduction strategies include ensuring that the Antioch population is prepared for the increasing likelihood of hazard occurrence, ensuring that Antioch's built environment is prepared for the increasing likelihood of hazard occurrence, and expanding community knowledge of effects of climate change and ensuring effectiveness emergency communication systems. In addition, the goals of the community capacity building GHG reduction strategies include strengthening Antioch's social and economic systems to promote resilience, removing barriers to economic, political, and social participation for low-income communities and communities of color, and expanding engagement between the City of Antioch and the Antioch community. Since these measures apply to the City of Antioch (and not individual projects), the hazard preparedness and community capacity building GHG reduction strategies are not applicable to the project.

As described above, the proposed project would generally be consistent with CARP GHG reductions strategies. Therefore, the proposed project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the GHG emissions. This impact would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.9 HAZARDS AND HAZARDOUS MATERIALS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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 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 2 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 a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ***(No New Impact)***

The 2008 IS/MND determined that the single-family residential uses and park included in the 2008 Project would not include the routine transport, use, or disposal of significant quantities of hazardous materials. The proposed project would include the same uses as the proposed project, and therefore this impact would remain less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ***(No New Impact)***

The 2008 IS/MND identified a potentially significant impact related to the potential for an accidental release of hazardous materials due to the site's past agricultural uses, contamination from nearby or unmapped oil/natural gas wells in the vicinity, and potential damage to pipelines in the vicinity of

the project site. However, the 2008 IS/MND determined that implementation of Mitigation Measures HAZ-1 and HAZ-2 (described in Appendix A) would reduce this impact to a less-than-significant level through pre-construction environmental investigations for hazardous materials and the preparation of a Construction Risk Management Plan. As previously described, conditions on the project site have not substantially changed since the adoption of the 2008 IS/MND. Therefore, with implementation of Mitigation Measures HAZ-1 and HAZ-2 as identified in the 2008 IS/MND, this impact would remain less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? ***(No New Impact)***

The 2008 IS/MND determined that because the proposed project would not emit hazardous emissions of significant risk or handle significant quantities of hazardous materials, substances, or waste, there would be no significant impacts to existing or proposed school facilities. As described above, the proposed project would include the same uses as the proposed project and would also not include the transport, use, or storage of hazardous materials. Therefore, this impact would remain less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project 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? ***(No New Impact)***

The 2008 IS/MND determined that the project site was not included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and that there were no sites in the vicinity that would be likely to significantly affect soil or groundwater at the project site. The project site is not currently listed on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.[24] Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area? ***(No New Impact)***

The 2008 IS/MND determined that the project site is not located within the vicinity of a public or private airport or within an airport land use plan. The proposed project would be located on the same site as the 2008 Project, and is not within the boundaries of any airport land use plans. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[24] California Environmental Protection Agency. 2020. Cortese List Data Resources. Website: calepa.ca.gov/sitecleanup/corteselist (accessed October 2020).

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

The 2008 IS/MND determined that the proposed project would not interfere with an emergency response plan as vehicle and pedestrian circulation would occur on facilities that have been designed and constructed in accordance with City of Antioch requirements. Similar to the 2008 Project, internal streets and sidewalks on the project site would be required to be designed in accordance with these requirements. As described in Section 4.17, Transportation, a transportation impact analysis (TIA) is being prepared for the proposed project that will evaluate the potential need for alteration of existing streets within the project area, in order to accommodate traffic generated by the proposed development. Any modifications identified in the TIA will be required to be consistent with the City's standards for street design, which would ensure that emergency access and evacuation routes are maintained. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project was not within an area mapped as containing a wildland fire hazard. Additionally, undeveloped lands within the vicinity of the project site were planned for residential uses. Since adoption of the 2008 IS/MND, residential developments have been approved on parcels to the east and west of the project site, further reducing the site's proximity to undeveloped wildland areas. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.10 HYDROLOGY AND WATER QUALITY

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater 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?	☐	☐	☐	☒

*a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would have a potentially significant impact related to water quality standards, as it could not be determined whether or not the proposed Best Management Practices (BMPs) included in the proposed project would be sufficient to address all of the applicable requirements for the National Pollutant Discharge Elimination System (NPDES) permit. Therefore, the 2008 IS/MND identified Mitigation Measures HYD-1 and HYD-2 (described in Appendix A) to ensure any potential impacts to water quality and discharge would be less than significant. The proposed project would include new stormwater infrastructure on the project site and connect to the same stormwater facilities as the 2008 Project. Since the adoption of the 2008 IS/MND, the Contra Costa Clean Water Program (CCCWP) has updated its Stormwater C.3 Guidebook. The project applicant has prepared a Stormwater Control Plan to ensure the proposed project would be consistent with the CCCWP C.3 Guidebook.[25] In addition, since the adoption of the 2008 IS/MND, the Central Valley Regional Water Quality Control Board (Regional Water Board)

[25] Carlson, Barbee & Gibson, Inc. 2020. *Preliminary Stormwater Control Plan, Deer Valley Estates Subdivision 9518, Antioch, California.* May 4.

adopted a new Municipal Regional Permit (MRP) in October 2010. However, the new MRP does not include the removal of any requirements that would have reduced any impacts or the inclusion of any new requirements that would lessen or increase any of the impacts related to water quality standards that were identified in the 2008 IS/MND. Therefore, to ensure these impacts would remain less-than-significant, implementation of Mitigation Measures HYD-1 and HYD-2 would continue to be required. With implementation of these measures, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? ***(No New Impact)***

The 2008 IS/MND determined that the project site does not overlie a specified groundwater recharge area and would not include the use of any local groundwater supplies. The 2008 IS/MND determined that the 2008 Project would likely increase groundwater recharge on the project site as it would include vegetated swales that would offset the potential reduction in infiltration associated with the increase in impervious surfaces. Additionally, the import of water for irrigation of lawns and gardens may result in a net increase in aquifer recharge locally. Similar to the 2008 Project, the proposed project would include an approximately 1.51-acre bioretention basin that would be used for stormwater control and landscaping throughout the project site. Therefore, impacts related to groundwater supplies would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project 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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project could cause hydromodification impacts in the vicinity of the project site by increasing the rate and volume of runoff. In addition, the preliminary drainage plans for the 2008 Project did not include explicit calculations or descriptions as to how it would be ensured that downstream flooding problems would not be exacerbated. Therefore, the 2008 IS/MND identified Mitigation Measures HYD-3, HYD-4, and HYD-5 (described in Appendix A), which require a detailed hydraulic analysis, preparation and implementation of a drainage plan, and the payment of impact fees for increased impervious surfaces, to ensure these impacts would be reduced to a less-than-significant level. Similar to the 2008 Project, the proposed project would also include an increase in impervious surfaces on the project site and could increase the rate and volume of surface runoff. Additionally, downstream flooding calculations or descriptions have not yet been prepared. Therefore, to ensure that this impact would be reduced to a less-than-significant level, implementation of Mitigation Measures HYD-3, HYD-4, and HYD-5 would continue to be required. With implementation of these mitigation measures, the proposed project would not result

in any new or substantially more severe impacts beyond those previously identified in the 2008 IS/MND.

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? ***(No New Impact)***

The 2008 IS/MND determined that the project site was not located within a 100- or 500-year flood hazard zone, and was not within a mapped dam failure inundation area or near a large body of water susceptible to seiche or tsunami. The proposed project would be located on the same site as the 2008 Project and therefore would also not be located within a tsunami or seiche hazard zone. Additionally, the project site is also not located within a flood zone.[26] Therefore, the proposed project would not result in any new impacts related to flood hazards. In addition, Mitigation Measures HYD-3, HYD-4, and HYD-5 would further ensure that the proposed project would not release any pollutants during a severe flood event. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impact beyond those previously identified in the 2008 IS/MND.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? ***(No New Impact)***

The Sustainable Groundwater Management Act (SGMA) was enacted in September 2014, after the adoption of the 2008 IS/MND.[27] SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. SGMA requires the formation of local groundwater sustainability agencies (GSAs), which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The project site is located within the San Joaquin Valley – East Contra Costa Groundwater Basin, which is identified as a medium-priority basin. A Groundwater Sustainability Plan is currently under development, and will be released for public review throughout 2020.[28] Regardless, as discussed previously, the proposed project would not use groundwater supplies or reduce groundwater recharge. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

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26 Federal Emergency Management Agency. 2009. FEMA Flood Map Service Center. Website: msc.fema.gov/portal/search?AddressQuery=6100%20Deer%20Valley%2C%20Antioch%2C%20CA (accessed October 2020). June 16.

27 California Department of Water Resources. 2019. SGMA Groundwater Management. Website: water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management (accessed August 9, 2019).

28 ECC GSA Working Group. 2020. Sustainable Groundwater Management. Website: www.eccc-irwm.org/about-sgma (accessed October 2020).

4.11 LAND USE AND PLANNING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

*a. Would the project physically divide an established community? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not create any physical barriers to travel in the vicinity of the project site. Similar to the 2008 Project, the proposed project would include the development of single-family residential uses on an undeveloped site surrounded by existing and under-construction residential uses, vacant land, and healthcare uses. The proposed project would include new connections to Piute Way, Mojave Way, and Oneida Way, and therefore would increase opportunities for vehicular and pedestrian access in the area. Therefore, the proposed project would not physically divide an established community and this impact would be less than significant. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project 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? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be consistent with the General Plan as it would include a density of approximately 3.6 dwelling units per acre, where the maximum is 4 dwelling units per acre for the Low Density Residential designation. The 2008 Project also included a rezone of the project site to the P-D district. The intent of the P-D district is to encourage a wider variety of densities, product types and setbacks than would otherwise be possible under conventional residential zoning. The rezone set the development standards for the project site, including the maximum density and maximum number of units, minimum lot size, landscape and open space requirements, architectural guidelines, maximum building heights, and lot coverage, all of which conformed to the P-D district. The proposed project would include fewer residential uses than the 2008 Project, and therefore would also conform to the requirements of the P-D district. The proposed project would generally be consistent with applicable land use plans and policies and would not conflict with any such plan or policy adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.12 MINERAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
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?	☐	☐	☐	☒

*a. Would the project 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? **(No New Impact)***

The 2008 IS/MND determined that the 2008 project site is located within the outer margins of the Brentwood oil field. However, given the marginal economic viability of the Brentwood oil field, the 2008 IS/MND determined that development of the site would not result in the loss of availability of a known mineral resource of value. Similar to the 2008 Project, the Brentwood oil field continues to have marginal economic viability, and therefore the proposed project would also not result in the loss of availability of a known mineral resource. The project site also contains two wells that are no longer in use but are not abandoned to current California Department of Conservation Division of Oil, Gas, and Geothermal Resources requirements. However, the project applicant would be required to bring the abandonment of these wells into compliance as a part of the proposed project. The project site is also not designated as a locally-important resource recovery site in the City's General Plan. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

*b. Would the project 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? **(No New Impact)***

Refer to Section 4.12.a. The proposed project would not result in any new or more severe impacts compared to those previously identified in the 2008 IS/MND, and no new mitigation would be required.

4.13 NOISE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project result in:				
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 2 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?	☐	☐	☐	☒

The following provides an overview of the characteristics of sound and the regulatory framework that applies to noise within the vicinity of the project site. The existing noise environment in and around the project site is also described.

Characteristics of Sound. Noise is usually defined as unwanted sound. Noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest, recreation, or sleep. Several noise measurement scales exist that are used to describe noise in a particular location. A decibel (dB) is a unit of measurement that indicates the relative intensity of a sound. Sound levels in dB are calculated on a logarithmic basis. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense and 30 dB is 1,000 times more intense. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness; and similarly, each 10 dB decrease in sound level is perceived as half as loud. Sound intensity is normally measured through the A-weighted sound level (dBA). This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. The A-weighted sound level is the basis for 24-hour sound measurements which better represent how humans are more sensitive to sound at night. As noise spreads from a source, it loses energy so that the farther away the noise receiver is from the noise source, the lower the perceived noise level would be. Geometric spreading causes the sound level to attenuate or be reduced, resulting in a 6 dB reduction in the noise level for each doubling of distance from a single point source of noise to the noise sensitive receptor of concern.

There are many ways to rate noise for various time periods, but an appropriate rating of ambient noise affecting humans also accounts for the annoying effects of sound. Equivalent continuous sound level (L_{eq}) is the total sound energy of time varying noise over a sample period. However, the predominant rating scales for human communities in the State of California are the L_{eq}, the community noise equivalent level (CNEL), and the day-night average level (L_{dn}) based on dBA. L_{dn}, sometimes denoted as DNL, represents the time varying noise over a 24-hour period, with a 10 dBA weighting factor applied to noise occurring from 10:00 p.m. to 7:00 a.m. (defined as sleeping hours).

L_{dn} is similar to the CNEL scale, but without the adjustment for events occurring during the evening relaxation hours of 7:00 p.m. to 10:00 p.m.

Characteristics of Vibration. Vibration refers to groundborne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors where the motion may be discernible. However, without the effects associated with the shaking of a building, there is less adverse reaction. Vibration energy propagates from a source through intervening soil and rock layers to the foundations of nearby buildings. The vibration then propagates from the foundation throughout the remainder of the structure. Building vibration may be perceived by occupants as motion of building surfaces, the rattling of items on shelves or hanging on walls, or a low-frequency rumbling noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Building damage is not a factor for normal operation and construction activities with the occasional exception of blasting and pile driving during construction.

Typical sources of groundborne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment), steel-wheeled trains, and occasional traffic on rough roads. Impacts with groundborne vibration and noise from these sources are usually localized to areas within approximately 100 feet of the vibration source, although there are examples of groundborne vibration causing interference out to distances greater than 200 feet.[29] When roadways are smooth, vibration from traffic, even heavy trucks, is rarely perceptible. For most projects, it is assumed that the roadway surface will be smooth enough that groundborne vibration from street traffic will not exceed the impact criteria; however, construction activities have the potential to result in groundborne vibration that could be perceptible and annoying. Ground-borne noise is not likely to be a problem because noise arriving via the normal airborne path usually will be greater than groundborne noise.

Ground-borne vibration has the potential to disturb people as well as damage buildings. Although it is very rare for groundborne vibration to cause even cosmetic building damage, it is not uncommon for construction processes such as blasting and pile driving to cause vibration of sufficient amplitudes to damage nearby buildings.[30] Ground-borne vibration is usually measured in terms of vibration velocity, either the root-mean-square (RMS) velocity or peak particle velocity (PPV). RMS is best for characterizing human response to building vibration, and PPV is used to characterize the potential for damage. Decibel notation acts to compress the range of numbers required to describe vibration. Vibration velocity level in decibels is defined as:

$$L_V = 20 \log10 [V/Vref]$$

where LV is the velocity in decibels (VdB), "V" is the RMS velocity amplitude, and "Vref" is the reference velocity amplitude, or 1 x 10-6 inches per second (in/sec) used in the United States.

Regulatory Framework. The City addresses noise in Chapter 17 of Title 5 and Chapter 5 of Title 9 of the City's Municipal Code (Noise Ordinance), as follows.

29 Federal Transit Administration. 2018. *Transit Noise and Vibration Impact Assessment*. September.
30 Ibid.

Section 5-17.04, Heavy Construction Equipment Noise, of Chapter 17 in Title 5 proved the specific hours of operation for construction:

> (B) It shall be unlawful for any person to operate heavy construction equipment during the hours specified below:
>
> (1) On weekdays prior to 7:00 a.m. and after 6:00 p.m.
>
> (2) On weekdays within 300 feet of occupied dwelling space, prior to 8:00 a.m. and after 5:00 p.m.
>
> (3) On weekends and holidays, prior to 9:00 a.m. and after 5:00 p.m., irrespective of the distance from the occupied dwelling.

Section 9-5.1901, Noise Attenuation Requirements, of Chapter 5 in Title 9 provides the exterior noise limits to which a land use can generate noise:

> (A) Stationary noise sources. Uses adjacent to outdoor living areas (e.g., backyards for single-family homes and patios for multi-family units) and parks shall not cause an increase in background ambient noise which will exceed 60 CNEL.
>
> (B) Mobile noise sources.
>
> (4) Arterial and street traffic shall not cause an increase in background ambient noise which will exceed 60 CNEL.
>
> (5) Proposed outdoor residential living areas adjacent to the future expressway (State Route 4 Bypass) or to State Route 4, including BART or eBART development, may be allowed up to a maximum of 65 CNEL as approved by the city.
>
> (6) Existing outdoor residential living areas adjacent to the State Route 4 proposed widening, or to BART or eBART development, shall result in no significant increase (5 CNEL or greater) in existing noise levels.
>
> (C) Noise analysis. For new developments adjacent to the future bypass, applicants may be required to provide a noise and/or visual analysis conducted pursuant to the city's development and environmental review process as determined by staff during the project planning/entitlement phase.
>
> (D) Noise attenuation. The city may require noise attenuation measures be incorporated into a project to obtain compliance with this section. Measures outlined in the noise policies of the General Plan should be utilized to mitigate noise to the maximum feasible extent.
>
> (E) Flexible application. The city may allow up to 65 CNEL for residential projects adjacent to the future bypass or to State Route 4, BART or eBART if the applicant has demonstrated that noise attenuation down to 60 CNEL would result in significantly higher walls.

Because the City of Antioch does not have established vibration thresholds related to potential structural damage, vibration standards included in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment[31] are used in this analysis. The criteria for environmental impact from groundborne vibration are based on the maximum levels for a single event. FTA guidelines show that a vibration level of up to 0.5 inches per second (in/sec) in PPV is considered safe for buildings consisting of reinforced concrete, steel, or timber (no plaster), and would not result in any construction vibration damage. For a non-engineered timber and masonry building, the construction building vibration damage criterion is 0.2 in/sec in PPV.

Existing Noise Conditions. Certain land uses are considered more sensitive to noise than others. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The project site is located in an area with single-family homes, a hospital, and vacant land. The closest sensitive receptors are the existing single-family homes immediately to the north of the project site, single-family homes currently under construction immediately to the east, and the existing Kaiser Medical Center to the south, opposite Wellness Way. Other land uses within 500 feet of the proposed project site include The Ranch, an approved mixed-use development to the west opposite Deer Valley Road.

The ambient noise environment in the vicinity of the project site is affected by a variety of noise sources. While noise associated with aircraft flyovers and sporadic events such as trash pick-up activities occur in the project area, the major sources are traffic on the roadways surrounding the project site and operations at the hospital to the south. One long-term (24-hour) noise measurement (LT-1) was conducted September 16, 2020, through September 17, 2020, and three short-term noise measurements were recorded on September 16 and 17, 2020, in proximity to the project site to establish the existing ambient noise environment at the uses surrounding the project area. Noise measurement data collected during the noise measurements are summarized in Table 4.G. The noise measurements indicate that ambient noise in the project site vicinity ranges from approximately 49.6 dBA to 66.8 dBA CNEL. Noise from the adjacent roadways were reported as the primary noise sources. The location of all measurements is shown in Figure 4-1 and noise measurement sheets are provided in Appendix G.

31 Ibid.

Table 4.G: Long-Term and Short-Term Ambient Noise Level Measurements

Location	Measured Short-Term Noise Level (dBA L_{eq})	Daytime Noise Levels[1] (dBA L_{eq})	Evening Noise Levels[2] (dBA L_{eq})	Nighttime Noise Levels[3] (dBA L_{eq})	Average Daily Noise Level (dBA CNEL)
LT-1: Western side of project site approximately 80 feet east of Deer Valley Road centerline.	--	63.8 – 66.6	58.7 – 62.3	52.0 – 62.5	66.8
ST-1: Southern terminus of Oneida Way, on western sidewalk north of the project site.[4]	46.9	46.6 – 49.4	41.5-45.1	34.8 – 45.3	49.6
ST-2: Southeast portion of project site, north of Kaiser Permanente Antioch central utility plant[4]	57.9	58.4 – 61.2	53.3 – 56.9	46.6 – 57.1	61.4
ST-3: Northside of Wellness Way, east of first Kaiser Permanente Antioch driveway[4]	60.5	59.0 – 61.9	54.0 – 57.6	47.2 – 57.7	62.1

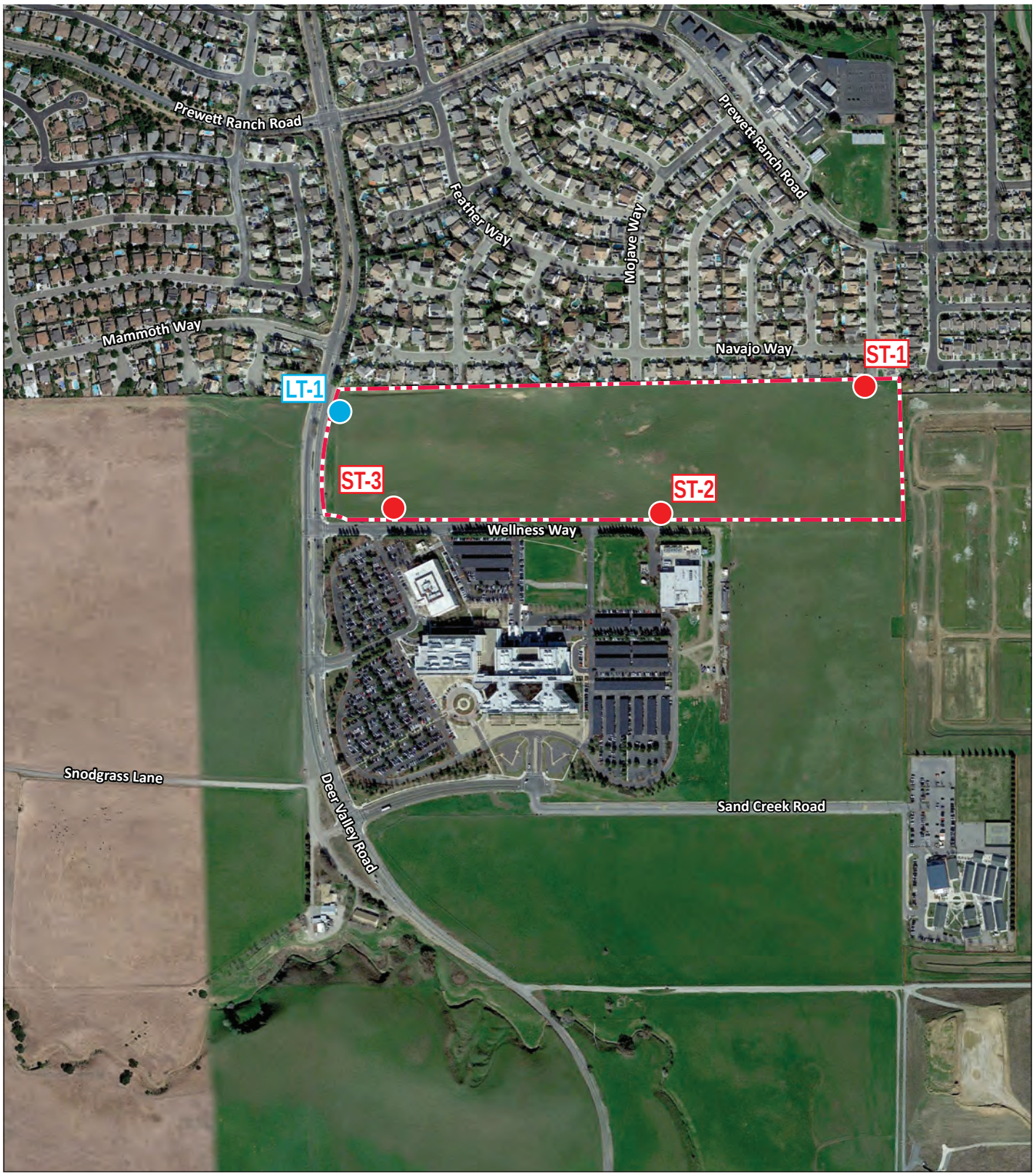
Source: Compiled by LSA. (September 16-17, 2020).
[1] Daytime Noise Levels = noise levels during the hours of 7:00 a.m. to 7:00 p.m.
[2] Evening Noise Levels = noise levels during the hours of 7:00 p.m. to 10:00 p.m.
[3] Nighttime Noise Levels = noise levels during the hours of 10:00 p.m. to 7:00 a.m.
[4] Hourly and Daily Noise levels at ST-1, ST-2, and ST-3 were estimated using the noise profile of the nearest long-term measurement location.

dBA = A-weighted decibels
CNEL = Community Noise Equivalent Level
L_{eq}=equivalent continuous sound level

a. Would the project result in 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? ***(No New Impact)***

Construction Noise Impacts. Implementation of the proposed project would include construction activities that would result in a substantial temporary increase in ambient noise levels in the vicinity of the project site.

The closest sensitive receptors would be the existing single-family homes located immediately south of the project site. Project construction would result in short-term noise impacts to these receptors. Maximum construction noise would be short-term, generally intermittent depending on the construction phase, and variable depending on receiver distance from the active construction zone. The duration of noise impacts generally would be from one day to several days depending on the phase of construction. Project construction would occur for approximately 24 months. These activities would be similar with the proposed project as compared to the 2008 Project. The level and types of noise impacts that would occur during construction are described below.



LSA

FIGURE 4-1

N

0 350 700

FEET

LT# Long-term Noise Monitoring Location (24 hours)

ST# Short-term Noise Monitoring Location (15 minutes)

Project Site

Deer Valley Estates Project

Noise Monitoring Locations

SOURCES: GOOGLE EARTH, 2/11/2020; LSA, 2020.

P:\CAN2002 Deer Valley Estates\PRODUCTS\Figures\Figure 4-1.ai (10/7/2020)

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Short-term noise impacts would occur during grading and site preparation activities. Table 4.H lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Construction-related short-term noise levels would be higher than existing ambient noise levels in the project area, but would no longer occur once construction of the proposed project is complete.

Table 4.H: Typical Construction Equipment Noise Levels

Equipment Description	Acoustical Usage Factor (%)	Maximum Noise Level (L_{max}) at 50 Feet[a]
Compressor	40	80
Cranes	16	85
Dozers	40	85
Drill Rig	20	84
Flat Bed Trucks	40	84
Forklift	20	85
Front-end Loaders	40	80
Generator	50	82
Man-lift	20	85
Rollers	20	85
Water Truck	40	84
Welder	40	73

Source: Roadway Construction Noise Model (Federal Highway Administration 2006).
Note: Noise levels reported in this table are rounded to the nearest whole number.
a. Maximum noise levels were developed based on Spec 721.560 from the Central Artery/Tunnel program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
L_{max} = maximum instantaneous sound level

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transportation of construction equipment and materials to the site for the proposed project, which would incrementally increase noise levels on roads leading to the site. As shown in Table 4.H, there would be a relatively high single-event noise exposure potential at a maximum level of 85 dBA L_{max} with trucks passing at 50 feet.

The second type of short-term noise impact is related to noise generated during excavation, grading, and construction on the project site. Construction is performed in discrete steps, or phases, each with its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated on site. Therefore, the noise levels vary as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 4.H lists maximum noise levels recommended for noise impact assessments for typical construction equipment, based on a distance of 50 feet between the equipment and a noise receptor. Average maximum noise levels range up to 85 dBA L_{max} at 50 feet during the noisiest construction phases. The site preparation phase, including excavation and grading of the site, tends to generate the highest noise levels because earthmoving machinery is the noisiest construction equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers,

draglines, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

As identified above, the project site is immediately adjacent to single-family homes to the north and west with the closest existing façade approximately 20 feet away. While construction noise levels have the potential to exceed 93 dBA L_{max} when construction activities occur near the property line, assuming a 6 dBA reduction for every doubling of distance, the average construction noise levels would be 63 dBA L_{max} based on a distance of 650 feet which is generally the center of the project site. This noise level would be higher than existing noise levels at the off-site residences. Construction noise is permitted by Section 5-17.04 of the City's Municipal Code.

As discussed above, construction noise could result in a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. The 2008 IS/MND identified potentially significant impacts associated with project construction, which would be reduced through implementation of Mitigation Measures NOISE-1a through NOISE-1e. Construction of the proposed project would result in similar short-term noise impacts as identified in the 2008 IS/MND. Implementation of Modified Mitigation Measure NOISE-1a, which is similar to Mitigation Measure NOISE-1a from the 2008 IS/MND, but modified to be consistent with the City's current Noise Ordinance, and Mitigation Measures NOISE-1b through 1e would reduce construction-period noise impacts to a less-than-significant level; therefore, the proposed project would also not result in any new or more significant construction-period noise impacts than were evaluated in the 2008 IS/MND.

Modified Mitigation Measure NOI-1a: The project contractor shall ensure that all construction related activities are restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, within 300 feet of occupied dwelling spaces between 8:00 a.m. and 5:00 p.m. on weekends, and between 9:00 a.m. and 5:00 p.m. on weekends and holidays, irrespective of the distance from the occupied dwelling.

Long-Term Off-Site Noise Impacts. The proposed project would generate long-term noise impacts from traffic noise sources and Heating, Ventilation, and Air Conditioning (HVAC) equipment, as discussed below.

Off-Site Traffic Noise Assessment. In order to assess the potential traffic impacts related to the proposed project, peak hour trips for the current project were compared to the analysis completed in the 2008 IS/MND. The 2008 IS/MND identified that the project would generate 137 PM peak hour project trips. Based on that small amount of traffic, a significant increase the ambient noise was not expected. Therefore, implementation of the 2008 IS/MND2008 Project would result in a less-than-significant impact for off-site sensitive receptors. Trip generation for the proposed project is estimated to be 120 PM peak hour trips, which would be fewer than the trips assumed in the 2008 IS/MND; therefore, the off-site traffic noise impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Off-Site Stationary Noise Assessment. Each proposed residence would have HVAC units at the ground floor level. The HVAC equipment could operate 24 hours per day and would generate noise levels of 66.6 dBA L_{eq} at 5 feet, based on historic reference measurements by LSA. Table 4.I shows the hourly noise level generated by HVAC units at the nearest property line. Assuming that the equipment operates for a period of 24 hours, the resulting daily noise level would be 59.0 dBA CNEL which is below the City's Municipal Code standard of 60 dBA CNEL. Therefore, noise level generated from on-site HVAC equipment would be less than significant.

Table 4.I: HVAC Noise Assessment

Land Use	Reference Noise Level[1] (dBA L_{eq})	Reference Distance (ft)	Distance (ft)	Distance Attenuation (dBA)	Noise Level (dBA L_{eq})
Residential	66.6	5	25	14.0	52.6

Source: LSA (2019).
[1] The reference noise level is associated with an HVAC unit generating a noise level of 66.6 dBA L_{eq} at a distance of 5 feet.

Land Use Compatibility. The 2008 IS/MND identified a potentially significant impact related to traffic noise impacts. However, with implementation of Mitigation Measures NOISE-2a and NOISE-2b, which require the construction of a sound wall around the project site, this impact would be less than significant. Consistent with the 2008 IS/MND, traffic noise on roadways adjacent to the project site, including Deer Valley Road and Wellness Way, could significantly impact residential land uses within the project site. As presented in Table 4.G, the noise measurements indicate that noise at the proposed project site is currently approaching 67 dBA CNEL. Because this noise level exceeds the City's standard of 60 dBA CNEL for sensitive uses affected by transportation uses, Mitigation Measures NOISE-2a and NOISE-2b would be required to ensure this impact would remain less than significant. With implementation of these measures, no new or substantially more severe impacts beyond those identified in the 2007 IS/MND would result from implementation of the proposed project.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels? ***(No New Impact)***

Ground-borne vibration from construction activity has the potential to be high when activities occur near project boundaries but would be mostly low to moderate as activities are more central to the project site. While there is currently limited information regarding vibration source levels, the levels shown in Table 4.J are utilized in this analysis and are based on the FTA Manual.

Table 4.J: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV (in/sec) at 25 Feet
Hoe Ram	0.089
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: Transit Noise and Vibration Impact Assessment (FTA 2018).
FTA = Federal Transit Administration
in/sec = inches per second
PPV = peak particle velocity

The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project boundary (assuming the construction equipment would be used at or near the project boundary). The formula for vibration transmission is provided below.

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

As stated above, it would take a minimum of 0.2 in/sec PPV for damage to occur to a non-engineered timber and masonry building. The project site is bounded by immediately adjacent existing residential uses to the north and currently under construction residential uses to the east. The closest structures are approximately 20 feet from the project construction area limits. Utilizing the equation above, the operation of typical heavy construction equipment such as large bulldozers and jackhammers would generate groundborne vibration levels of 0.12 in/sec PPV which would not exceed the 0.2 in/sec PPV guideline that is considered safe for non-engineered timber and masonry buildings. Similar to the findings of the 2008 IS/MND, vibration impacts would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

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 2 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? ***(No New Impact)***

The project site is located approximately 14.9 miles northwest of the Byron Airport and 15.3 miles east of Buchanan Field Airport. The project site is not located within the vicinity of a private airstrip. Therefore, the proposed project would not expose people residing or working in the project area to excessive noise levels related to private airstrips or public airports. The 2008 IS/MND determined that since the 2008 Project would not be located in an airport land use plan or within 2 miles of a public or public use airport, implementation of the 2008 Project would not expose persons within the project site to excessive noise levels. Therefore, consistent with the findings of the 2008 IS/MND, this impact would be less than significant and no new noise impacts from aircraft noise would occur. Therefore, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.14 POPULATION AND HOUSING

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

*a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? **(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not result in substantial unplanned for growth in the area as the project would contribute to the overall number of housing units as contemplated under the General Plan buildout of the Sand Creek Focus Area, which includes residential uses among its allowable uses. The 2008 Project was estimated to increase the City's population by approximately 422 residents, based on an average household size of 3.1 persons. As described previously, the proposed project would include 15 fewer residential units than the 2008 Project. Based on the City's current average household size of 3.07 persons,[32] the proposed project would increase the City's population by 372 persons, or 50 fewer than the 2008 Project. The proposed project would not induce substantial unplanned population growth in the area or generate an increase in population growth beyond what was considered in the 2008 IS/MND. Therefore, this impact would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

*b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? **(No New Impact)***

Similar to the 2008 Project, the proposed project would not include the removal of any existing residential uses, and therefore would not require the construction of replacement housing elsewhere. Therefore, there would be no impact, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[32] United States Census Bureau. 2020. American Community Survey. Table B25010. Website: data.census.gov/cedsci (accessed October 2020).

4.15 PUBLIC SERVICES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. 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:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒

a. 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: i. Fire protection? ii. Police protection? iii. Schools? iv. Parks? v. Other public facilities? ***(No New Impact)***

Fire and Police Protection. The 2008 IS/MND determined that the Contra Costa County Fire Protection District (CCCFPD) would provide adequate service to the project site, as written verification from CCCFPD is required prior to the approval of discretionary permits. In addition, the 2008 IS/MND determined that the payment of the fire protection fee would ensure that any impacts related to fire protection would be less than significant.

The 2008 IS/MND identified Stations 82 and 88 that would serve the project site. These two stations would continue to serve the proposed project. Written verification from CCCFPD would continue to be required prior to discretionary approval of the proposed project. In addition, the project applicant would be required to pay the fire impact fee, which is current set at $951 per residential unit. With 121 units, the proposed project would pay a fire protection fee of $115,071. This fee is expected to cover the project's fair share of the cost of both potential new station construction and additional equipment that may be required. In addition, as previously noted, the proposed project would include 15 fewer residential units than the 2008 Project. Therefore, the proposed project would not result in the need for any new fire protection facilities.

The 2008 IS/MND determined that the 2008 Project would incrementally increase the demand for police protection services within the City, and that because the 2008 Project would represent less than one percent of the overall projected growth for the City, new facilities would not be required to serve the site. Since the adoption of the 2008 IS/MND, a new police substation has been constructed within the Antioch Community Center approximately 1 mile north of the project site. The project applicant would be required to pay a police impact fee set at $1,190 per residential unit.

With 121 units, the proposed project would pay a police impact fee of $287,980. Additionally, the City would require that the project site be annexed into Community Facilities District No. 2018-02 (Police Protection), established in October 2018, which requires residents to pay a special tax to fund police protection services including maintenance or upkeep of facilities. Therefore, because the proposed project would include 15 fewer residential units than the 2008 Project and police service facilities have since been expanded, the proposed project would not result in the need for any new police protection facilities. Therefore, physical impacts related to fire and police protection would be less than significant, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

Schools. The 2008 IS/MND determined that the 2008 Project could generate up to 193 elementary school students, 73 middle school students, and 56 high school students, and that this increase could cause schools within the Antioch Unified School District to exceed their capacity. However, the 2008 IS/MND determined that payment of developer fees for school facilities would reduce this impact to a less-than-significant level, consistent with SB 50. As previously described, the proposed project would include 15 fewer residential units, and therefore would generate fewer school-aged children than the 2008 Project. In addition, the project applicant would continue to be required to pay developer fees for school facilities. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

Parks and Other Public Facilities. Please refer to Section 4.16, Recreation, of this Initial Study for a discussion of impacts related to parks and recreational facilities. The 2008 IS/MND determined that the roadways and sidewalks included In the 2008 Project would be owned and maintained by an HOA, which would avoid any increased burden on the City's Public Works Department. Similar to the 2008 Project, the proposed project would also include an HOA that would maintain the proposed park and common landscaping within the project site. While the internal streets would be public, they would be designed to meet City standards and therefore would not require any additional infrastructure for the City to maintain them. Therefore, this impact would be less than significant and the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

4.16 RECREATION

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New 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?	☐	☐	☐	☒

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? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would not result in an increase in demand for existing recreational facilities such that it would cause physical deterioration of such facilities, as the 2008 Project included a private backyard and front landscaped area on each lot and a 1.69 acre park. Similar to the 2008 Project, each lot in the proposed project would include a private backyard and a front landscaped area and a total of 1.5 acres of landscaped area including a 1.12-acre park and an approximately 4- to 6-foot-wide trail. Therefore, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration could result and this impact would be less than significant. The proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

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? ***(No New Impact)***

Refer to Section 4.16.b. The proposed project would include a private backyard and a landscaped front yard area on each lot and a 1.12-acre park, the effects of which are evaluated throughout this Initial Study. Impacts associated with the development of these facilities can all be mitigated to a less than significant level with the recommended mitigation measures. Therefore, the proposed project would not result in any new or more severe impacts beyond those previously identified in the 2008 IS/MND.

4.17 TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
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 §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?	☒	☐	☐	☐

a. through d. (Potentially Significant Impact)

The 2008 IS/MND determined that that 2008 Project would have a potentially significant impact related to level of service (LOS) at the Deer Valley Road/Lone Tree Way and Deer Valley Road/ Prewett Ranch Drive intersections. The 2008 IS/MND identified Mitigation Measure TRANS-1 and TRANS-2, which require the modification of striping and turn lanes at these intersections, to ensure these impacts would be reduced to a less than significant level. Existing and cumulative conditions related to transportation have substantially changed since preparation of the 2008 IS/MND. In addition, the regulatory environment and applicable thresholds for the evaluation of impacts related to transportation have also undergone substantial changes. Therefore, a TIA will be prepared for the proposed project.

Specifically, on December 28, 2018, the California Office of Administrative Law cleared the revised CEQA Guidelines for use. Among the changes to the guidelines was removal of vehicle delay and LOS from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT. Lead agencies were required to use the new guidelines starting July 1, 2020. The City has not adopted VMT thresholds for use in determining VMT impacts under CEQA. Therefore, this analysis uses the VMT thresholds adopted by Contra Costa County, which state that in order to be considered less than significant, a project must have 15 percent less VMT than the regional threshold. Tables 4.K and 4.L, below, present the VMT for the proposed project compared to both the City and Contra Costa County for under both existing (2020) and cumulative (2040) conditions.

Table 4.K: Existing (2020) Conditions VMT

Jurisdiction	Households	Population	Home-Based VMT	VMT Per Capita	VMT Per Capita Difference
Proposed Project	121	381	8,454	22.19	
City of Antioch	34,379	108,286	2,239,101	20.68	+7.3%
Contra Costa County	399,078	1,115,729	18,695,161	16.76	+32.4%

Source: Contra Costs Transportation Authority (CCTA) Countywide Travel Demand Model; LSA (2020).

Table 4.L: Cumulative (2040) Conditions VMT

Jurisdiction	Households	Population	Home-Based VMT	VMT Per Capita	VMT Per Capita Difference
Proposed Project	121	381	7,500	19.68	
City of Antioch	42,155	136,914	2,603,400	19.01	+3.5%
Contra Costa County	474,867	1,373,400	20,538,090	14.95	+31.6%

Source: Contra Costs Transportation Authority (CCTA) Countywide Travel Demand Model; LSA (2020).

As shown above, the proposed project is anticipated to result in an increase in VMT in both the City and Contra Costa County under both existing and cumulative conditions. This increase would exceed the County threshold of 15 percent less VMT. Therefore, because VMT was not previously analyzed or identified as a potential impact in the 2008 IS/MND, this would be a new potentially significant impact. As such, a TIA will be prepared for the proposed project which will further analyze the impacts related to VMT and recommend potential mitigation measures. However, it should be noted that feasible mitigation measures may not effectively reduce the VMT impact to a less-than-significant level. This additional analysis will be included in the EIR.

In addition to the VMT analysis, the transportation section of the EIR will also include an evaluation of potential impacts related to site access and circulation and emergency access.

Section 7.3.2 of the City's General Plan states that a traffic impact study must be prepared for projects that are projected to generate 50 or more peak hour trips at any one intersection. The proposed project is anticipated to generate more than 50 peak hour trips at multiple intersections, and therefore a local LOS analysis will be prepared to ensure the proposed project would be consistent with the City's General Plan. If necessary, the LOS analysis will include recommendations that could be used as conditions of approval to ensure the proposed project would comply with General Plan policies related to transportation. LOS would be analyzed for the following intersections:

1. Deer Valley Road/Lone Tree Way;
2. Deer Valley Road/Prewett Ranch Drive;
3. Deer Valley Road/Wellness Way;

4. Street F – Kaiser Permanente Driveway/Wellness Way;
5. Sagebrush Drive/Lone Tree Way;
6. Oneida Way/Prewett Ranch Drive;
7. Hillcrest Avenue/Lone Tree Way;
8. Vista Grande Drive/Lone Tree Way;
9. Fairside Way-Heidorn Ranch Road/Lone Tree Way; and
10. Canada Valley Road/Lone Tree Way.

The LOS analysis will not be included as part of the EIR, but will be used by the City to ensure General Plan compliance and will be considered by City decision-makers during the project approval process.

4.18 TRIBAL CULTURAL RESOURCES

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. 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:				
i. 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)? Or	☐	☐	☐	☒
ii. 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

a. 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: i. 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)? Or ii. 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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. ***(No New Impact)***

The 2008 IS/MND did not include a specific evaluation of potential impacts to tribal cultural resources, as it was adopted prior to the implementation of Assembly Bill 52. There are no known tribal cultural resources, as defined by Public Resources Code Sections 5020.1(k) and 5024.1, located within or in the immediate vicinity of the site. As noted in Section 4.5, Cultural Resources, the proposed project would not result in any new or more severe impacts related to cultural resources, and this impact would be less than significant. Additionally, the City sent letters to tribes historically affiliated with the project site on September 1, 2020 to give potential interested representatives the opportunity to consult with the City and provide any specialized knowledge of the project site. As described previously, the City received an email from Ms. Gould of the Confederated Villages of Lisjan on November 3, 2020 requesting additional information about the proposed project.

However, no specific requests for consultation have been made to date. Therefore, with implementation of Mitigation Measures CULT-1 through CULT-3, impacts to potential tribal cultural resources that could be discovered during construction period activities would be reduced to a less-than-significant level. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.19 UTILITIES AND SERVICE SYSTEMS

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater 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?	☐	☐	☐	☒

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project would be adequately served by wastewater, water, and stormwater facilities and that existing water entitlements and solid waste capacity would be sufficient. The proposed project would include connections to the same water, wastewater, and stormwater infrastructure, which have not changed since the adoption of the 2008 IS/MND. In addition, the proposed project would result in the construction of fewer residential units, lessening the demand for these services, as compared to the 2008 Project. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? ***(No New Impact)***

The 2008 IS/MND determined that the 2008 Project was accounted for in the City's 2005 Urban Water Management Plan[33] (UWMP), and therefore there would be sufficient water supply with existing entitlements. Since the adoption of the 2008 IS/MND, the City has updated the UWMP (in 2015),[34] which accounts for build out of the entire Sand Creek Focus Area, including the project site.

[33] Antioch, City of, 2005. *Urban Water Management Plan Update, Draft Report*. December.

[34] Antioch, City of. 2016. *City of Antioch 2015 Urban Water Management Plan.* May.

The 2015 UWMP determined that there would be adequate water supplies to meet demand consistent with City targets through 2040 with existing entitlements. Therefore, no new or expanded entitlements would be needed to serve the proposed project and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

c. Would the project 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? ***(No New Impact)***

Since the adoption of the 2008 IS/MND, the Delta Diablo Sanitation District, which provides wastewater treatment to the project site, has increased the capacity of the wastewater treatment plant (WWTP) from 16.5 million gallons per day (mgd) to 22.7 mgd, though it is only permitted to treat 19.5 mgd. The WWTP currently treats approximately 13 mgd of wastewater, leaving a capacity of approximately 6.5 mgd, or approximately 35 percent. Therefore, because the proposed project would include 15 fewer residential units than the 2008 Project, and because the WWTP has more capacity than was assumed in the 2008 IS/MND, the proposed project would not require additional wastewater treatment capacity and this impact would be less than significant. As such, no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project 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? ***(No New Impact)***

The 2008 IS/MND determined that the proposed project would generate approximately 1,360 pounds per day of solid waste, and that this would not exceed the capacity of the Keller Canyon Landfill, which had a capacity of approximately 68.7 million cubic yards in 2001. The maximum capacity of the Keller Canyon Landfill has not changed since the adoption of the 2008 IS/MND, and the Keller Canyon Landfill continues to have a ceased operation date of December 2030. As previously described, the proposed project would include 15 fewer residential units than the 2008 Project, and therefore would generate a reduced amount of solid waste. Therefore, this impact would continue to be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? ***(No New Impact)***

Refer to Section 4.19.d. The proposed project would comply with federal, State, and local management and reduction statutes and regulations related to solid waste. Therefore, this impact would be less than significant and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.20 WILDFIRE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
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?	☐	☐	☐	☒

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? ***(No New Impact)***

The 2008 IS/MND included an evaluation of potential impacts related to wildfire in Section VII, Hazards and Hazardous Materials, as it was adopted prior to the December 2018 update to the CEQA Guidelines, which included wildfire as an individual topic. However, the projects site is not located within a State Responsibility Area (SRA) for fire protection,[35] and is not located within a very high fire hazard severity zone, as noted in Section 3.9, Hazards and Hazardous Materials. Therefore, the project would not result in any impacts associated with its location within or in proximity to, a wildfire-prone area, and no new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

b. Would the project, 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? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

[35] California Board of Forestry and Fire Protection. 2020. State Responsibility Area Viewer. Website: bof.fire.ca.gov/projects-and-programs/state-responsibility-area-viewer (accessed October 2020).

c. Would the project 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? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

d. Would the project 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? ***(No New Impact)***

Refer to Section 4.20.a. No new or substantially more severe impacts beyond those identified in the 2008 IS/MND would result from implementation of the proposed project.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE

	New Potentially Significant Impact	New Mitigation Required	Reduced Impact	No New 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 cumulativ"ly considerable? ("Cumula"ively 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?	☒	☐	☐	☐

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? ***(No New Impact)***

The project site consists of an infill site in an urban area. The site does not support habitat for special-status plant or animal species. With mitigation, development of the proposed project would not: (1) degrade the quality of the environment; (2) substantially reduce the habitat of a fish or wildlife species; (3) cause a fish or wildlife species population to drop below self-sustaining levels; (4) threaten to eliminate a plant or animal community; (5) reduce the number or restrict the range of a rare or endangered plant or animal; or (6) eliminate important examples of the major periods of California history or prehistory. Therefore, this impact would be less than significant and no new or more severe impacts would occur beyond those examined in the 2008 IS/MND.

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)? ***(New Potentially Significant Impact)***

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound to increase other environmental impacts." Section 15130 of the CEQA Guidelines requires evaluation of potential environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means

that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of "reasonably foreseeable probable future" projects, per CEQA Section 15355. Cumulative impacts can result from a combination of the proposed project together with other closely related projects that cause an adverse change in the environment. Cumulative impacts can result from individually minor but collectively significant projects taking place over time.

As discussed in this Initial Study, potentially significant impacts related to transportation may result from the proposed project. This impact, as well as any cumulatively considerable impacts that may result from the proposed project related to these issues, will be evaluated in a Focused EIR.

All of the remaining impacts of the proposed project would be individually limited and not cumulatively considerable, because these impacts are either temporary in nature (i.e., limited to the construction period) or are limited to the project site (i.e., potential discovery of unknown cultural or paleontological resources). The potentially significant impacts that can be reduced to a less-than-significant level with implementation of recommended mitigation measures include the topics of aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, and noise. These impacts would primarily be related to construction-period activities, would be temporary in nature, and would not substantially contribute to any potential cumulative impacts associated with these topics. For the topic of aesthetics, potentially significant impacts to new sources of light and glare would be reduced to a less-than-significant level with implementation of Mitigation Measure AES-1. For the topic of air quality, potentially significant impacts to air quality standards associated with project construction would be reduced to less-than-significant levels with implementation of Mitigation Measure AIR-1. For the topic of biological resources, implementation of Mitigation Measure BIO-1a through BIO-5 would ensure that impacts to special status-species and nesting birds are reduced to a less-than-significant level. For the topic of cultural resources, potentially significant impacts to archaeological resources and human remains would be reduced to less-than-significant levels with implementation of Mitigation Measures CULt-1 through CULT-3. For the topic of geology and soils, potentially significant impacts related to seismic-related ground failure, soil erosion and paleontological resources would be reduced to less-than-significant levels with implementation of Mitigation Measures GEO-1 through GEO-4. For the topic of hazards and hazardous materials, potentially significant impacts related to the release of hazardous materials into the environment would be reduced to a less-than-significant level with implementation of Mitigation Measure HAZ-1 and HAZ-2. For the topic of hydrology and water quality, implementation of Mitigation Measures HYD-1 through HYD-5 would ensure that potential water quality impacts and on- and off-site flooding are reduced to a less-than-significant level.

For the topics of agricultural and forestry resources, energy, greenhouse gas emissions, land use and planning, mineral resources, population and housing, public services, recreation, tribal cultural resources, utilities and service systems, and wildfire, the project would have no new impacts, and therefore, the project would not substantially contribute to any potential cumulative impacts for these topics. All environmental impacts that could occur as a result of the proposed project would be reduced to a less-than-significant level through the implementation of the mitigation measures recommended in this document.

When future development proposals are considered by the City, these proposals would undergo environmental review pursuant to CEQA, and when necessary, mitigation measures would be adopted as appropriate. In most cases, this environmental review and compliance with project conditions of approval, relevant policies and mitigation measures, and the General Plan, and compliance with applicable regulations would ensure that significant impacts would be avoided or otherwise mitigated to less-than-significant levels.

Implementation of these measures would ensure that the impacts of the project and other projects within the vicinity would be below established thresholds of significance and that these impacts would not combine with the impacts of other cumulative projects to result in a cumulatively considerable impact on the environment as a result of project development. Therefore, this impact would be less than significant.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? ***(New Potentially Significant Impact)***

The proposed project's potential to result in environmental effects that could directly or indirectly impacts human beings have been evaluated in this Initial Study. With implementation of the mitigation measures identified in the 2008 IS/MND, most environmental effects that could adversely affect human beings would be less than significant. The proposed project's potential to result in environmental effects related to transportation that could directly or indirectly impact human beings will be evaluated in the EIR.

5.0 LIST OF PREPARERS

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APPENDIX A

2008 IS/MND MMRP

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) was formulated based on the findings of the 2008 Initial Study/Mitigated Negative Declaration (2008 IS/MND) prepared for the Deer Valley Estates Master Plan (2008 Project). This MMRP is in compliance with Section 15097 of the *CEQA Guidelines*, which requires that the Lead Agency "adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects." The MMRP lists mitigation measures recommended in the IS/MND and identifies mitigation monitoring requirements. This MMRP includes edits made as a result of the proposed Deer Valley Estates project that is the subject of a new Initial Study and Environmental Impact Report. These revisions are shown below double-underlined and ~~strikeout~~ text.

Table 1 presents the mitigation measures identified for the proposed project. Each mitigation measure is numbered according to the topical section to which it pertains to. As an example, Mitigation Measure AES-1 is the first mitigation measure identified in the Aesthetics section.

The column entitled "Mitigation Responsibility" identifies the party responsible for carrying out the required actions. The columns entitled "Monitoring/Reporting Agency and "Monitoring Schedule" identify the party ultimately responsible for ensuring that the mitigation measure is implemented and the approximate timeframe for the oversight agency to ensure implementation of the mitigation measure. The column entitled "Verification of Compliance" will be used by the lead agency to document the person who verified the implementation of the mitigation measure and the date on which this verification occurred.

Table V-1: Mitigation Monitoring and Reporting Program

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
I. Aesthetics				
AES-1: Outdoor lighting shall be designed to minimize glare and spillover to surrounding properties. The proposed project shall incorporate non-mirrored glass to minimize daylight glare.	Project Applicant	City of Antioch Community Development Department	Prior to issuance of a building permit	*Verified by:* *Date:*
II. Agricultural Resources				
No mitigation required				
III. Air Quality				
AIR-1: In order to meet the BAAQMD fugitive dust threshold, ~~Consistent with guidance from the BAAQMD,~~ the following BAAQMD Basic Construction Mitigation Measures ~~measures~~ shall be implemented ~~on the project site during the construction period~~: • All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt tracked-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. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • 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. • Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • A publicly-visible sign shall be posted with the telephone number and person to contact at the City of Antioch regarding dust complaints. This person shall respond and take	Construction Manager	City of Antioch Public Works Department	During grading and construction activities	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. •— • ~~Water all active construction areas at least twice daily.~~ • ~~Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.~~ • ~~Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.~~ • ~~Sweep daily (preferably with water sweepers) all paved access roads, parking areas and staging areas at construction sites.~~ • ~~Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.~~				
IV. Biological Resources				
BIO-1a: Prior to issuance of grading or construction permits for the proposed project, a qualified biologist shall conduct protocol level surveys to determine the presence or absence of vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog, and California tiger salamander on the project site. These surveys shall be conducted in consultation with the appropriate regulatory agencies to determine under what conditions surveys could occur. Some protocol level surveys may take up to two years to conduct. If these species are determined to be absent from the site, no further mitigation would be required. If suitable conditions do not exist for protocol level surveys prior to grading or construction activities, these species must be assumed present on the project site.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*
BIO-1b: If vernal pool fairy shrimp and/or vernal pool tadpole shrimp are identified on the project site, or are assumed present due to the absence of protocol level surveys, the seasonal wetland located on the site shall be avoided. If the seasonal wetland is avoided, all development shall be setback at least 250-feet from the edges of the wetland. Siltation fencing should be erected between the wetland and the development area.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-1c: If vernal pool fairy shrimp, vernal pool tadpole shrimp, California red-legged frog or California tiger salamander are identified on the project site, or are assumed present due to the absence of protocol level surveys, and avoidance is not feasible, the project applicant shall mitigate for the loss of habitat. Authorized take permits may be required by the U.S. Fish and Wildlife Service for incidental take of individuals that may be present. If avoidance of the seasonal wetland is not feasible, the project applicant shall purchase lands at an approved off-site mitigation bank or other lands approved by the applicable resources agencies and the City of Antioch (e.g., in fee-title or through conservation easement). Mitigation would be required at a replacement to loss ratio of 2:1 and a creation to loss ratio of 1:1 (a total mitigation ratio of 3:1) for vernal pool fairy shrimp and/or vernal pool tadpole shrimp (these are standard mitigation ratios accepted by the U.S. Fish and Wildlife Service for impacts to these species). The project applicant shall preserve 0.74 acres of known vernal pool fairy shrimp and/or vernal pool tadpole shrimp habitat and create another 0.37 acres of suitable habitat for each species, as applicable. These acreages are based on an estimated 0.37 acres of seasonal wetland habitat located on the project site; verification of the correct acreage is required by Mitigation Measure BIO-5a. The Elsie Gridley Multi-Species Conservation Bank includes Antioch within its service area and offers preservation habitat for $140,000 per acre, and creation habitat for $165,000 per acre. Loss of California red-legged frog or California tiger salamander habitat should be mitigated at a 1:1 mitigation to loss ratio (38 acres) at a suitable site that is known to support a breeding population. Because the project site supports low value California tiger salamander habitat, purchasing high quality, known breeding habitat would duly compensate for the loss of low quality habitat, especially if the site acquired is either in fee-title or via a conservation easement that preserves and enhances breeding and estivation habitat or preserves and enhances suitable estivation habitat adjacent to a known, protected breeding site. Enhancement shall include a controlled grazing regime, limited public access, fencing, or other appropriate measure. The Elsie Gridley Multi-Species Conservation Bank offers California tiger salamander habitat for $8,500 per acre. These 38 acres may also accommodate the potential loss of burrowing owl and San Joaquin kit fox habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-2a: Protocol level burrowing owl surveys shall be conducted during the height of the breeding season (April 15 to July 15) to determine the number of both individuals and breeding pairs present on the site. Preconstruction surveys shall also be conducted for burrowing owls prior to site preparation, grading, and construction. All surveys shall conform to the survey protocol established by the California Burrowing Owl Consortium.[1] Preconstruction surveys shall be conducted no more than 30 days prior to the initiation of construction activities and at 30-day intervals if construction activities have not been initiated in an area.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Protocol level surveys shall occur during the height of the breeding period (April 15 to July 15) Preconstruction surveys shall occur no more than 30 days prior to initiation of construction activities in any given area	*Verified by:* *Date:*
BIO-2b: For grading and construction activities occurring during the non-breeding season (September 1 through January 31), burrowing owls may be evicted from the entire construction area using passive relocation techniques. One-way doors shall be installed in all suitable burrows (approximately 4 inches in diameter), left in place for a minimum of 48 hours, and monitored daily to evaluate the exclusion of owls from burrows and to maintain the one-way doors in good repair. Burrows shall then be excavated, using hand tools. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Once excavation is completed and no owls remain on-site, burrows shall be refilled to prevent reoccupation, or the entire site shall be disced and managed until construction activities begin.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	During the non-breeding season (September 1 through January 31)	*Verified by:* *Date:*
BIO-2c: For grading and construction activities occurring during the breeding season (February 1 through August 31), a 75-meter (250-foot) radius circular buffer shall be erected around each active burrow and a qualified biologist shall monitor construction activities to ensure effectiveness of the buffer area for breeding activities. Construction-related activity (e.g., site grading, staking, surveying) shall not occur within the exclusion zone until the burrows are confirmed to be unoccupied and/or juveniles from the nest are foraging independently and capable of independent survival. Only biologists familiar with burrowing owl behavior shall be permitted to determine whether juveniles are capable of independent survival. Once the burrows are unoccupied or the young are capable of independent survival, passive relocation	Project Applicant/ Project Biologist/ Construction Manager	City of Antioch Community Development Department	During the breeding season (February 1 through August 31)	*Verified by:* *Date:*

[1] California Burrowing Owl Consortium, 1997. Burrowing Owl Survey Protocol and Mitigation Guidelines. Appendix B, pp. 171–177 in Lincer, J.L. and K. Steenhof, eds. The Burrowing Owl, Its Biology and Management; Including the Proceedings of the First International Burrowing Owl Symposium. Raptor Research Report No. 9.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-2c *Continued* techniques (as described above in Mitigation Measure BIO-2a) shall be implemented to evict the owls from the burrows. Burrows shall be excavated, using hand tools, and re-filled to prevent reoccupation prior to allowing construction within the exclusion zone, or the site shall be disced. Sections of flexible plastic pipe shall also be inserted into burrows during excavation to maintain an escape route for any animals inside the burrow. Due to the density of the burrowing owl population on the project site, it is possible that construction activities may not be able to avoid active burrows; in this case, construction activities shall not be permitted during the breeding season.				
BIO-2d: Removal of burrowing owls at the project site shall conform to the requirements of CDFG's *Staff Report on Burrowing Owl Mitigation*.[2] This shall entail establishing 6.5 acres of suitable habitat for each individual or pair of burrowing owls displaced from the project site. This may be accomplished through the purchase of credits at an established mitigation bank approved for this species or preservation of grassland habitat (through conservation easement, fee-title, or other applicable measure) at another suitable location within eastern Contra Costa County that currently supports a burrowing owl population. Habitat used for burrowing owl mitigation may also accommodate the potential loss of estivation habitat for California tiger salamander and San Joaquin kit fox habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of a grading or construction permit	*Verified by:* *Date:*
BIO-3a: Pre-construction surveys for kit fox dens shall be conducted by a qualified biologist no less than 14 days or more than 30 days prior to any grading or construction activities on the project site. If an active den is detected within (or immediately adjacent to) the construction area, the U.S. Fish and Wildlife Service shall be immediately contacted to determine the best course of action. If no kit fox activity is detected, a written report shall be submitted to the U.S. Fish and Wildlife Service within 5 days of survey completion.	Project Applicant/ Project Biologist	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	No less than 14 days or more than 30 days prior to grading or construction activities	*Verified by:* *Date:*
BIO-3b: If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall follow the U.S. Fish and Wildlife Service's *Standardized Recommendations for Protection of the Kit Fox Prior to or During Ground Disturbance* throughout the construction period. Specific measures are detailed in the Biological Evaluation prepared for the project site (see Appendix A).	Project Applicant/ Project Biologist/ Construction Manager	City of Antioch Community Development Department and U.S. Fish and Wildlife Service	During the construction period	*Verified by:* *Date:*

[2] California Department of Fish and Game (CDFG), 1995. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game. Sacramento, CA. 8 pp. October 17.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-3c: If active dens are identified within (or immediately adjacent to) the construction area, the project applicant shall mitigate for the loss of San Joaquin Kit Fox habitat at a mitigation to loss ratio of 1:1 (38 acres). These 38 acres may also accommodate the potential loss of estivation habitat for California tiger salamander and burrowing owl habitat, as applicable.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of grading or construction permits	*Verified by:* *Date:*
BIO-4. If mitigation lands are purchased through conservation easements or in fee-title, the project applicant shall implement the Resource Management Plan prepared for the proposed project.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*
BIO-5a: The project applicant shall conduct a formal wetland delineation to determine the extent of jurisdictional waters of the United States on the project site. Potential impacts to jurisdictional waters shall be avoided where feasible. The applicant shall submit the wetland delineation to the City of Antioch Community Development Department prior to the issuance of a grading permit.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
BIO-5b: The project applicant shall obtain the appropriate federal and State permits authorizing the fill of any jurisdictional wetlands identified on the project site. The applicant shall provide proof to the City of Antioch Community Development Department of compliance with the terms and conditions of any required permits prior to issuance of the grading permit. All work in jurisdictional areas shall be in compliance with the terms and conditions of the federal and State permits.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
BIO-5c: The project applicant shall preserve off-site seasonal wetlands at a mitigation-to-loss ratio of 1:1 (currently identified as approximately 0.37 acres), to mitigate for the loss of the seasonal wetland. The exact acreage shall be determined based on the final mapping results of the formal wetland delineation approved by the Corps. This may be accomplished through the purchase of credits at an established mitigation bank or preservation of seasonal wetland habitat (through conservation easement or other applicable measure) at another suitable location approved by the City of Antioch and the applicable resource agencies. Should the provision of off-site seasonal wetland habitat be required to mitigate the loss of special status species, a 2:1 or higher mitigation ratio may be required by the resource agencies. Preservation of 0.37 acres (or appropriate 1:1 ratio) or higher of off-site seasonal wetland habitat would off-set the loss of the seasonal wetland itself and no further mitigation would be required.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
BIO-6: The 12 trees removed from the project site shall be replaced with 36 (a 3:1 mitigation to loss ratio) native trees indigenous to the region (e.g., native oaks adapted to the climate of Antioch). A 3:1 mitigation ratio is required to off-set the temporal loss of the mature trees. These trees shall be planted on-site using d-pots[3] from local stock. D-pots are recommended because smaller trees are more likely to establish a deep root system and out perform larger box trees. Replacement trees would require irrigation for 3 to 5 years to ensure an 80 percent survival rate. A landscape management plan shall be developed and shall specify when, where, and what trees are planted on-site, and how they would be cared for. The landscape management plan shall be submitted to the City for approval.	Project Applicant/ Project Landscape Architect	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
BIO-7: The proposed project shall avoid construction activities during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, the project applicant shall retain a qualified biologist to conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey shall be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.	Project Applicant/ Project Biologist	City of Antioch Community Development Department	Prior to the issuance of a grading permit	*Verified by:* *Date:*
V. Cultural Resources				
CULT-1: If deposits of prehistoric[4] or historic archeological materials are encountered during project activities, all work within 25 feet of the discovery shall be redirected and a qualified archeologist shall be contacted to assess the deposit finds and make recommendations. While deposits of prehistoric or historic archeological materials should be avoided by project activities, if the deposits cannot be avoided, they shall be evaluated for their California Register eligibility. If the deposits are not eligible for the California Register, avoidance is not necessary. If the deposits are eligible for the California Register, they shall be avoided. If avoidance is not feasible, project impacts shall be mitigated in accordance	Project Applicant/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*

[3] A d-pot is a 2.5- to 3-inch diameter by 10- to 12-inch deep container (usually bound by plastic mesh) that houses the root system of sapling trees.

[4] Prehistoric materials include flaked-stone tools (e.g. projectile points, knives, choppers) or obsidian, chert, or quartzite toolmaking debris; culturally darkened soil (i.e., midden soil often containing heat affected rock, ash and charcoal, shellfish remains, and cultural materials); and stone milling equipment (e.g., mortars, pestles, handstones). Historical materials can include wood, stone, concrete, or adobe footings, walls and other structural remains; debris-filled wells or privies; and deposits of wood, glass, ceramics, and other refuse.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
with the recommendations of the evaluating archaeologist and CEQA Guidelines Section 15126.4 (b)(3)(C), which requires implementation of a data recovery plan and avoidance of human remains. Upon completion of the archaeologist's assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the discovered archaeological materials. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center (NWIC).				
CULT-2: If paleontological resources[5] are encountered during site preparation or grading activities, all work within 25 feet of the discovery shall be redirected until a qualified paleontologist has assessed the discoveries and made recommendations. If the paleontological resources are found to be significant, adverse effects to such resources shall be avoided by project activities. If project activities cannot avoid the resources, the adverse effects shall be mitigated. Mitigation shall include data recovery and analysis, preparation of a final report, and the formal transmission or delivery of any fossil material recovered to a paleontological repository, such as the University of California Museum of Paleontology (UCMP). Upon completion of project activities, a final report documenting methods and findings of the mitigation shall be prepared and submitted to the project applicant, the City of Antioch, and a suitable paleontological repository.	Project Applicant/ Construction Manager/ Qualified Paleontologist	City of Antioch Community Development Department	During all ground-disturbing activities and after resources are identified	*Verified by:* *Date:*
CULT-3: If human remains are encountered, work within 25 feet of the discovery shall be redirected and the Contra Costa County Coroner notified immediately. At the same time, an archaeologist shall be contacted to assess the situation and consult with the appropriate agencies. If the human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. Upon completion of the assessment, the archaeologist shall prepare a report documenting the methods and results, and provide recommendations for the treatment of the human remains and any associated cultural materials, as appropriate and in coordination with the recommendations of the MLD. The report shall be submitted to the project applicant, the City of Antioch, and the Northwest Information Center.	Project Applicant/ Construction Manager/ Qualified Archaeologist	City of Antioch Community Development Department and Contra Costa County Coroner	During ground disturbing activities and after resources are identified	*Verified by:* *Date:*

[5] Paleontological resources include fossil plants and animals, and evidence of past life such as trace fossils and tracks. Ancient marine sediments may contain invertebrate fossils such as snails, clam and oyster shells, sponges, and protozoa; and vertebrate fossils such as fish, whale, and sea lion bones. Vertebrate land mammals may include bones of mammoth, camel, saber tooth cat, horse, and bison. Paleontological resources may also include plant imprints, petrified wood, and animal tracks.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
VI. Geology and Soils				
GEO-1: Project design and construction shall be in conformance with, or exceed, current best standards for earthquake resistant construction in accordance with the California Building Code (Seismic Zone 4), applicable local codes, and in accordance with the generally accepted standards of geotechnical practice for seismic design in Northern California. In addition, project design shall follow the recommendations of a site-specific design level geotechnical investigation report to be prepared by a Certified Engineering Geologist or Geotechnical Engineer. The City Engineer shall approve all final design and engineering plans.	Project Applicant/ Project Geotechnical Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
GEO-2: The applicant shall ensure that the requirements for worker health and safety as specified by the California Division of Occupational Safety and Health (DOSH) (which acts to protect workers from safety hazards through its California OSHA (Cal/OSHA)) are implemented. In particular, due to the caving proclivity of the soil types of the project site, shoring requirements for workers dealing with work in excavations, as specified in the California Code of Regulations, Title 8, Section 1540 et. al., Excavations, shall be observed.[6] This article applies to all open excavations made in the earth's surface (including trenches).	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit and during the construction period	*Verified by:* *Date:*
GEO-3: The applicant shall incorporate all recommendations of a final site-specific design-level geotechnical investigation as prepared by a licensed Geotechnical Engineer and approved by the City of Antioch into all development plans submitted for the project, including recommendations for grading, placement of fill materials, pretreatment of expansive soils, and avoidance of settlement and/or differential settlement of infrastructure and buildings.	Project Applicant/ Project Geotechnical Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*
GEO-4: Implement the recommendations in the geotechnical report related to demolition/clearing, grading, drainage, foundations, post-tensioned slab foundation, concrete flatwork, and retaining walls.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to issuance of a grading permit and during the construction period	*Verified by:* *Date:*

[6] Title 8, California Code of Regulations, Sections 1539-1543. Website: www.dir.ca.gov/Title8/sub4.html.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
VII. Hazards and Hazardous Materials				
HAZ-1: Prior to the issuance of grading or construction permits for the project site, a qualified environmental professional shall conduct an environmental investigation at the project site in accordance with California Department of Toxic Substances Control (DTSC) Interim Guidance for Sampling Former Agricultural Fields (Interim Guidance).[7] As specified in the Interim Guidance, any detected organic compounds or metals above naturally-occurring concentrations must be evaluated in a risk assessment, and additional remedial action such as soils removal may be required, depending on the results of the environmental investigation and risk assessment. The investigation report and certification that required further actions have been completed shall be submitted to the City of Antioch for review and approval.	Project Applicant/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of grading or construction permits	*Verified by:* *Date:*
HAZ-2: Prior to the issuance of grading or construction permits for the project site, a Construction Risk Management Plan (CRMP) should be prepared to address potential hazardous material issues during construction of the project. The CRMP should include any available data from sampling conducted for the project, including the sampling specified in Mitigation Measure HAZ-1. The CRMP shall include provisions to protect construction workers and the nearby public from health risks from pipeline hazards and potential historic releases associated with oil and natural gas production in the project vicinity. The CRMP shall incorporate Best Practices defined by the Common Ground Alliance[8] to protect construction worker safety and prevent accidental releases from oil and natural gas pipelines. The CRMP shall also require site inspections during initial grading activities at the site; provide procedures to be undertaken in the event that previously unreported petroleum contamination or subsurface hazards are discovered during construction; incorporate construction safety measures for excavation and other construction activities; establish detailed procedures for the safe storage, stockpiling, use, and disposal of hazardous materials at the project site; provide emergency response procedures; and designate personnel responsible for implementation of the CRMP. The CRMP shall be submitted to the City of Antioch for review and approval.	Project Applicant/ Qualified Environmental Professional	City of Antioch Community Development Department	Prior to issuance of grading or construction permit	*Verified by:* *Date:*
VIII. Hydrology and Water Quality				
HYD-1: The project proponent shall prepare a SWPPP designed to reduce potential impacts to surface water quality through the project construction period. The SWPPP must be maintained on-site and made available to City inspectors and/or RWQCB staff upon request. The SWPPP shall include specific and detailed BMPs designed to mitigate construction-related pollutants. At minimum, BMPs shall include practices to minimize the contact of	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to approval of the grading plan	*Verified by:* *Date:*

[7] Department of Toxic Substances Control, 2002. Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision). August 26.

[8] Common Ground Alliance (CGA), 2004. Best Practices, Version 2.0. December.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-1 *Continued* construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with stormwater. The SWPPP shall specify properly designed centralized storage areas that keep these materials out of the rain. An important component of the stormwater quality protection effort is the knowledge of the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of stormwater quality protection, site supervisors shall conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list shall be specified in the SWPPP. The SWPPP shall specify a monitoring program to be implemented by the construction site supervisor, which must include both dry and wet weather inspections. RWQCB and /or City personnel, who may make unannounced site inspections, are empowered to levy considerable fines if it is determined that the SWPPP has not been properly prepared and implemented. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of hay bales, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control; that is, keeping sediment on the site. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment wash-down facilities shall be designed to be accessible and functional during both dry and wet conditions. The City of Antioch Community Development Department shall review and approve the SWPPP prior to approval of the grading plan.				
HYD-1b: The project applicant shall design Best Management Practices into the project to reduce potential impacts to surface water quality associated with operation of the project. These features shall be included in the final development drawings. Specifically, the final design shall include measures designed to mitigate potential water quality degradation of runoff from all portions of the completed development, and to detain and treat 75 percent of the runoff from a major storm event. The design team for the development project shall review and incorporate as many concepts as practicable from *Start at the Source*, *Design Guidance Manual for Stormwater Quality Protection.*[9]	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to final development plan approval	*Verified by:* *Date:*

[9] Bay Area Stormwater Management Agencies Association, 1999. *Start at the Source, Design Guidance Manual for Stormwater Quality Protection*.

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
HYD-2: The City of Antioch Community Development Department shall review and approve the design-level stormwater control plan prior to approval of the grading plan. If it is determined by the City that the stormwater control plan for the proposed project does not include adequate measures to treat runoff to the maximum extent practicable in compliance with the County NPDES permit, then the applicant shall work closely with the City to revise the stormwater control plan so the Maximum Extent Practical (MEP) requirement is achieved.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to approval of the final grading plan	*Verified by:* *Date:*
HYD-3: As a condition of approval of the final grading and drainage plans for the project, the project applicant shall demonstrate through detailed hydraulic analysis that implementation of the proposed drainage plans will not create potential hydromodification impacts downstream by implementing the following: The project applicant's licensed professional engineer shall work cooperatively with the City of Antioch and the RWQCB to incorporate BMPs into the final drainage plan that will result in a post-project runoff curve (i.e., storm water flow/duration graphs) that closely resembles the pre-project curve; Include drainage components that are designed in compliance with City of Antioch standards. The grading and drainage plans shall be reviewed for compliance with these requirements by the City of Antioch; and The project applicant shall establish a self-perpetuating drainage system maintenance program (to be managed by a homeowners association or similar entity) that includes annual inspections of detention basins, sedimentation basins, drainage ditches, swales, and drainage inlets. Any accumulation of sediment or other debris shall be promptly removed and necessary maintenance to insure continued efficient operation shall be performed.	Project Applicant/ Project Hydrologist	City of Antioch Community Development Department	Prior to approval of the final grading and drainage plans	*Verified by:* *Date:*
HYD-4: The project applicant's licensed professional engineer shall analyze the potential for the project to contribute to downstream flooding impacts. The final drainage plan shall include a design that, when implemented, would not increase peak flows or exacerbate downstream flooding. Properly implemented hydrograph modification mitigation (required under Mitigation Measure HYD-3) will also mitigate the potential for impacting downstream flooding impacts.	Project Applicant/ Project Hydrologist	City of Antioch Community Development Department	Prior to approval of the final drainage plan	*Verified by:* *Date:*
HYD-5: As required by Ordinance 90-74, the applicant shall contribute to the construction and maintenance of regional drainage infrastructure by paying applicable fees associated with the amount of new impervious cover proposed by the project.	Project Applicant	City of Antioch Community Development Department	Prior to issuance of a grading permit	*Verified by:* *Date:*
IX. Land Use And Planning				
No mitigation required				
X. Mineral Resources				
No mitigation required				

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
XI. Noise				
NOISE-1a: The project contractor ensure that all construction related activities are restricted to the hours of 7:00 a.m. to 6:00 p.m. on weekdays, within 300 feet of occupied dwelling spaces between 8:00 a.m. and 5:00 p.m. on weekends, and between 9:00 a.m. and 5:00 p.m. on weekends and holidays, irrespective of the distance from the occupied dwelling.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During the construction period	*Verified by:* *Date:*
~~NOISE-1a: The construction contractor shall limit all noise producing construction related activities, including haul truck deliveries or warming up and idling of heavy construction equipment, to the hours of 8:00 a.m. to 5:00 p.m. on weekdays. No construction shall be allowed on weekends and public holidays.~~	~~Project Applicant/ Construction Manager~~	~~City of Antioch Community Development Department~~	~~During the construction period~~	~~*Verified by:*~~ ~~*Date:*~~
NOISE-1b: During all project site excavation and on-site grading, the construction contractor shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers consistent with manufacturers' standards.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During excavation and grading activities	*Verified by:* *Date:*
NOISE-1c: The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During grading and construction activities	*Verified by:* *Date:*
NOISE-1d: The construction contractor shall locate equipment staging in areas that will create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction.	Project Applicant/ Construction Manager	City of Antioch Community Development Department	During grading and construction activities	*Verified by:* *Date:*
NOISE-1e: The construction contractor shall use temporary noise attenuation fences at least 6 feet in height to protect all sensitive receptors along the project site's northern property line that are not currently protected by a sound wall of at least 6 feet in height. Noise attenuation fencing shall consist of a solid, continuous fence (with no horizontal or vertical gaps) at least 6 feet in height and of equivalent mass as that of solid wood fencing boards (e.g., made of plywood of at least ¾ inch thickness).	Project Applicant/ Construction Manager	City of Antioch Community Development Department	Prior to and during grading and construction activities	*Verified by:* *Date:*
NOISE-2a: A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall be constructed along the project property line bordering Deer Valley Road. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
NOISE-2b: A sound wall a minimum of 6 feet in height (measured above the finished roadway elevation) shall also be constructed along the project property line bordering Wellness Way. The sound wall must be constructed without gaps (including at the bottom) and must be at least 1 inch thick and have equivalent mass to that of solid wood fencing boards.	Project Applicant/ Project Engineer	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*

Table 1 *continued*

Mitigation Measures	Mitigation Responsibility	Monitoring/ Reporting Agency	Monitoring Schedule	Verification of Compliance
XII. Population And Housing				
No mitigation required				
XII. Public Services				
No mitigation required				
XIII. Recreation				
No mitigation required				
XV. Traffic				
TRANS-1: The Deer Valley Road/Lone Tree Way intersection should be re-striped to a through-shared right-turn lane. Because the proposed project does not itself trigger the impact, but adds to the eastbound right queue, the project applicant shall pay a pro-rata fair-share cost of intersection improvements.	Project Applicant/ City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
TRANS-2: The Deer Valley Road/Prewett Ranch Drive southbound left-turn lane should be extended an additional 50 feet to a total length of 190 feet plus 120 feet of the deceleration and taper. The project applicant shall be responsible for the full cost of the modification to the intersection. This intersection improvement shall be completed prior to occupation of the proposed project.	Project Applicant/ City of Antioch	City of Antioch Community Development Department	Prior to issuance of an occupancy permit	*Verified by:* *Date:*
XVI. Utilities And Services				
No mitigation required				

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APPENDIX B

CALEEMOD OUTPUT SHEETS

Deer Valley Estates

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	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

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)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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	0.2727	2.6902	2.1107	4.2700e-003	0.3741	0.1255	0.4996	0.1820	0.1168	0.2988	0.0000	376.6823	376.6823	0.0867	0.0000	378.8487
2022	0.2575	2.3562	2.3940	4.9900e-003	0.0934	0.1063	0.1997	0.0253	0.1000	0.1253	0.0000	440.7598	440.7598	0.0772	0.0000	442.6901
2023	1.5573	0.2140	0.2995	5.1000e-004	5.2300e-003	0.0105	0.0157	1.4000e-003	9.7800e-003	0.0112	0.0000	44.9534	44.9534	0.0115	0.0000	45.2399
Maximum	**1.5573**	**2.6902**	**2.3940**	**4.9900e-003**	**0.3741**	**0.1255**	**0.4996**	**0.1820**	**0.1168**	**0.2988**	**0.0000**	**440.7598**	**440.7598**	**0.0867**	**0.0000**	**442.6901**

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	0.1429	3.1325	2.3333	4.2700e-003	0.1975	0.0978	0.2953	0.0898	0.0977	0.1875	0.0000	376.6820	376.6820	0.0867	0.0000	378.8484
2022	0.1762	3.3882	2.5903	4.9900e-003	0.0934	0.1185	0.2119	0.0253	0.1185	0.1438	0.0000	440.7595	440.7595	0.0772	0.0000	442.6897
2023	1.5533	0.4015	0.3445	5.1000e-004	5.2300e-003	0.0137	0.0190	1.4000e-003	0.0137	0.0151	0.0000	44.9534	44.9534	0.0115	0.0000	45.2399
Maximum	**1.5533**	**3.3882**	**2.5903**	**4.9900e-003**	**0.1975**	**0.1185**	**0.2953**	**0.0898**	**0.1185**	**0.1875**	**0.0000**	**440.7595**	**440.7595**	**0.0867**	**0.0000**	**442.6897**

Deer Valley Estates - Bay Area AQMD Air District, Annual

	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	**10.30**	**-31.59**	**-9.66**	**0.00**	**37.35**	**5.04**	**26.40**	**44.18**	**-1.50**	**20.41**	**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	**4-5-2021**	**7-4-2021**	1.4463	1.4191
2	**7-5-2021**	**10-4-2021**	0.7312	0.9054
3	**10-5-2021**	**1-4-2022**	0.7303	0.9073
4	**1-5-2022**	**4-4-2022**	0.6472	0.8822
5	**4-5-2022**	**7-4-2022**	0.6524	0.8901
6	**7-5-2022**	**10-4-2022**	0.6597	0.9000
7	**10-5-2022**	**1-4-2023**	0.6589	0.9011
8	**1-5-2023**	**4-4-2023**	1.6569	1.8173
		Highest	1.6569	1.8173

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	1.7448	0.0260	1.9357	2.1800e-003		0.1545	0.1545		0.1545	0.1545	15.3804	5.2440	20.6244	0.0305	8.8000e-004	21.6482
Energy	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	333.6770	333.6770	0.0165	6.1000e-003	335.9081
Mobile	0.2598	1.1504	2.9511	0.0110	0.9818	8.9900e-003	0.9908	0.2635	8.3900e-003	0.2719	0.0000	1,008.4517	1,008.4517	0.0350	0.0000	1,009.3272
Waste						0.0000	0.0000		0.0000	0.0000	29.5250	0.0000	29.5250	1.7449	0.0000	73.1470
Water						0.0000	0.0000		0.0000	0.0000	2.5011	9.8894	12.3905	0.2578	6.2500e-003	20.6959
Total	**2.0236**	**1.3385**	**4.9557**	**0.0142**	**0.9818**	**0.1766**	**1.1584**	**0.2635**	**0.1760**	**0.4395**	**47.4066**	**1,357.2621**	**1,404.6687**	**2.0846**	**0.0132**	**1,460.7264**

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	1.0327	0.0192	0.9024	1.0000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	11.7394	11.7394	1.6100e-003	1.9000e-004	11.8357
Energy	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	241.8912	241.8912	0.0145	4.4200e-003	243.5716
Mobile	0.2616	1.1615	2.9937	0.0112	1.0011	9.1400e-003	1.0103	0.2687	8.5400e-003	0.2772	0.0000	1,026.8382	1,026.8382	0.0355	0.0000	1,027.7262
Waste						0.0000	0.0000		0.0000	0.0000	7.3813	0.0000	7.3813	0.4362	0.0000	18.2868
Water						0.0000	0.0000		0.0000	0.0000	2.5011	9.8894	12.3905	0.2578	6.2500e-003	20.6959
Total	**1.3043**	**1.2662**	**3.9325**	**0.0118**	**1.0011**	**0.0217**	**1.0229**	**0.2687**	**0.0211**	**0.2898**	**9.8824**	**1,290.3583**	**1,300.2406**	**0.7456**	**0.0109**	**1,322.1162**

	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	**35.55**	**5.40**	**20.65**	**16.63**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.43**	**64.23**	**17.91**	**9.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; 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
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
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
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
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
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	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	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

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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					0.1807	0.0000	0.1807	0.0993	0.0000	0.0993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.4050	0.2115	3.8000e-004		0.0204	0.0204		0.0188	0.0188	0.0000	33.4357	33.4357	0.0108	0.0000	33.7061
Total	**0.0389**	**0.4050**	**0.2115**	**3.8000e-004**	**0.1807**	**0.0204**	**0.2011**	**0.0993**	**0.0188**	**0.1181**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7061**

3.2 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	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

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					0.0813	0.0000	0.0813	0.0447	0.0000	0.0447	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0121	0.3372	0.2296	3.8000e-004		9.4600e-003	9.4600e-003		9.4600e-003	9.4600e-003	0.0000	33.4357	33.4357	0.0108	0.0000	33.7060
Total	**0.0121**	**0.3372**	**0.2296**	**3.8000e-004**	**0.0813**	**9.4600e-003**	**0.0908**	**0.0447**	**9.4600e-003**	**0.0542**	**0.0000**	**33.4357**	**33.4357**	**0.0108**	**0.0000**	**33.7060**

3.2 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	5.5000e-004	3.8000e-004	4.0400e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2024	1.2024	3.0000e-005	0.0000	1.2031
Total	**5.5000e-004**	**3.8000e-004**	**4.0400e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2024**	**1.2024**	**3.0000e-005**	**0.0000**	**1.2031**

3.3 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					0.1404	0.0000	0.1404	0.0684	0.0000	0.0684	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0838	0.9280	0.6176	1.2400e-003		0.0397	0.0397		0.0365	0.0365	0.0000	108.9900	108.9900	0.0353	0.0000	109.8712
Total	**0.0838**	**0.9280**	**0.6176**	**1.2400e-003**	**0.1404**	**0.0397**	**0.1801**	**0.0684**	**0.0365**	**0.1049**	**0.0000**	**108.9900**	**108.9900**	**0.0353**	**0.0000**	**109.8712**

3.3 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	1.2300e-003	8.5000e-004	8.9700e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6720	2.6720	6.0000e-005	0.0000	2.6735
Total	**1.2300e-003**	**8.5000e-004**	**8.9700e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6720**	**2.6720**	**6.0000e-005**	**0.0000**	**2.6735**

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					0.0632	0.0000	0.0632	0.0308	0.0000	0.0308	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0362	1.0248	0.7345	1.2400e-003		0.0267	0.0267		0.0267	0.0267	0.0000	108.9898	108.9898	0.0353	0.0000	109.8711
Total	**0.0362**	**1.0248**	**0.7345**	**1.2400e-003**	**0.0632**	**0.0267**	**0.0898**	**0.0308**	**0.0267**	**0.0574**	**0.0000**	**108.9898**	**108.9898**	**0.0353**	**0.0000**	**109.8711**

3.3 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	1.2300e-003	8.5000e-004	8.9700e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.6720	2.6720	6.0000e-005	0.0000	2.6735
Total	**1.2300e-003**	**8.5000e-004**	**8.9700e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.6720**	**2.6720**	**6.0000e-005**	**0.0000**	**2.6735**

3.4 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	0.1283	1.1767	1.1188	1.8200e-003		0.0647	0.0647		0.0608	0.0608	0.0000	156.3552	156.3552	0.0377	0.0000	157.2982
Total	**0.1283**	**1.1767**	**1.1188**	**1.8200e-003**		**0.0647**	**0.0647**		**0.0608**	**0.0608**	**0.0000**	**156.3552**	**156.3552**	**0.0377**	**0.0000**	**157.2982**

3.4 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	5.1400e-003	0.1692	0.0422	4.4000e-004	0.0106	3.7000e-004	0.0110	3.0700e-003	3.5000e-004	3.4200e-003	0.0000	42.0137	42.0137	2.0700e-003	0.0000	42.0654
Worker	0.0147	0.0102	0.1075	3.5000e-004	0.0379	2.5000e-004	0.0381	0.0101	2.3000e-004	0.0103	0.0000	32.0134	32.0134	7.2000e-004	0.0000	32.0314
Total	**0.0199**	**0.1794**	**0.1497**	**7.9000e-004**	**0.0485**	**6.2000e-004**	**0.0491**	**0.0131**	**5.8000e-004**	**0.0137**	**0.0000**	**74.0271**	**74.0271**	**2.7900e-003**	**0.0000**	**74.0967**

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	0.0730	1.5899	1.2065	1.8200e-003		0.0610	0.0610		0.0610	0.0610	0.0000	156.3550	156.3550	0.0377	0.0000	157.2980
Total	**0.0730**	**1.5899**	**1.2065**	**1.8200e-003**		**0.0610**	**0.0610**		**0.0610**	**0.0610**	**0.0000**	**156.3550**	**156.3550**	**0.0377**	**0.0000**	**157.2980**

3.4 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	5.1400e-003	0.1692	0.0422	4.4000e-004	0.0106	3.7000e-004	0.0110	3.0700e-003	3.5000e-004	3.4200e-003	0.0000	42.0137	42.0137	2.0700e-003	0.0000	42.0654
Worker	0.0147	0.0102	0.1075	3.5000e-004	0.0379	2.5000e-004	0.0381	0.0101	2.3000e-004	0.0103	0.0000	32.0134	32.0134	7.2000e-004	0.0000	32.0314
Total	**0.0199**	**0.1794**	**0.1497**	**7.9000e-004**	**0.0485**	**6.2000e-004**	**0.0491**	**0.0131**	**5.8000e-004**	**0.0137**	**0.0000**	**74.0271**	**74.0271**	**2.7900e-003**	**0.0000**	**74.0967**

3.4 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**

3.4 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	9.2400e-003	0.3086	0.0765	8.3000e-004	0.0205	6.1000e-004	0.0211	5.9200e-003	5.9000e-004	6.5100e-003	0.0000	80.1219	80.1219	3.8000e-003	0.0000	80.2169
Worker	0.0264	0.0175	0.1903	6.6000e-004	0.0729	4.7000e-004	0.0734	0.0194	4.3000e-004	0.0198	0.0000	59.3951	59.3951	1.2400e-003	0.0000	59.4261
Total	**0.0356**	**0.3262**	**0.2667**	**1.4900e-003**	**0.0934**	**1.0800e-003**	**0.0945**	**0.0253**	**1.0200e-003**	**0.0263**	**0.0000**	**139.5170**	**139.5170**	**5.0400e-003**	**0.0000**	**139.6430**

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	0.1405	3.0621	2.3236	3.5000e-003		0.1175	0.1175		0.1175	0.1175	0.0000	301.2425	301.2425	0.0722	0.0000	303.0467
Total	**0.1405**	**3.0621**	**2.3236**	**3.5000e-003**		**0.1175**	**0.1175**		**0.1175**	**0.1175**	**0.0000**	**301.2425**	**301.2425**	**0.0722**	**0.0000**	**303.0467**

3.4 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	9.2400e-003	0.3086	0.0765	8.3000e-004	0.0205	6.1000e-004	0.0211	5.9200e-003	5.9000e-004	6.5100e-003	0.0000	80.1219	80.1219	3.8000e-003	0.0000	80.2169
Worker	0.0264	0.0175	0.1903	6.6000e-004	0.0729	4.7000e-004	0.0734	0.0194	4.3000e-004	0.0198	0.0000	59.3951	59.3951	1.2400e-003	0.0000	59.4261
Total	**0.0356**	**0.3262**	**0.2667**	**1.4900e-003**	**0.0934**	**1.0800e-003**	**0.0945**	**0.0253**	**1.0200e-003**	**0.0263**	**0.0000**	**139.5170**	**139.5170**	**5.0400e-003**	**0.0000**	**139.6430**

3.4 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	3.9300e-003	0.0360	0.0406	7.0000e-005		1.7500e-003	1.7500e-003		1.6500e-003	1.6500e-003	0.0000	5.7951	5.7951	1.3800e-003	0.0000	5.8296
Total	**3.9300e-003**	**0.0360**	**0.0406**	**7.0000e-005**		**1.7500e-003**	**1.7500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**5.7951**	**5.7951**	**1.3800e-003**	**0.0000**	**5.8296**

3.4 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	1.3000e-004	4.5800e-003	1.3200e-003	2.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.4976	1.4976	6.0000e-005	0.0000	1.4992
Worker	4.7000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0985	1.0985	2.0000e-005	0.0000	1.0990
Total	**6.0000e-004**	**4.8800e-003**	**4.6900e-003**	**3.0000e-005**	**1.7900e-003**	**2.0000e-005**	**1.8100e-003**	**4.8000e-004**	**2.0000e-005**	**5.0000e-004**	**0.0000**	**2.5961**	**2.5961**	**8.0000e-005**	**0.0000**	**2.5982**

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	2.7000e-003	0.0589	0.0447	7.0000e-005		2.2600e-003	2.2600e-003		2.2600e-003	2.2600e-003	0.0000	5.7951	5.7951	1.3800e-003	0.0000	5.8296
Total	**2.7000e-003**	**0.0589**	**0.0447**	**7.0000e-005**		**2.2600e-003**	**2.2600e-003**		**2.2600e-003**	**2.2600e-003**	**0.0000**	**5.7951**	**5.7951**	**1.3800e-003**	**0.0000**	**5.8296**

3.4 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	1.3000e-004	4.5800e-003	1.3200e-003	2.0000e-005	3.9000e-004	1.0000e-005	4.0000e-004	1.1000e-004	1.0000e-005	1.2000e-004	0.0000	1.4976	1.4976	6.0000e-005	0.0000	1.4992
Worker	4.7000e-004	3.0000e-004	3.3700e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.0985	1.0985	2.0000e-005	0.0000	1.0990
Total	**6.0000e-004**	**4.8800e-003**	**4.6900e-003**	**3.0000e-005**	**1.7900e-003**	**2.0000e-005**	**1.8100e-003**	**4.8000e-004**	**2.0000e-005**	**5.0000e-004**	**0.0000**	**2.5961**	**2.5961**	**8.0000e-005**	**0.0000**	**2.5982**

3.5 Paving - 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	0.0155	0.1529	0.2188	3.4000e-004		7.6500e-003	7.6500e-003		7.0400e-003	7.0400e-003	0.0000	30.0403	30.0403	9.7200e-003	0.0000	30.2832
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0155**	**0.1529**	**0.2188**	**3.4000e-004**		**7.6500e-003**	**7.6500e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**30.0403**	**30.0403**	**9.7200e-003**	**0.0000**	**30.2832**

3.5 Paving - 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	6.0000e-004	3.8000e-004	4.2700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3924	1.3924	3.0000e-005	0.0000	1.3931
Total	**6.0000e-004**	**3.8000e-004**	**4.2700e-003**	**2.0000e-005**	**1.7800e-003**	**1.0000e-005**	**1.7900e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3924**	**1.3924**	**3.0000e-005**	**0.0000**	**1.3931**

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	0.0140	0.3017	0.2594	3.4000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	30.0403	30.0403	9.7200e-003	0.0000	30.2832
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0140**	**0.3017**	**0.2594**	**3.4000e-004**		**0.0100**	**0.0100**		**0.0100**	**0.0100**	**0.0000**	**30.0403**	**30.0403**	**9.7200e-003**	**0.0000**	**30.2832**

3.5 Paving - 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	6.0000e-004	3.8000e-004	4.2700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.3924	1.3924	3.0000e-005	0.0000	1.3931
Total	**6.0000e-004**	**3.8000e-004**	**4.2700e-003**	**2.0000e-005**	**1.7800e-003**	**1.0000e-005**	**1.7900e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.3924**	**1.3924**	**3.0000e-005**	**0.0000**	**1.3931**

3.6 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	1.5332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8700e-003	0.0195	0.0272	4.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**1.5361**	**0.0195**	**0.0272**	**4.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

3.6 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	5.6000e-004	3.6000e-004	3.9800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2996	1.2996	3.0000e-005	0.0000	1.3002
Total	**5.6000e-004**	**3.6000e-004**	**3.9800e-003**	**1.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2996**	**1.2996**	**3.0000e-005**	**0.0000**	**1.3002**

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	1.5332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0353	0.0275	4.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	3.8299	3.8299	2.3000e-004	0.0000	3.8356
Total	**1.5349**	**0.0353**	**0.0275**	**4.0000e-005**		**1.4300e-003**	**1.4300e-003**		**1.4300e-003**	**1.4300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.3000e-004**	**0.0000**	**3.8356**

3.6 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	5.6000e-004	3.6000e-004	3.9800e-003	1.0000e-005	1.6600e-003	1.0000e-005	1.6700e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2996	1.2996	3.0000e-005	0.0000	1.3002
Total	**5.6000e-004**	**3.6000e-004**	**3.9800e-003**	**1.0000e-005**	**1.6600e-003**	**1.0000e-005**	**1.6700e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2996**	**1.2996**	**3.0000e-005**	**0.0000**	**1.3002**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	0.2616	1.1615	2.9937	0.0112	1.0011	9.1400e-003	1.0103	0.2687	8.5400e-003	0.2772	0.0000	1,026.8382	1,026.8382	0.0355	0.0000	1,027.7262
Unmitigated	0.2598	1.1504	2.9511	0.0110	0.9818	8.9900e-003	0.9908	0.2635	8.3900e-003	0.2719	0.0000	1,008.4517	1,008.4517	0.0350	0.0000	1,009.3272

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	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
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

	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	142.8874	142.8874	0.0126	2.6100e-003	143.9795
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	146.0031	146.0031	0.0129	2.6600e-003	147.1190
NaturalGas Mitigated	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	99.0038	99.0038	1.9000e-003	1.8200e-003	99.5922
NaturalGas Unmitigated	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	187.6739	187.6739	3.6000e-003	3.4400e-003	188.7891

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					
City Park	0	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
Single Family Housing	3.51688e+006	0.0190	0.1621	0.0690	1.0300e-003		0.0131	0.0131		0.0131	0.0131	0.0000	187.6739	187.6739	3.6000e-003	3.4400e-003	188.7891
Total		**0.0190**	**0.1621**	**0.0690**	**1.0300e-003**		**0.0131**	**0.0131**		**0.0131**	**0.0131**	**0.0000**	**187.6739**	**187.6739**	**3.6000e-003**	**3.4400e-003**	**188.7891**

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					
City Park	0	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
Single Family Housing	1.85526e+006	0.0100	0.0855	0.0364	5.5000e-004		6.9100e-003	6.9100e-003		6.9100e-003	6.9100e-003	0.0000	99.0038	99.0038	1.9000e-003	1.8200e-003	99.5922
Total		**0.0100**	**0.0855**	**0.0364**	**5.5000e-004**		**6.9100e-003**	**6.9100e-003**		**6.9100e-003**	**6.9100e-003**	**0.0000**	**99.0038**	**99.0038**	**1.9000e-003**	**1.8200e-003**	**99.5922**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	978959	146.0031	0.0129	2.6600e-003	147.1190
Total		**146.0031**	**0.0129**	**2.6600e-003**	**147.1190**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	958068	142.8874	0.0126	2.6100e-003	143.9795
Total		**142.8874**	**0.0126**	**2.6100e-003**	**143.9795**

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	1.0327	0.0192	0.9024	1.0000e-004		5.6900e-003	5.6900e-003		5.6900e-003	5.6900e-003	0.0000	11.7394	11.7394	1.6100e-003	1.9000e-004	11.8357
Unmitigated	1.7448	0.0260	1.9357	2.1800e-003		0.1545	0.1545		0.1545	0.1545	15.3804	5.2440	20.6244	0.0305	8.8000e-004	21.6482

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	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.7132	0.0156	1.0370	2.1400e-003		0.1496	0.1496		0.1496	0.1496	15.3804	3.7764	19.1568	0.0291	8.8000e-004	20.1453
Landscaping	0.0271	0.0104	0.8987	5.0000e-005		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	1.4676	1.4676	1.4100e-003	0.0000	1.5029
Total	**1.7448**	**0.0260**	**1.9357**	**2.1900e-003**		**0.1545**	**0.1545**		**0.1545**	**0.1545**	**15.3804**	**5.2440**	**20.6244**	**0.0305**	**8.8000e-004**	**21.6482**

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	0.1533					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.8512					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.0400e-003	8.8700e-003	3.7700e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.2718	10.2718	2.0000e-004	1.9000e-004	10.3328
Landscaping	0.0271	0.0104	0.8987	5.0000e-005		4.9700e-003	4.9700e-003		4.9700e-003	4.9700e-003	0.0000	1.4676	1.4676	1.4100e-003	0.0000	1.5029
Total	**1.0327**	**0.0192**	**0.9024**	**1.1000e-004**		**5.6900e-003**	**5.6900e-003**		**5.6900e-003**	**5.6900e-003**	**0.0000**	**11.7394**	**11.7394**	**1.6100e-003**	**1.9000e-004**	**11.8357**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	12.3905	0.2578	6.2500e-003	20.6959
Unmitigated	12.3905	0.2578	6.2500e-003	20.6959

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.78722	0.9329	8.0000e-005	2.0000e-005	0.9401
Single Family Housing	7.88364 / 4.97012	11.4576	0.2577	6.2300e-003	19.7559
Total		**12.3905**	**0.2578**	**6.2500e-003**	**20.6959**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.78722	0.9329	8.0000e-005	2.0000e-005	0.9401
Single Family Housing	7.88364 / 4.97012	11.4576	0.2577	6.2300e-003	19.7559
Total		**12.3905**	**0.2578**	**6.2500e-003**	**20.6959**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.3813	0.4362	0.0000	18.2868
Unmitigated	29.5250	1.7449	0.0000	73.1470

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.13	0.0264	1.5600e-003	0.0000	0.0654
Single Family Housing	145.32	29.4987	1.7433	0.0000	73.0817
Total		**29.5250**	**1.7449**	**0.0000**	**73.1470**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.0325	6.6000e-003	3.9000e-004	0.0000	0.0163
Single Family Housing	36.33	7.3747	0.4358	0.0000	18.2704
Total		**7.3813**	**0.4362**	**0.0000**	**18.2868**

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

Deer Valley Estates

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	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

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)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Bay Area AQMD Air District, Summer

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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	1.9882	18.0859	18.5204	0.0388	0.7457	0.8173	1.5630	0.2015	0.7689	0.9704	0.0000	3,782.7361	3,782.7361	0.6544	0.0000	3,799.0949
2023	102.4430	16.3090	18.2213	0.0385	0.7457	0.7053	1.4510	0.2015	0.6636	0.8651	0.0000	3,743.5283	3,743.5283	0.7161	0.0000	3,759.6428
Maximum	**102.4430**	**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	1.8749	51.2762	37.2139	0.0636	8.2777	1.3344	9.2248	4.5080	1.3343	5.4551	0.0000	6,165.4353	6,165.4353	1.9463	0.0000	6,214.0938
2022	1.3628	26.0246	20.0308	0.0388	0.7457	0.9118	1.6575	0.2015	0.9113	1.1128	0.0000	3,782.7361	3,782.7361	0.6544	0.0000	3,799.0949
2023	102.3652	25.4785	19.8510	0.0385	0.7457	0.9091	1.6549	0.2015	0.9088	1.1102	0.0000	3,743.5283	3,743.5283	0.7161	0.0000	3,759.6428
Maximum	**102.3652**	**51.2762**	**37.2139**	**0.0636**	**8.2777**	**1.3344**	**9.2248**	**4.5080**	**1.3343**	**5.4551**	**0.0000**	**6,165.4353**	**6,165.4353**	**1.9463**	**0.0000**	**6,214.0938**

Deer Valley Estates - 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	**2.84**	**-27.15**	**-13.19**	**0.00**	**50.42**	**11.57**	**46.13**	**52.66**	**4.83**	**43.90**	**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	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103
Energy	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Mobile	1.6423	6.1285	16.8858	0.0638	5.6043	0.0494	5.6537	1.4993	0.0461	1.5454		6,460.2062	6,460.2062	0.2134		6,465.5418
Total	**132.9459**	**9.5460**	**189.4236**	**0.3754**	**5.6043**	**23.1088**	**28.7131**	**1.4993**	**23.1055**	**24.6048**	**2,465.7790**	**8,359.0962**	**10,824.8752**	**3.3013**	**0.1948**	**10,965.4503**

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	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Energy	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Mobile	1.6525	6.1854	17.1500	0.0650	5.7148	0.0502	5.7650	1.5289	0.0469	1.5757		6,578.1527	6,578.1527	0.2166		6,583.5674
Total	**7.6989**	**8.3613**	**28.0120**	**0.0787**	**5.7148**	**0.2721**	**5.9869**	**1.5289**	**0.2688**	**1.7976**	**0.0000**	**9,226.9171**	**9,226.9171**	**0.2843**	**0.0482**	**9,248.3975**

	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	**94.21**	**12.41**	**85.21**	**79.05**	**-1.97**	**98.82**	**79.15**	**-1.97**	**98.84**	**92.69**	**100.00**	**-10.38**	**14.76**	**91.39**	**75.24**	**15.66**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; 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
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
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
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
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
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	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	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

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

3.2 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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 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**

3.3 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					7.0179	0.0000	7.0179	3.4178	0.0000	3.4178			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**	**7.0179**	**1.9853**	**9.0032**	**3.4178**	**1.8265**	**5.2443**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 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					3.1581	0.0000	3.1581	1.5380	0.0000	1.5380			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0620		1.3333	1.3333		1.3333	1.3333	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**1.8106**	**51.2386**	**36.7226**	**0.0620**	**3.1581**	**1.3333**	**4.4914**	**1.5380**	**1.3333**	**2.8713**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 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**

3.4 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**

3.4 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	0.0744	2.4802	0.5849	6.5400e-003	0.1625	5.3700e-003	0.1678	0.0468	5.1400e-003	0.0519		693.5005	693.5005	0.0326		694.3142
Worker	0.2283	0.1334	1.7440	5.6400e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		562.2913	562.2913	0.0126		562.6055
Total	**0.3027**	**2.6136**	**2.3288**	**0.0122**	**0.7457**	**9.0400e-003**	**0.7548**	**0.2015**	**8.5200e-003**	**0.2100**		**1,255.7918**	**1,255.7918**	**0.0451**		**1,256.9197**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 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	0.0744	2.4802	0.5849	6.5400e-003	0.1625	5.3700e-003	0.1678	0.0468	5.1400e-003	0.0519		693.5005	693.5005	0.0326		694.3142
Worker	0.2283	0.1334	1.7440	5.6400e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		562.2913	562.2913	0.0126		562.6055
Total	**0.3027**	**2.6136**	**2.3288**	**0.0122**	**0.7457**	**9.0400e-003**	**0.7548**	**0.2015**	**8.5200e-003**	**0.2100**		**1,255.7918**	**1,255.7918**	**0.0451**		**1,256.9197**

3.4 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**

3.4 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	0.0694	2.3506	0.5500	6.4800e-003	0.1625	4.6600e-003	0.1671	0.0468	4.4500e-003	0.0512		686.7468	686.7468	0.0311		687.5248
Worker	0.2125	0.1197	1.6070	5.4300e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		541.6557	541.6557	0.0113		541.9379
Total	**0.2819**	**2.4702**	**2.1570**	**0.0119**	**0.7457**	**8.2400e-003**	**0.7540**	**0.2015**	**7.7500e-003**	**0.2092**		**1,228.4025**	**1,228.4025**	**0.0424**		**1,229.4627**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 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	0.0694	2.3506	0.5500	6.4800e-003	0.1625	4.6600e-003	0.1671	0.0468	4.4500e-003	0.0512		686.7468	686.7468	0.0311		687.5248
Worker	0.2125	0.1197	1.6070	5.4300e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		541.6557	541.6557	0.0113		541.9379
Total	**0.2819**	**2.4702**	**2.1570**	**0.0119**	**0.7457**	**8.2400e-003**	**0.7540**	**0.2015**	**7.7500e-003**	**0.2092**		**1,228.4025**	**1,228.4025**	**0.0424**		**1,229.4627**

3.4 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**

3.4 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	0.0520	1.8165	0.4952	6.2900e-003	0.1625	2.0700e-003	0.1645	0.0468	1.9800e-003	0.0488		667.4278	667.4278	0.0266		668.0928
Worker	0.1984	0.1076	1.4821	5.2200e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		520.8906	520.8906	0.0101		521.1440
Total	**0.2504**	**1.9241**	**1.9773**	**0.0115**	**0.7457**	**5.5800e-003**	**0.7513**	**0.2015**	**5.2100e-003**	**0.2067**		**1,188.3184**	**1,188.3184**	**0.0367**		**1,189.2368**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 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	0.0520	1.8165	0.4952	6.2900e-003	0.1625	2.0700e-003	0.1645	0.0468	1.9800e-003	0.0488		667.4278	667.4278	0.0266		668.0928
Worker	0.1984	0.1076	1.4821	5.2200e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		520.8906	520.8906	0.0101		521.1440
Total	**0.2504**	**1.9241**	**1.9773**	**0.0115**	**0.7457**	**5.5800e-003**	**0.7513**	**0.2015**	**5.2100e-003**	**0.2067**		**1,188.3184**	**1,188.3184**	**0.0367**		**1,189.2368**

3.5 Paving - 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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 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	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	**0.0419**	**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**

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9311**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 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	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	**0.0419**	**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**

3.6 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	102.2122					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	**102.4038**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 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	0.0391	0.0212	0.2922	1.0300e-003	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		102.7108	102.7108	2.0000e-003		102.7608
Total	**0.0391**	**0.0212**	**0.2922**	**1.0300e-003**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**102.7108**	**102.7108**	**2.0000e-003**		**102.7608**

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	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**102.3261**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 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	0.0391	0.0212	0.2922	1.0300e-003	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		102.7108	102.7108	2.0000e-003		102.7608
Total	**0.0391**	**0.0212**	**0.2922**	**1.0300e-003**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**102.7108**	**102.7108**	**2.0000e-003**		**102.7608**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	1.6525	6.1854	17.1500	0.0650	5.7148	0.0502	5.7650	1.5289	0.0469	1.5757		6,578.1527	6,578.1527	0.2166		6,583.5674
Unmitigated	1.6423	6.1285	16.8858	0.0638	5.6043	0.0494	5.6537	1.4993	0.0461	1.5454		6,460.2062	6,460.2062	0.2134		6,465.5418

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	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
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

	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	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
NaturalGas Unmitigated	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981

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					
City Park	0	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
Single Family Housing	9635.28	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Total		**0.1039**	**0.8880**	**0.3779**	**5.6700e-003**		**0.0718**	**0.0718**		**0.0718**	**0.0718**		**1,133.5619**	**1,133.5619**	**0.0217**	**0.0208**	**1,140.2981**

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					
City Park	0	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
Single Family Housing	5.08291	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Total		**0.0548**	**0.4684**	**0.1993**	**2.9900e-003**		**0.0379**	**0.0379**		**0.0379**	**0.0379**		**597.9893**	**597.9893**	**0.0115**	**0.0110**	**601.5429**

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	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Unmitigated	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103

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	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	125.3944	2.4144	162.1749	0.3054		22.9323	22.9323		22.9323	22.9323	2,465.7790	747.3529	3,213.1319	3.0488	0.1740	3,341.2030
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**131.1996**	**2.5295**	**172.1600**	**0.3060**		**22.9876**	**22.9876**		**22.9876**	**22.9876**	**2,465.7790**	**765.3281**	**3,231.1071**	**3.0661**	**0.1740**	**3,359.6103**

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	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1863	1.5924	0.6776	0.0102		0.1287	0.1287		0.1287	0.1287	0.0000	2,032.8000	2,032.8000	0.0390	0.0373	2,044.8799
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**5.9916**	**1.7075**	**10.6626**	**0.0107**		**0.1840**	**0.1840**		**0.1840**	**0.1840**	**0.0000**	**2,050.7752**	**2,050.7752**	**0.0563**	**0.0373**	**2,063.2872**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Deer Valley Estates

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	121.00	Dwelling Unit	36.06	217,800.00	346
City Park	1.50	Acre	1.50	65,340.00	0

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)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Bay Area AQMD Air District, Winter

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - The proposed project involves the construction of 121 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - Total project site is 37.56 acres.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	NumDays	740.00	400.00
tblConstructionPhase	NumDays	75.00	40.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	55.00	30.00
tblConstructionPhase	PhaseEndDate	11/29/2024	3/31/2023
tblConstructionPhase	PhaseEndDate	6/28/2024	1/6/2023
tblConstructionPhase	PhaseEndDate	8/27/2021	6/25/2021
tblConstructionPhase	PhaseEndDate	5/14/2021	4/30/2021
tblConstructionPhase	PhaseStartDate	9/14/2024	2/20/2023
tblConstructionPhase	PhaseStartDate	8/28/2021	6/28/2021
tblConstructionPhase	PhaseStartDate	5/15/2021	5/3/2021
tblGrading	AcresOfGrading	100.00	37.56
tblLandUse	LotAcreage	39.29	36.06

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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	2.0055	18.1317	18.4926	0.0382	0.7457	0.8174	1.5631	0.2015	0.7691	0.9706	0.0000	3,722.5293	3,722.5293	0.6561	0.0000	3,738.9312
2023	102.4455	16.3431	18.1803	0.0379	0.7457	0.7054	1.4511	0.2015	0.6637	0.8652	0.0000	3,685.6419	3,685.6419	0.7160	0.0000	3,701.7867
Maximum	**102.4455**	**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	1.8787	51.2851	37.1822	0.0635	8.2777	1.3344	9.2248	4.5080	1.3343	5.4551	0.0000	6,152.9508	6,152.9508	1.9461	0.0000	6,201.6033
2022	1.3801	26.0705	20.0030	0.0382	0.7457	0.9120	1.6577	0.2015	0.9115	1.1129	0.0000	3,722.5293	3,722.5293	0.6561	0.0000	3,738.9312
2023	102.3678	25.5126	19.8101	0.0379	0.7457	0.9092	1.6549	0.2015	0.9088	1.1103	0.0000	3,685.6419	3,685.6419	0.7160	0.0000	3,701.7867
Maximum	**102.3678**	**51.2851**	**37.1822**	**0.0635**	**8.2777**	**1.3344**	**9.2248**	**4.5080**	**1.3343**	**5.4551**	**0.0000**	**6,152.9508**	**6,152.9508**	**1.9461**	**0.0000**	**6,201.6033**

Deer Valley Estates - 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	**2.84**	**-27.12**	**-13.21**	**0.00**	**50.42**	**11.57**	**46.13**	**52.66**	**4.83**	**43.90**	**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	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103
Energy	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Mobile	1.4133	6.4429	16.9644	0.0598	5.6043	0.0496	5.6539	1.4993	0.0463	1.5456		6,050.2794	6,050.2794	0.2174		6,055.7131
Total	**132.7168**	**9.8604**	**189.5022**	**0.3714**	**5.6043**	**23.1090**	**28.7133**	**1.4993**	**23.1057**	**24.6050**	**2,465.7790**	**7,949.1695**	**10,414.9484**	**3.3052**	**0.1948**	**10,555.6215**

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	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Energy	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Mobile	1.4233	6.5063	17.1995	0.0609	5.7148	0.0504	5.7653	1.5289	0.0471	1.5760		6,160.9785	6,160.9785	0.2204		6,166.4879
Total	**7.4697**	**8.6822**	**28.0614**	**0.0745**	**5.7148**	**0.2723**	**5.9872**	**1.5289**	**0.2690**	**1.7979**	**0.0000**	**8,809.7430**	**8,809.7430**	**0.2881**	**0.0482**	**8,831.3179**

	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	**94.37**	**11.95**	**85.19**	**79.93**	**-1.97**	**98.82**	**79.15**	**-1.97**	**98.84**	**92.69**	**100.00**	**-10.83**	**15.41**	**91.28**	**75.24**	**16.34**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/30/2021	5	20	
2	Grading	Grading	5/3/2021	6/25/2021	5	40	
3	Building Construction	Building Construction	6/28/2021	1/6/2023	5	400	
4	Paving	Paving	1/9/2023	2/17/2023	5	30	
5	Architectural Coating	Architectural Coating	2/20/2023	3/31/2023	5	30	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 37.56

Acres of Paving: 0

Residential Indoor: 441,045; Residential Outdoor: 147,015; 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
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
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
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
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

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
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	71.00	24.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	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

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

3.2 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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	**1.2097**	**33.7214**	**22.9600**	**0.0380**	**8.1298**	**0.9462**	**9.0760**	**4.4688**	**0.9462**	**5.4150**	**0.0000**	**3,685.6569**	**3,685.6569**	**1.1920**		**3,715.4573**

3.2 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**

3.3 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					7.0179	0.0000	7.0179	3.4178	0.0000	3.4178			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**	**7.0179**	**1.9853**	**9.0032**	**3.4178**	**1.8265**	**5.2443**		**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 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					3.1581	0.0000	3.1581	1.5380	0.0000	1.5380			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0620		1.3333	1.3333		1.3333	1.3333	0.0000	6,007.0434	6,007.0434	1.9428		6,055.6134
Total	**1.8106**	**51.2386**	**36.7226**	**0.0620**	**3.1581**	**1.3333**	**4.4914**	**1.5380**	**1.3333**	**2.8713**	**0.0000**	**6,007.0434**	**6,007.0434**	**1.9428**		**6,055.6134**

3.3 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**

3.4 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**

3.4 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	0.0788	2.5015	0.6722	6.3800e-003	0.1625	5.5600e-003	0.1680	0.0468	5.3200e-003	0.0521		675.9052	675.9052	0.0352		676.7855
Worker	0.2418	0.1648	1.6317	5.2000e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		517.9710	517.9710	0.0117		518.2640
Total	**0.3207**	**2.6663**	**2.3039**	**0.0116**	**0.7457**	**9.2300e-003**	**0.7549**	**0.2015**	**8.7000e-003**	**0.2102**		**1,193.8762**	**1,193.8762**	**0.0469**		**1,195.0495**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.4 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	0.0788	2.5015	0.6722	6.3800e-003	0.1625	5.5600e-003	0.1680	0.0468	5.3200e-003	0.0521		675.9052	675.9052	0.0352		676.7855
Worker	0.2418	0.1648	1.6317	5.2000e-003	0.5833	3.6700e-003	0.5869	0.1547	3.3800e-003	0.1581		517.9710	517.9710	0.0117		518.2640
Total	**0.3207**	**2.6663**	**2.3039**	**0.0116**	**0.7457**	**9.2300e-003**	**0.7549**	**0.2015**	**8.7000e-003**	**0.2102**		**1,193.8762**	**1,193.8762**	**0.0469**		**1,195.0495**

3.4 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**

3.4 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	0.0735	2.3683	0.6319	6.3100e-003	0.1625	4.8300e-003	0.1673	0.0468	4.6200e-003	0.0514		669.2134	669.2134	0.0336		670.0543
Worker	0.2257	0.1478	1.4973	5.0000e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		498.9823	498.9823	0.0105		499.2447
Total	**0.2993**	**2.5161**	**2.1292**	**0.0113**	**0.7457**	**8.4100e-003**	**0.7541**	**0.2015**	**7.9200e-003**	**0.2094**		**1,168.1957**	**1,168.1957**	**0.0441**		**1,169.2990**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.4 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	0.0735	2.3683	0.6319	6.3100e-003	0.1625	4.8300e-003	0.1673	0.0468	4.6200e-003	0.0514		669.2134	669.2134	0.0336		670.0543
Worker	0.2257	0.1478	1.4973	5.0000e-003	0.5833	3.5800e-003	0.5868	0.1547	3.3000e-003	0.1580		498.9823	498.9823	0.0105		499.2447
Total	**0.2993**	**2.5161**	**2.1292**	**0.0113**	**0.7457**	**8.4100e-003**	**0.7541**	**0.2015**	**7.9200e-003**	**0.2094**		**1,168.1957**	**1,168.1957**	**0.0441**		**1,169.2990**

3.4 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**

3.4 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	0.0553	1.8254	0.5611	6.1300e-003	0.1625	2.1600e-003	0.1646	0.0468	2.0600e-003	0.0488		650.5585	650.5585	0.0286		651.2724
Worker	0.2114	0.1328	1.3752	4.8100e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		479.8735	479.8735	9.3900e-003		480.1082
Total	**0.2667**	**1.9582**	**1.9363**	**0.0109**	**0.7457**	**5.6700e-003**	**0.7514**	**0.2015**	**5.2900e-003**	**0.2068**		**1,130.4320**	**1,130.4320**	**0.0380**		**1,131.3807**

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	1.0809	23.5544	17.8738	0.0269		0.9036	0.9036		0.9036	0.9036	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.0809**	**23.5544**	**17.8738**	**0.0269**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

3.4 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	0.0553	1.8254	0.5611	6.1300e-003	0.1625	2.1600e-003	0.1646	0.0468	2.0600e-003	0.0488		650.5585	650.5585	0.0286		651.2724
Worker	0.2114	0.1328	1.3752	4.8100e-003	0.5833	3.5100e-003	0.5868	0.1547	3.2300e-003	0.1579		479.8735	479.8735	9.3900e-003		480.1082
Total	**0.2667**	**1.9582**	**1.9363**	**0.0109**	**0.7457**	**5.6700e-003**	**0.7514**	**0.2015**	**5.2900e-003**	**0.2068**		**1,130.4320**	**1,130.4320**	**0.0380**		**1,131.3807**

3.5 Paving - 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	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 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	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	**0.0447**	**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**

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9311**	**20.1146**	**17.2957**	**0.0228**		**0.6670**	**0.6670**		**0.6670**	**0.6670**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

3.5 Paving - 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	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	**0.0447**	**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**

3.6 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	102.2122					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	**102.4038**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 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	0.0417	0.0262	0.2712	9.5000e-004	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		94.6229	94.6229	1.8500e-003		94.6692
Total	**0.0417**	**0.0262**	**0.2712**	**9.5000e-004**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**94.6229**	**94.6229**	**1.8500e-003**		**94.6692**

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	102.2122					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**102.3261**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

3.6 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	0.0417	0.0262	0.2712	9.5000e-004	0.1150	6.9000e-004	0.1157	0.0305	6.4000e-004	0.0311		94.6229	94.6229	1.8500e-003		94.6692
Total	**0.0417**	**0.0262**	**0.2712**	**9.5000e-004**	**0.1150**	**6.9000e-004**	**0.1157**	**0.0305**	**6.4000e-004**	**0.0311**		**94.6229**	**94.6229**	**1.8500e-003**		**94.6692**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	1.4233	6.5063	17.1995	0.0609	5.7148	0.0504	5.7653	1.5289	0.0471	1.5760		6,160.9785	6,160.9785	0.2204		6,166.4879
Unmitigated	1.4133	6.4429	16.9644	0.0598	5.6043	0.0496	5.6539	1.4993	0.0463	1.5456		6,050.2794	6,050.2794	0.2174		6,055.7131

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	1,142.24	1,142.24	1142.24	2,638,126	2,690,139
Total	1,142.24	1,142.24	1,142.24	2,638,126	2,690,139

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	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
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

	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	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
NaturalGas Unmitigated	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981

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					
City Park	0	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
Single Family Housing	9635.28	0.1039	0.8880	0.3779	5.6700e-003		0.0718	0.0718		0.0718	0.0718		1,133.5619	1,133.5619	0.0217	0.0208	1,140.2981
Total		**0.1039**	**0.8880**	**0.3779**	**5.6700e-003**		**0.0718**	**0.0718**		**0.0718**	**0.0718**		**1,133.5619**	**1,133.5619**	**0.0217**	**0.0208**	**1,140.2981**

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					
City Park	0	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
Single Family Housing	5.08291	0.0548	0.4684	0.1993	2.9900e-003		0.0379	0.0379		0.0379	0.0379		597.9893	597.9893	0.0115	0.0110	601.5429
Total		**0.0548**	**0.4684**	**0.1993**	**2.9900e-003**		**0.0379**	**0.0379**		**0.0379**	**0.0379**		**597.9893**	**597.9893**	**0.0115**	**0.0110**	**601.5429**

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	5.9916	1.7075	10.6626	0.0107		0.1840	0.1840		0.1840	0.1840	0.0000	2,050.7752	2,050.7752	0.0563	0.0373	2,063.2872
Unmitigated	131.1996	2.5295	172.1600	0.3060		22.9876	22.9876		22.9876	22.9876	2,465.7790	765.3281	3,231.1071	3.0661	0.1740	3,359.6103

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	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	125.3944	2.4144	162.1749	0.3054		22.9323	22.9323		22.9323	22.9323	2,465.7790	747.3529	3,213.1319	3.0488	0.1740	3,341.2030
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**131.1996**	**2.5295**	**172.1600**	**0.3060**		**22.9876**	**22.9876**		**22.9876**	**22.9876**	**2,465.7790**	**765.3281**	**3,231.1071**	**3.0661**	**0.1740**	**3,359.6103**

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	0.8401					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.6643					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1863	1.5924	0.6776	0.0102		0.1287	0.1287		0.1287	0.1287	0.0000	2,032.8000	2,032.8000	0.0390	0.0373	2,044.8799
Landscaping	0.3008	0.1151	9.9850	5.3000e-004		0.0553	0.0553		0.0553	0.0553		17.9752	17.9752	0.0173		18.4073
Total	**5.9916**	**1.7075**	**10.6626**	**0.0107**		**0.1840**	**0.1840**		**0.1840**	**0.1840**	**0.0000**	**2,050.7752**	**2,050.7752**	**0.0563**	**0.0373**	**2,063.2872**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Deer Valley Estates - Phase 1

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	63.00	Dwelling Unit	19.25	113,400.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Phase 1 - Bay Area AQMD Air District, Annual

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 1 of the proposed project involves the construction of 63 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 20 acres disturbed during Phase 1.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	6/11/2021	5/14/2021
tblConstructionPhase	PhaseEndDate	9/16/2022	2/18/2022
tblConstructionPhase	PhaseEndDate	1/5/2024	3/11/2022
tblConstructionPhase	PhaseEndDate	2/2/2024	4/1/2022
tblConstructionPhase	PhaseStartDate	5/1/2021	4/19/2021
tblConstructionPhase	PhaseStartDate	7/24/2021	5/17/2021
tblConstructionPhase	PhaseStartDate	12/9/2023	2/20/2022
tblConstructionPhase	PhaseStartDate	1/6/2024	3/14/2022
tblGrading	AcresOfGrading	50.00	20.00
tblLandUse	LotAcreage	20.45	19.25

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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	0.2313	2.2149	1.8809	3.5400e-003	0.1934	0.1096	0.3030	0.0926	0.1024	0.1950	0.0000	309.7651	309.7651	0.0709	0.0000	311.5373
2022	0.8408	0.3896	0.4309	7.8000e-004	7.6600e-003	0.0191	0.0268	2.0700e-003	0.0179	0.0200	0.0000	67.9962	67.9962	0.0151	0.0000	68.3727
Maximum	**0.8408**	**2.2149**	**1.8809**	**3.5400e-003**	**0.1934**	**0.1096**	**0.3030**	**0.0926**	**0.1024**	**0.1950**	**0.0000**	**309.7651**	**309.7651**	**0.0709**	**0.0000**	**311.5373**

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	0.1265	2.7345	2.0555	3.5400e-003	0.1048	0.0930	0.1978	0.0465	0.0930	0.1395	0.0000	309.7648	309.7648	0.0709	0.0000	311.5370
2022	0.8279	0.6030	0.4778	7.8000e-004	7.6600e-003	0.0216	0.0293	2.0700e-003	0.0216	0.0237	0.0000	67.9961	67.9961	0.0151	0.0000	68.3726
Maximum	**0.8279**	**2.7345**	**2.0555**	**3.5400e-003**	**0.1048**	**0.0930**	**0.1978**	**0.0465**	**0.0930**	**0.1395**	**0.0000**	**309.7648**	**309.7648**	**0.0709**	**0.0000**	**311.5370**

	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	**10.98**	**-28.14**	**-9.58**	**0.00**	**44.08**	**10.93**	**31.14**	**48.72**	**4.78**	**24.14**	**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	4-5-2021	7-4-2021	1.0252	1.1003
2	7-5-2021	10-4-2021	0.6833	0.8575
3	10-5-2021	1-4-2022	0.6814	0.8585
4	1-5-2022	4-4-2022	1.1224	1.3087
		Highest	1.1224	1.3087

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	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714
Energy	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	173.7326	173.7326	8.5800e-003	3.1800e-003	174.8943
Mobile	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274
Waste						0.0000	0.0000		0.0000	0.0000	15.3583	0.0000	15.3583	0.9077	0.0000	38.0495
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**1.0660**	**0.8241**	**2.7003**	**7.5900e-003**	**0.5112**	**0.0926**	**0.6038**	**0.1372**	**0.0923**	**0.2295**	**24.6685**	**724.5191**	**749.1876**	**1.0863**	**6.8900e-003**	**778.3988**

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	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Energy	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	125.9434	125.9434	7.5500e-003	2.3000e-003	126.8183
Mobile	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Waste						0.0000	0.0000		0.0000	0.0000	3.8396	0.0000	3.8396	0.2269	0.0000	9.5124
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**0.6916**	**0.7883**	**2.1691**	**6.3500e-003**	**0.5213**	**0.0120**	**0.5333**	**0.1399**	**0.0117**	**0.1516**	**5.1418**	**690.0178**	**695.1596**	**0.3898**	**5.6500e-003**	**706.5896**

	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	**35.12**	**4.35**	**19.67**	**16.34**	**-1.97**	**87.02**	**11.68**	**-1.98**	**87.36**	**33.95**	**79.16**	**4.76**	**7.21**	**64.12**	**18.00**	**9.23**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 1 - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/16/2021	5	10	
2	Grading	Grading	4/19/2021	5/14/2021	5	20	
3	Building Construction	Building Construction	5/17/2021	2/18/2022	5	200	
4	Paving	Paving	2/20/2022	3/11/2022	5	15	
5	Architectural Coating	Architectural Coating	3/14/2022	4/1/2022	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 229,635; Residential Outdoor: 76,545; 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
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
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	36.00	12.00	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	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

3.2 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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**4.7300e-003**	**0.0454**	**0.0223**	**4.7300e-003**	**0.0271**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 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**

3.3 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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4640	0.3088	6.2000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	54.4950	54.4950	0.0176	0.0000	54.9356
Total	**0.0419**	**0.4640**	**0.3088**	**6.2000e-004**	**0.0708**	**0.0199**	**0.0907**	**0.0343**	**0.0183**	**0.0525**	**0.0000**	**54.4950**	**54.4950**	**0.0176**	**0.0000**	**54.9356**

3.3 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	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

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					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	54.4949	54.4949	0.0176	0.0000	54.9355
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0319**	**0.0133**	**0.0452**	**0.0154**	**0.0133**	**0.0287**	**0.0000**	**54.4949**	**54.4949**	**0.0176**	**0.0000**	**54.9355**

3.3 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	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

3.4 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	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1008	191.1008	0.0461	0.0000	192.2534
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1008**	**191.1008**	**0.0461**	**0.0000**	**192.2534**

3.4 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	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

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	0.0892	1.9432	1.4746	2.2200e-003		0.0745	0.0745		0.0745	0.0745	0.0000	191.1005	191.1005	0.0461	0.0000	192.2531
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0745**	**0.0745**		**0.0745**	**0.0745**	**0.0000**	**191.1005**	**191.1005**	**0.0461**	**0.0000**	**192.2531**

3.4 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	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

3.4 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	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0299**	**0.2733**	**0.2864**	**4.7000e-004**		**0.0142**	**0.0142**		**0.0133**	**0.0133**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 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	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

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	0.0189	0.4122	0.3128	4.7000e-004		0.0158	0.0158		0.0158	0.0158	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**0.0158**	**0.0158**		**0.0158**	**0.0158**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 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	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

3.5 Paving - 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	8.2700e-003	0.0834	0.1094	1.7000e-004		4.2600e-003	4.2600e-003		3.9200e-003	3.9200e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2700e-003**	**0.0834**	**0.1094**	**1.7000e-004**		**4.2600e-003**	**4.2600e-003**		**3.9200e-003**	**3.9200e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 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	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

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	6.9800e-003	0.1509	0.1297	1.7000e-004		5.0000e-003	5.0000e-003		5.0000e-003	5.0000e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**5.0000e-003**	**5.0000e-003**		**5.0000e-003**	**5.0000e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 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	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

3.6 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	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7998**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 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	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

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	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7991**	**0.0176**	**0.0137**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 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	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Unmitigated	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	594.72	594.72	594.72	1,373,570	1,400,651
Total	594.72	594.72	594.72	1,373,570	1,400,651

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Single Family Housing	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	74.3959	74.3959	6.5600e-003	1.3600e-003	74.9645
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	76.0181	76.0181	6.7000e-003	1.3900e-003	76.5991
NaturalGas Mitigated	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
NaturalGas Unmitigated	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952

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					
City Park	0	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
Single Family Housing	1.8311e+006	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952
Total		**9.8700e-003**	**0.0844**	**0.0359**	**5.4000e-004**		**6.8200e-003**	**6.8200e-003**		**6.8200e-003**	**6.8200e-003**	**0.0000**	**97.7145**	**97.7145**	**1.8700e-003**	**1.7900e-003**	**98.2952**

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					
City Park	0	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
Single Family Housing	965963	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
Total		**5.2100e-003**	**0.0445**	**0.0189**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**	**0.0000**	**51.5475**	**51.5475**	**9.9000e-004**	**9.5000e-004**	**51.8538**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	509706	76.0181	6.7000e-003	1.3900e-003	76.5991
Total		**76.0181**	**6.7000e-003**	**1.3900e-003**	**76.5991**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	498829	74.3959	6.5600e-003	1.3600e-003	74.9645
Total		**74.3959**	**6.5600e-003**	**1.3600e-003**	**74.9645**

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	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Unmitigated	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714

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	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3713	8.1400e-003	0.5399	1.1100e-003		0.0779	0.0779		0.0779	0.0779	8.0080	1.9662	9.9742	0.0151	4.6000e-004	10.4889
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.9085**	**0.0135**	**1.0082**	**1.1300e-003**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**8.0080**	**2.7304**	**10.7383**	**0.0159**	**4.6000e-004**	**11.2714**

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	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4000e-004	4.6200e-003	1.9700e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3481	5.3481	1.0000e-004	1.0000e-004	5.3799
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.5377**	**0.0100**	**0.4703**	**5.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**6.1123**	**6.1123**	**8.4000e-004**	**1.0000e-004**	**6.1625**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4320	0.1342	3.2500e-003	10.7561
Unmitigated	6.4320	0.1342	3.2500e-003	10.7561

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.8396	0.2269	0.0000	9.5124
Unmitigated	15.3583	0.9077	0.0000	38.0495

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	75.6	15.3461	0.9069	0.0000	38.0194
Total		**15.3583**	**0.9077**	**0.0000**	**38.0495**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	18.9	3.8365	0.2267	0.0000	9.5048
Total		**3.8396**	**0.2269**	**0.0000**	**9.5124**

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

Deer Valley Estates - Phase 2

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	58.00	Dwelling Unit	16.81	104,400.00	166

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)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 2 of the proposed project involves the construction of 58 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 17.56 acres disturbed during Phase 2.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	PhaseEndDate	5/27/2022	5/13/2022
tblConstructionPhase	PhaseEndDate	7/21/2023	2/17/2023
tblConstructionPhase	PhaseEndDate	8/18/2023	3/10/2023
tblConstructionPhase	PhaseEndDate	9/15/2023	3/31/2023
tblConstructionPhase	PhaseStartDate	4/16/2022	4/18/2022
tblConstructionPhase	PhaseStartDate	5/28/2022	5/16/2022
tblConstructionPhase	PhaseStartDate	7/22/2023	2/20/2023
tblConstructionPhase	PhaseStartDate	8/19/2023	3/13/2023
tblGrading	AcresOfGrading	50.00	17.56
tblLandUse	LotAcreage	18.83	16.81

tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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					
2022	0.2049	1.9461	1.8287	3.5200e-003	0.1915	0.0915	0.2830	0.0923	0.0856	0.1779	0.0000	308.2982	308.2982	0.0705	0.0000	310.0601
2023	0.7742	0.3553	0.4266	7.7000e-004	7.5200e-003	0.0167	0.0242	2.0300e-003	0.0156	0.0177	0.0000	67.5542	67.5542	0.0149	0.0000	67.9276
Maximum	**0.7742**	**1.9461**	**1.8287**	**3.5200e-003**	**0.1915**	**0.0915**	**0.2830**	**0.0923**	**0.0856**	**0.1779**	**0.0000**	**308.2982**	**308.2982**	**0.0705**	**0.0000**	**310.0601**

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					
2022	0.1254	2.7282	2.0464	3.5200e-003	0.1035	0.0930	0.1965	0.0463	0.0929	0.1392	0.0000	308.2978	308.2978	0.0705	0.0000	310.0598
2023	0.7642	0.5981	0.4756	7.7000e-004	7.5200e-003	0.0216	0.0291	2.0300e-003	0.0216	0.0236	0.0000	67.5541	67.5541	0.0149	0.0000	67.9275
Maximum	**0.7642**	**2.7282**	**2.0464**	**3.5200e-003**	**0.1035**	**0.0930**	**0.1965**	**0.0463**	**0.0929**	**0.1392**	**0.0000**	**308.2978**	**308.2978**	**0.0705**	**0.0000**	**310.0598**

	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	**9.14**	**-44.53**	**-11.83**	**0.00**	**44.19**	**-5.89**	**26.55**	**48.83**	**-13.14**	**16.76**	**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	4-4-2022	7-3-2022	0.8781	1.0987
2	7-4-2022	10-3-2022	0.6143	0.8546
3	10-4-2022	1-3-2023	0.6135	0.8553
4	1-4-2023	4-3-2023	1.0263	1.2390
		Highest	1.0263	1.2390

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	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768
Energy	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	159.9443	159.9443	7.9000e-003	2.9300e-003	161.0138
Mobile	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097
Waste						0.0000	0.0000		0.0000	0.0000	14.1647	0.0000	14.1647	0.8371	0.0000	35.0925
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.9700**	**0.6416**	**2.3755**	**6.8100e-003**	**0.4706**	**0.0847**	**0.5553**	**0.1263**	**0.0844**	**0.2107**	**22.7360**	**650.6077**	**673.3438**	**1.0000**	**6.3400e-003**	**700.2326**

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	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Energy	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	115.9479	115.9479	6.9500e-003	2.1200e-003	116.7533
Mobile	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Waste						0.0000	0.0000		0.0000	0.0000	3.5412	0.0000	3.5412	0.2093	0.0000	8.7731
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.6252**	**0.6069**	**1.8850**	**5.6700e-003**	**0.4799**	**0.0104**	**0.4903**	**0.1288**	**0.0101**	**0.1389**	**4.7401**	**618.5381**	**623.2782**	**0.3576**	**5.2000e-003**	**633.7686**

	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	**35.54**	**5.40**	**20.65**	**16.74**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.44**	**64.24**	**17.98**	**9.49**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/4/2022	4/15/2022	5	10	
2	Grading	Grading	4/18/2022	5/13/2022	5	20	
3	Building Construction	Building Construction	5/16/2022	2/17/2023	5	200	
4	Paving	Paving	2/20/2023	3/10/2023	5	15	
5	Architectural Coating	Architectural Coating	3/13/2023	3/31/2023	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.56

Acres of Paving: 0

Residential Indoor: 211,410; Residential Outdoor: 70,470; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 2 - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
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	35.00	12.00	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	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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					
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	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 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	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		4.7300e-003	4.7300e-003		4.7300e-003	4.7300e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**4.7300e-003**	**0.0454**	**0.0223**	**4.7300e-003**	**0.0271**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 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	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

3.3 Grading - 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					
Fugitive Dust					0.0695	0.0000	0.0695	0.0341	0.0000	0.0341	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0363	0.3884	0.2904	6.2000e-004		0.0164	0.0164		0.0150	0.0150	0.0000	54.5346	54.5346	0.0176	0.0000	54.9755
Total	**0.0363**	**0.3884**	**0.2904**	**6.2000e-004**	**0.0695**	**0.0164**	**0.0859**	**0.0341**	**0.0150**	**0.0492**	**0.0000**	**54.5346**	**54.5346**	**0.0176**	**0.0000**	**54.9755**

3.3 Grading - 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	5.7000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2870	1.2870	3.0000e-005	0.0000	1.2877
Total	**5.7000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.2870**	**1.2870**	**3.0000e-005**	**0.0000**	**1.2877**

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					0.0313	0.0000	0.0313	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		0.0133	0.0133		0.0133	0.0133	0.0000	54.5345	54.5345	0.0176	0.0000	54.9755
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0313**	**0.0133**	**0.0446**	**0.0154**	**0.0133**	**0.0287**	**0.0000**	**54.5345**	**54.5345**	**0.0176**	**0.0000**	**54.9755**

3.3 Grading - 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	5.7000e-004	3.8000e-004	4.1200e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2870	1.2870	3.0000e-005	0.0000	1.2877
Total	**5.7000e-004**	**3.8000e-004**	**4.1200e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.2870**	**1.2870**	**3.0000e-005**	**0.0000**	**1.2877**

3.4 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	0.1408	1.2883	1.3500	2.2200e-003		0.0667	0.0667		0.0628	0.0628	0.0000	191.1733	191.1733	0.0458	0.0000	192.3183
Total	**0.1408**	**1.2883**	**1.3500**	**2.2200e-003**		**0.0667**	**0.0667**		**0.0628**	**0.0628**	**0.0000**	**191.1733**	**191.1733**	**0.0458**	**0.0000**	**192.3183**

3.4 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	2.9300e-003	0.0979	0.0243	2.6000e-004	6.4900e-003	2.0000e-004	6.6900e-003	1.8800e-003	1.9000e-004	2.0600e-003	0.0000	25.4233	25.4233	1.2100e-003	0.0000	25.4535
Worker	8.2600e-003	5.4800e-003	0.0595	2.1000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.3000e-004	6.2000e-003	0.0000	18.5811	18.5811	3.9000e-004	0.0000	18.5908
Total	**0.0112**	**0.1034**	**0.0838**	**4.7000e-004**	**0.0293**	**3.5000e-004**	**0.0297**	**7.9500e-003**	**3.2000e-004**	**8.2600e-003**	**0.0000**	**44.0044**	**44.0044**	**1.6000e-003**	**0.0000**	**44.0442**

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	0.0892	1.9432	1.4746	2.2200e-003		0.0745	0.0745		0.0745	0.0745	0.0000	191.1731	191.1731	0.0458	0.0000	192.3181
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0745**	**0.0745**		**0.0745**	**0.0745**	**0.0000**	**191.1731**	**191.1731**	**0.0458**	**0.0000**	**192.3181**

3.4 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	2.9300e-003	0.0979	0.0243	2.6000e-004	6.4900e-003	2.0000e-004	6.6900e-003	1.8800e-003	1.9000e-004	2.0600e-003	0.0000	25.4233	25.4233	1.2100e-003	0.0000	25.4535
Worker	8.2600e-003	5.4800e-003	0.0595	2.1000e-004	0.0228	1.5000e-004	0.0230	6.0700e-003	1.3000e-004	6.2000e-003	0.0000	18.5811	18.5811	3.9000e-004	0.0000	18.5908
Total	**0.0112**	**0.1034**	**0.0838**	**4.7000e-004**	**0.0293**	**3.5000e-004**	**0.0297**	**7.9500e-003**	**3.2000e-004**	**8.2600e-003**	**0.0000**	**44.0044**	**44.0044**	**1.6000e-003**	**0.0000**	**44.0442**

3.4 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	0.0275	0.2517	0.2843	4.7000e-004		0.0123	0.0123		0.0115	0.0115	0.0000	40.5658	40.5658	9.6500e-003	0.0000	40.8071
Total	**0.0275**	**0.2517**	**0.2843**	**4.7000e-004**		**0.0123**	**0.0123**		**0.0115**	**0.0115**	**0.0000**	**40.5658**	**40.5658**	**9.6500e-003**	**0.0000**	**40.8071**

3.4 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	4.7000e-004	0.0160	4.6100e-003	5.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	4.0000e-004	2.0000e-005	4.2000e-004	0.0000	5.2417	5.2417	2.2000e-004	0.0000	5.2471
Worker	1.6400e-003	1.0500e-003	0.0116	4.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	3.7905	3.7905	7.0000e-005	0.0000	3.7923
Total	**2.1100e-003**	**0.0171**	**0.0162**	**9.0000e-005**	**6.2200e-003**	**5.0000e-005**	**6.2700e-003**	**1.6900e-003**	**5.0000e-005**	**1.7400e-003**	**0.0000**	**9.0322**	**9.0322**	**2.9000e-004**	**0.0000**	**9.0395**

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	0.0189	0.4122	0.3128	4.7000e-004		0.0158	0.0158		0.0158	0.0158	0.0000	40.5658	40.5658	9.6500e-003	0.0000	40.8070
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**0.0158**	**0.0158**		**0.0158**	**0.0158**	**0.0000**	**40.5658**	**40.5658**	**9.6500e-003**	**0.0000**	**40.8070**

3.4 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	4.7000e-004	0.0160	4.6100e-003	5.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	4.0000e-004	2.0000e-005	4.2000e-004	0.0000	5.2417	5.2417	2.2000e-004	0.0000	5.2471
Worker	1.6400e-003	1.0500e-003	0.0116	4.0000e-005	4.8400e-003	3.0000e-005	4.8700e-003	1.2900e-003	3.0000e-005	1.3200e-003	0.0000	3.7905	3.7905	7.0000e-005	0.0000	3.7923
Total	**2.1100e-003**	**0.0171**	**0.0162**	**9.0000e-005**	**6.2200e-003**	**5.0000e-005**	**6.2700e-003**	**1.6900e-003**	**5.0000e-005**	**1.7400e-003**	**0.0000**	**9.0322**	**9.0322**	**2.9000e-004**	**0.0000**	**9.0395**

3.5 Paving - 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	7.7500e-003	0.0764	0.1094	1.7000e-004		3.8300e-003	3.8300e-003		3.5200e-003	3.5200e-003	0.0000	15.0202	15.0202	4.8600e-003	0.0000	15.1416
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.7500e-003**	**0.0764**	**0.1094**	**1.7000e-004**		**3.8300e-003**	**3.8300e-003**		**3.5200e-003**	**3.5200e-003**	**0.0000**	**15.0202**	**15.0202**	**4.8600e-003**	**0.0000**	**15.1416**

3.5 Paving - 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	3.0000e-004	1.9000e-004	2.1300e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.6962	0.6962	1.0000e-005	0.0000	0.6966
Total	**3.0000e-004**	**1.9000e-004**	**2.1300e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.6962**	**0.6962**	**1.0000e-005**	**0.0000**	**0.6966**

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	6.9800e-003	0.1509	0.1297	1.7000e-004		5.0000e-003	5.0000e-003		5.0000e-003	5.0000e-003	0.0000	15.0201	15.0201	4.8600e-003	0.0000	15.1416
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**5.0000e-003**	**5.0000e-003**		**5.0000e-003**	**5.0000e-003**	**0.0000**	**15.0201**	**15.0201**	**4.8600e-003**	**0.0000**	**15.1416**

3.5 Paving - 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	3.0000e-004	1.9000e-004	2.1300e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.6962	0.6962	1.0000e-005	0.0000	0.6966
Total	**3.0000e-004**	**1.9000e-004**	**2.1300e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.6962**	**0.6962**	**1.0000e-005**	**0.0000**	**0.6966**

3.6 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	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4400e-003	9.7700e-003	0.0136	2.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	1.9149	1.9149	1.1000e-004	0.0000	1.9178
Total	**0.7364**	**9.7700e-003**	**0.0136**	**2.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.1000e-004**	**0.0000**	**1.9178**

3.6 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	1.4000e-004	9.0000e-005	1.0000e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3249	0.3249	1.0000e-005	0.0000	0.3251
Total	**1.4000e-004**	**9.0000e-005**	**1.0000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3249**	**0.3249**	**1.0000e-005**	**0.0000**	**0.3251**

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	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	1.9149	1.9149	1.1000e-004	0.0000	1.9178
Total	**0.7358**	**0.0176**	**0.0137**	**2.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.1000e-004**	**0.0000**	**1.9178**

3.6 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	1.4000e-004	9.0000e-005	1.0000e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3249	0.3249	1.0000e-005	0.0000	0.3251
Total	**1.4000e-004**	**9.0000e-005**	**1.0000e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3249**	**0.3249**	**1.0000e-005**	**0.0000**	**0.3251**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Unmitigated	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	547.52	547.52	547.52	1,264,556	1,289,488
Total	547.52	547.52	547.52	1,264,556	1,289,488

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	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
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

	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	68.4915	68.4915	6.0400e-003	1.2500e-003	69.0150
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	69.9850	69.9850	6.1700e-003	1.2800e-003	70.5198
NaturalGas Mitigated	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
NaturalGas Unmitigated	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940

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					
City Park	0	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
Single Family Housing	1.68578e+006	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940
Total		**9.0900e-003**	**0.0777**	**0.0331**	**5.0000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**	**0.0000**	**89.9594**	**89.9594**	**1.7200e-003**	**1.6500e-003**	**90.4940**

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					
City Park	0	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
Single Family Housing	889299	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
Total		**4.8000e-003**	**0.0410**	**0.0174**	**2.6000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**47.4564**	**47.4564**	**9.1000e-004**	**8.7000e-004**	**47.7384**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	469253	69.9850	6.1700e-003	1.2800e-003	70.5198
Total		**69.9850**	**6.1700e-003**	**1.2800e-003**	**70.5198**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	459239	68.4915	6.0400e-003	1.2500e-003	69.0150
Total		**68.4915**	**6.0400e-003**	**1.2500e-003**	**69.0150**

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	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Unmitigated	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768

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	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3419	7.4900e-003	0.4971	1.0200e-003		0.0717	0.0717		0.0717	0.0717	7.3724	1.8102	9.1826	0.0139	4.2000e-004	9.6564
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.8364**	**0.0125**	**0.9279**	**1.0400e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**	**7.3724**	**2.5137**	**9.8861**	**0.0146**	**4.2000e-004**	**10.3768**

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	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2500e-003	1.8100e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9237	4.9237	9.0000e-005	9.0000e-005	4.9529
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.4950**	**9.2200e-003**	**0.4326**	**5.0000e-005**		**2.7200e-003**	**2.7200e-003**		**2.7200e-003**	**2.7200e-003**	**0.0000**	**5.6271**	**5.6271**	**7.7000e-004**	**9.0000e-005**	**5.6733**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.9585	0.1236	2.9900e-003	9.9398
Unmitigated	5.9585	0.1236	2.9900e-003	9.9398

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5412	0.2093	0.0000	8.7731
Unmitigated	14.1647	0.8371	0.0000	35.0925

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	69.72	14.1525	0.8364	0.0000	35.0623
Total		**14.1647**	**0.8371**	**0.0000**	**35.0925**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	17.43	3.5381	0.2091	0.0000	8.7656
Total		**3.5412**	**0.2093**	**0.0000**	**8.7731**

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

Deer Valley Estates - Phase 1 - Mitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	63.00	Dwelling Unit	19.25	113,400.00	180

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 1 of the proposed project involves the construction of 63 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 20 acres disturbed during Phase 1.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment with level 3 diesel particulate filters mitigation.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	20.00	15.00

tblConstructionPhase	NumDays	300.00	200.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	15.00
tblGrading	AcresOfGrading	50.00	20.00
tblLandUse	LotAcreage	20.45	19.25
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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	0.2313	2.2149	1.8809	3.5400e-003	0.1934	0.1096	0.3030	0.0926	0.1024	0.1950	0.0000	309.7651	309.7651	0.0709	0.0000	311.5373
2022	0.8408	0.3896	0.4309	7.8000e-004	7.6600e-003	0.0191	0.0268	2.0700e-003	0.0179	0.0200	0.0000	67.9962	67.9962	0.0151	0.0000	68.3727
Maximum	**0.8408**	**2.2149**	**1.8809**	**3.5400e-003**	**0.1934**	**0.1096**	**0.3030**	**0.0926**	**0.1024**	**0.1950**	**0.0000**	**309.7651**	**309.7651**	**0.0709**	**0.0000**	**311.5373**

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	0.1265	2.7345	2.0555	3.5400e-003	0.1048	0.0143	0.1191	0.0465	0.0143	0.0608	0.0000	309.7648	309.7648	0.0709	0.0000	311.5370
2022	0.8279	0.6030	0.4778	7.8000e-004	7.6600e-003	3.3100e-003	0.0110	2.0700e-003	3.3100e-003	5.3800e-003	0.0000	67.9961	67.9961	0.0151	0.0000	68.3726
Maximum	**0.8279**	**2.7345**	**2.0555**	**3.5400e-003**	**0.1048**	**0.0143**	**0.1191**	**0.0465**	**0.0143**	**0.0608**	**0.0000**	**309.7648**	**309.7648**	**0.0709**	**0.0000**	**311.5370**

	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	**10.98**	**-28.14**	**-9.58**	**0.00**	**44.08**	**86.33**	**60.56**	**48.72**	**85.40**	**69.25**	**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	4-5-2021	7-4-2021	1.0252	1.1003
2	7-5-2021	10-4-2021	0.6833	0.8575
3	10-5-2021	1-4-2022	0.6814	0.8585
4	1-5-2022	4-4-2022	1.1224	1.3087
		Highest	1.1224	1.3087

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	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714
Energy	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	173.7326	173.7326	8.5800e-003	3.1800e-003	174.8943
Mobile	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274
Waste						0.0000	0.0000		0.0000	0.0000	15.3583	0.0000	15.3583	0.9077	0.0000	38.0495
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**1.0660**	**0.8241**	**2.7003**	**7.5900e-003**	**0.5112**	**0.0926**	**0.6038**	**0.1372**	**0.0923**	**0.2295**	**24.6685**	**724.5191**	**749.1876**	**1.0863**	**6.8900e-003**	**778.3988**

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	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Energy	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	125.9434	125.9434	7.5500e-003	2.3000e-003	126.8183
Mobile	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Waste						0.0000	0.0000		0.0000	0.0000	3.8396	0.0000	3.8396	0.2269	0.0000	9.5124
Water						0.0000	0.0000		0.0000	0.0000	1.3022	5.1298	6.4320	0.1342	3.2500e-003	10.7561
Total	**0.6916**	**0.7883**	**2.1691**	**6.3500e-003**	**0.5213**	**0.0120**	**0.5333**	**0.1399**	**0.0117**	**0.1516**	**5.1418**	**690.0178**	**695.1596**	**0.3898**	**5.6500e-003**	**706.5896**

	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	**35.12**	**4.35**	**19.67**	**16.34**	**-1.97**	**87.02**	**11.68**	**-1.98**	**87.36**	**33.95**	**79.16**	**4.76**	**7.21**	**64.12**	**18.00**	**9.23**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 1 - Mitigated - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/5/2021	4/16/2021	5	10	
2	Grading	Grading	4/19/2021	5/14/2021	5	20	
3	Building Construction	Building Construction	5/17/2021	2/18/2022	5	200	
4	Paving	Paving	2/20/2022	3/11/2022	5	15	
5	Architectural Coating	Architectural Coating	3/14/2022	4/1/2022	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 229,635; Residential Outdoor: 76,545; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 1 - Mitigated - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
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	36.00	12.00	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	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 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**

3.2 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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**7.1000e-004**	**0.0414**	**0.0223**	**7.1000e-004**	**0.0231**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

3.2 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**

3.3 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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0419	0.4640	0.3088	6.2000e-004		0.0199	0.0199		0.0183	0.0183	0.0000	54.4950	54.4950	0.0176	0.0000	54.9356
Total	**0.0419**	**0.4640**	**0.3088**	**6.2000e-004**	**0.0708**	**0.0199**	**0.0907**	**0.0343**	**0.0183**	**0.0525**	**0.0000**	**54.4950**	**54.4950**	**0.0176**	**0.0000**	**54.9356**

3.3 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	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

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					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0181	0.5124	0.3672	6.2000e-004		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	54.4949	54.4949	0.0176	0.0000	54.9355
Total	**0.0181**	**0.5124**	**0.3672**	**6.2000e-004**	**0.0319**	**2.0000e-003**	**0.0339**	**0.0154**	**2.0000e-003**	**0.0174**	**0.0000**	**54.4949**	**54.4949**	**0.0176**	**0.0000**	**54.9355**

3.3 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	6.1000e-004	4.2000e-004	4.4900e-003	1.0000e-005	1.5800e-003	1.0000e-005	1.5900e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.3360	1.3360	3.0000e-005	0.0000	1.3367
Total	**6.1000e-004**	**4.2000e-004**	**4.4900e-003**	**1.0000e-005**	**1.5800e-003**	**1.0000e-005**	**1.5900e-003**	**4.2000e-004**	**1.0000e-005**	**4.3000e-004**	**0.0000**	**1.3360**	**1.3360**	**3.0000e-005**	**0.0000**	**1.3367**

3.4 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	0.1568	1.4382	1.3675	2.2200e-003		0.0791	0.0791		0.0744	0.0744	0.0000	191.1008	191.1008	0.0461	0.0000	192.2534
Total	**0.1568**	**1.4382**	**1.3675**	**2.2200e-003**		**0.0791**	**0.0791**		**0.0744**	**0.0744**	**0.0000**	**191.1008**	**191.1008**	**0.0461**	**0.0000**	**192.2534**

3.4 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	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

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	0.0892	1.9432	1.4746	2.2200e-003		0.0112	0.0112		0.0112	0.0112	0.0000	191.1005	191.1005	0.0461	0.0000	192.2531
Total	**0.0892**	**1.9432**	**1.4746**	**2.2200e-003**		**0.0112**	**0.0112**		**0.0112**	**0.0112**	**0.0000**	**191.1005**	**191.1005**	**0.0461**	**0.0000**	**192.2531**

3.4 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	3.1400e-003	0.1034	0.0258	2.7000e-004	6.4900e-003	2.2000e-004	6.7200e-003	1.8800e-003	2.2000e-004	2.0900e-003	0.0000	25.6751	25.6751	1.2600e-003	0.0000	25.7066
Worker	9.1100e-003	6.2900e-003	0.0666	2.2000e-004	0.0235	1.5000e-004	0.0236	6.2400e-003	1.4000e-004	6.3800e-003	0.0000	19.8393	19.8393	4.4000e-004	0.0000	19.8504
Total	**0.0123**	**0.1097**	**0.0924**	**4.9000e-004**	**0.0300**	**3.7000e-004**	**0.0303**	**8.1200e-003**	**3.6000e-004**	**8.4700e-003**	**0.0000**	**45.5144**	**45.5144**	**1.7000e-003**	**0.0000**	**45.5570**

3.4 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	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0299**	**0.2733**	**0.2864**	**4.7000e-004**		**0.0142**	**0.0142**		**0.0133**	**0.0133**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 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	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

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	0.0189	0.4122	0.3128	4.7000e-004		2.3700e-003	2.3700e-003		2.3700e-003	2.3700e-003	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	**0.0189**	**0.4122**	**0.3128**	**4.7000e-004**		**2.3700e-003**	**2.3700e-003**		**2.3700e-003**	**2.3700e-003**	**0.0000**	**40.5519**	**40.5519**	**9.7200e-003**	**0.0000**	**40.7948**

3.4 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	6.2000e-004	0.0208	5.1500e-003	6.0000e-005	1.3800e-003	4.0000e-005	1.4200e-003	4.0000e-004	4.0000e-005	4.4000e-004	0.0000	5.3928	5.3928	2.6000e-004	0.0000	5.3992
Worker	1.8000e-003	1.2000e-003	0.0130	4.0000e-005	4.9800e-003	3.0000e-005	5.0100e-003	1.3200e-003	3.0000e-005	1.3500e-003	0.0000	4.0541	4.0541	8.0000e-005	0.0000	4.0562
Total	**2.4200e-003**	**0.0220**	**0.0181**	**1.0000e-004**	**6.3600e-003**	**7.0000e-005**	**6.4300e-003**	**1.7200e-003**	**7.0000e-005**	**1.7900e-003**	**0.0000**	**9.4469**	**9.4469**	**3.4000e-004**	**0.0000**	**9.4554**

3.5 Paving - 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	8.2700e-003	0.0834	0.1094	1.7000e-004		4.2600e-003	4.2600e-003		3.9200e-003	3.9200e-003	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2700e-003**	**0.0834**	**0.1094**	**1.7000e-004**		**4.2600e-003**	**4.2600e-003**		**3.9200e-003**	**3.9200e-003**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 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	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

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	6.9800e-003	0.1509	0.1297	1.7000e-004		7.5000e-004	7.5000e-004		7.5000e-004	7.5000e-004	0.0000	15.0207	15.0207	4.8600e-003	0.0000	15.1421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.9800e-003**	**0.1509**	**0.1297**	**1.7000e-004**		**7.5000e-004**	**7.5000e-004**		**7.5000e-004**	**7.5000e-004**	**0.0000**	**15.0207**	**15.0207**	**4.8600e-003**	**0.0000**	**15.1421**

3.5 Paving - 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	3.2000e-004	2.1000e-004	2.3200e-003	1.0000e-005	8.9000e-004	1.0000e-005	8.9000e-004	2.4000e-004	1.0000e-005	2.4000e-004	0.0000	0.7239	0.7239	2.0000e-005	0.0000	0.7243
Total	**3.2000e-004**	**2.1000e-004**	**2.3200e-003**	**1.0000e-005**	**8.9000e-004**	**1.0000e-005**	**8.9000e-004**	**2.4000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.7239**	**0.7239**	**2.0000e-005**	**0.0000**	**0.7243**

3.6 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	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5300e-003	0.0106	0.0136	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7998**	**0.0106**	**0.0136**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 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	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

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	0.7983					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.5000e-004	0.0176	0.0137	2.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.9149	1.9149	1.2000e-004	0.0000	1.9181
Total	**0.7991**	**0.0176**	**0.0137**	**2.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.9149**	**1.9149**	**1.2000e-004**	**0.0000**	**1.9181**

3.6 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	1.5000e-004	1.0000e-004	1.0800e-003	0.0000	4.1000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3378	0.3378	1.0000e-005	0.0000	0.3380
Total	**1.5000e-004**	**1.0000e-004**	**1.0800e-003**	**0.0000**	**4.1000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3378**	**0.3378**	**1.0000e-005**	**0.0000**	**0.3380**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	0.1487	0.7338	1.6799	6.0200e-003	0.5213	5.4600e-003	0.5267	0.1399	5.1100e-003	0.1450	0.0000	552.8324	552.8324	0.0203	0.0000	553.3403
Unmitigated	0.1476	0.7262	1.6562	5.9100e-003	0.5112	5.3600e-003	0.5166	0.1372	5.0200e-003	0.1422	0.0000	542.9263	542.9263	0.0200	0.0000	543.4274

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	594.72	594.72	594.72	1,373,570	1,400,651
Total	594.72	594.72	594.72	1,373,570	1,400,651

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768
Single Family Housing	0.576985	0.039376	0.193723	0.112069	0.016317	0.005358	0.017943	0.025814	0.002614	0.002274	0.005874	0.000887	0.000768

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	74.3959	74.3959	6.5600e-003	1.3600e-003	74.9645
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	76.0181	76.0181	6.7000e-003	1.3900e-003	76.5991
NaturalGas Mitigated	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
NaturalGas Unmitigated	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952

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					
City Park	0	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
Single Family Housing	1.8311e+006	9.8700e-003	0.0844	0.0359	5.4000e-004		6.8200e-003	6.8200e-003		6.8200e-003	6.8200e-003	0.0000	97.7145	97.7145	1.8700e-003	1.7900e-003	98.2952
Total		**9.8700e-003**	**0.0844**	**0.0359**	**5.4000e-004**		**6.8200e-003**	**6.8200e-003**		**6.8200e-003**	**6.8200e-003**	**0.0000**	**97.7145**	**97.7145**	**1.8700e-003**	**1.7900e-003**	**98.2952**

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					
City Park	0	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
Single Family Housing	965963	5.2100e-003	0.0445	0.0189	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.5475	51.5475	9.9000e-004	9.5000e-004	51.8538
Total		**5.2100e-003**	**0.0445**	**0.0189**	**2.8000e-004**		**3.6000e-003**	**3.6000e-003**		**3.6000e-003**	**3.6000e-003**	**0.0000**	**51.5475**	**51.5475**	**9.9000e-004**	**9.5000e-004**	**51.8538**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	509706	76.0181	6.7000e-003	1.3900e-003	76.5991
Total		**76.0181**	**6.7000e-003**	**1.3900e-003**	**76.5991**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	498829	74.3959	6.5600e-003	1.3600e-003	74.9645
Total		**74.3959**	**6.5600e-003**	**1.3600e-003**	**74.9645**

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	0.5377	0.0100	0.4703	5.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	6.1122	6.1122	8.4000e-004	1.0000e-004	6.1625
Unmitigated	0.9085	0.0135	1.0082	1.1400e-003		0.0805	0.0805		0.0805	0.0805	8.0080	2.7304	10.7383	0.0159	4.6000e-004	11.2714

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	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3713	8.1400e-003	0.5399	1.1100e-003		0.0779	0.0779		0.0779	0.0779	8.0080	1.9662	9.9742	0.0151	4.6000e-004	10.4889
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.9085**	**0.0135**	**1.0082**	**1.1300e-003**		**0.0805**	**0.0805**		**0.0805**	**0.0805**	**8.0080**	**2.7304**	**10.7383**	**0.0159**	**4.6000e-004**	**11.2714**

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	0.0798					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4432					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4000e-004	4.6200e-003	1.9700e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3481	5.3481	1.0000e-004	1.0000e-004	5.3799
Landscaping	0.0141	5.4000e-003	0.4683	2.0000e-005		2.5900e-003	2.5900e-003		2.5900e-003	2.5900e-003	0.0000	0.7641	0.7641	7.4000e-004	0.0000	0.7826
Total	**0.5377**	**0.0100**	**0.4703**	**5.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**6.1123**	**6.1123**	**8.4000e-004**	**1.0000e-004**	**6.1625**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4320	0.1342	3.2500e-003	10.7561
Unmitigated	6.4320	0.1342	3.2500e-003	10.7561

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	4.1047 / 2.58775	5.9655	0.1342	3.2400e-003	10.2861
Total		**6.4320**	**0.1342**	**3.2500e-003**	**10.7561**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.8396	0.2269	0.0000	9.5124
Unmitigated	15.3583	0.9077	0.0000	38.0495

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	75.6	15.3461	0.9069	0.0000	38.0194
Total		**15.3583**	**0.9077**	**0.0000**	**38.0495**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	18.9	3.8365	0.2267	0.0000	9.5048
Total		**3.8396**	**0.2269**	**0.0000**	**9.5124**

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

Deer Valley Estates - Phase 2 - Mitigated

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.75	Acre	0.75	32,670.00	0
Single Family Housing	58.00	Dwelling Unit	16.81	104,400.00	166

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)	328.8	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 intensity based on 5-year average (PG&E 2015)

Land Use - Phase 2 of the proposed project involves the construction of 58 new single-family homes on the project site and associated open space, roadway, and utility improvements.

Construction Phase - Construction of the proposed project is anticipated to begin in Spring 2021 and would occur over two phases, each lasting approximately 1 year.

Grading - 17.56 acres disturbed during Phase 2.

Vehicle Trips - Trip rates based on the Institute of Transportation Engineers (ITE) Trip Generation Manual(10th Edition), Land Use 210 - "Single-Family Detached Housing".

Construction Off-road Equipment Mitigation - Assuming compliance with BAAQMD Basic Construction Mitigation Measures and tier 2 construction equipment and level 3 diesel particulate filters mitigation.

Mobile Land Use Mitigation -

Area Mitigation - Assuming only natural gas hearth.

Energy Mitigation - Assuming compliance with 2019 Title 24 standards.

Waste Mitigation - Consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblGrading	AcresOfGrading	75.00	17.56

tblLandUse	LotAcreage	18.83	16.81
tblProjectCharacteristics	CO2IntensityFactor	641.35	328.8
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
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					
2022	0.2141	2.0562	1.8890	3.6800e-003	0.2206	0.0956	0.3162	0.1086	0.0893	0.1979	0.0000	321.9558	321.9558	0.0764	0.0000	323.8667
2023	0.8705	1.2289	1.4130	2.6300e-003	0.0275	0.0568	0.0843	7.4500e-003	0.0533	0.0608	0.0000	229.4191	229.4191	0.0478	0.0000	230.6152
Maximum	**0.8705**	**2.0562**	**1.8890**	**3.6800e-003**	**0.2206**	**0.0956**	**0.3162**	**0.1086**	**0.0893**	**0.1979**	**0.0000**	**321.9558**	**321.9558**	**0.0764**	**0.0000**	**323.8667**

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					
2022	0.1286	2.8605	2.1376	3.6800e-003	0.1161	0.0146	0.1307	0.0534	0.0145	0.0680	0.0000	321.9554	321.9554	0.0764	0.0000	323.8664
2023	0.8330	2.0034	1.5585	2.6300e-003	0.0275	0.0112	0.0387	7.4500e-003	0.0112	0.0186	0.0000	229.4188	229.4188	0.0478	0.0000	230.6149
Maximum	**0.8330**	**2.8605**	**2.1376**	**3.6800e-003**	**0.1161**	**0.0146**	**0.1307**	**0.0534**	**0.0145**	**0.0680**	**0.0000**	**321.9554**	**321.9554**	**0.0764**	**0.0000**	**323.8664**

	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	**11.34**	**-48.06**	**-11.93**	**0.00**	**42.12**	**83.11**	**57.71**	**47.54**	**81.98**	**66.53**	**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	4-4-2022	7-3-2022	1.0412	1.2909
2	7-4-2022	10-3-2022	0.6143	0.8546
3	10-4-2022	1-3-2023	0.6135	0.8553
4	1-4-2023	4-3-2023	0.5486	0.8275
5	4-4-2023	7-3-2023	0.5539	0.8359
6	7-4-2023	9-30-2023	0.9726	1.1363
		Highest	1.0412	1.2909

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	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768
Energy	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	159.9443	159.9443	7.9000e-003	2.9300e-003	161.0138
Mobile	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097
Waste						0.0000	0.0000		0.0000	0.0000	14.1647	0.0000	14.1647	0.8371	0.0000	35.0925
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.9700**	**0.6416**	**2.3755**	**6.8100e-003**	**0.4706**	**0.0847**	**0.5553**	**0.1263**	**0.0844**	**0.2107**	**22.7360**	**650.6077**	**673.3438**	**1.0000**	**6.3400e-003**	**700.2326**

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	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Energy	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	115.9479	115.9479	6.9500e-003	2.1200e-003	116.7533
Mobile	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Waste						0.0000	0.0000		0.0000	0.0000	3.5412	0.0000	3.5412	0.2093	0.0000	8.7731
Water						0.0000	0.0000		0.0000	0.0000	1.1989	4.7597	5.9585	0.1236	2.9900e-003	9.9398
Total	**0.6252**	**0.6069**	**1.8850**	**5.6700e-003**	**0.4799**	**0.0104**	**0.4903**	**0.1288**	**0.0101**	**0.1389**	**4.7401**	**618.5381**	**623.2782**	**0.3576**	**5.2000e-003**	**633.7686**

	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	**35.54**	**5.40**	**20.65**	**16.74**	**-1.97**	**87.69**	**11.70**	**-1.97**	**87.99**	**34.06**	**79.15**	**4.93**	**7.44**	**64.24**	**17.98**	**9.49**

3.0 Construction Detail

Construction Phase

Deer Valley Estates - Phase 2 - Mitigated - Bay Area AQMD Air District, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	4/4/2022	4/15/2022	5	10	
2	Grading	Grading	4/16/2022	5/27/2022	5	30	
3	Building Construction	Building Construction	5/28/2022	7/21/2023	5	300	
4	Paving	Paving	7/22/2023	8/18/2023	5	20	
5	Architectural Coating	Architectural Coating	8/19/2023	9/15/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 17.56

Acres of Paving: 0

Residential Indoor: 211,410; Residential Outdoor: 70,470; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Deer Valley Estates - Phase 2 - Mitigated - Bay Area AQMD Air District, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
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
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
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	35.00	12.00	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	7.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 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					
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	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 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	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.0500e-003	0.1686	0.1148	1.9000e-004		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**6.0500e-003**	**0.1686**	**0.1148**	**1.9000e-004**	**0.0407**	**7.1000e-004**	**0.0414**	**0.0223**	**7.1000e-004**	**0.0231**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

3.2 Site Preparation - 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	2.6000e-004	1.7000e-004	1.8600e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5792	0.5792	1.0000e-005	0.0000	0.5795
Total	**2.6000e-004**	**1.7000e-004**	**1.8600e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5792**	**0.5792**	**1.0000e-005**	**0.0000**	**0.5795**

3.3 Grading - 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					
Fugitive Dust					0.0996	0.0000	0.0996	0.0507	0.0000	0.0507	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.0996**	**0.0245**	**0.1242**	**0.0507**	**0.0226**	**0.0732**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

3.3 Grading - 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	8.6000e-004	5.7000e-004	6.1800e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9305	1.9305	4.0000e-005	0.0000	1.9315
Total	**8.6000e-004**	**5.7000e-004**	**6.1800e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9305**	**1.9305**	**4.0000e-005**	**0.0000**	**1.9315**

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					0.0448	0.0000	0.0448	0.0228	0.0000	0.0228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0272	0.7686	0.5508	9.3000e-004		3.0000e-003	3.0000e-003		3.0000e-003	3.0000e-003	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0272**	**0.7686**	**0.5508**	**9.3000e-004**	**0.0448**	**3.0000e-003**	**0.0478**	**0.0228**	**3.0000e-003**	**0.0258**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

3.3 Grading - 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	8.6000e-004	5.7000e-004	6.1800e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9305	1.9305	4.0000e-005	0.0000	1.9315
Total	**8.6000e-004**	**5.7000e-004**	**6.1800e-003**	**2.0000e-005**	**2.3700e-003**	**2.0000e-005**	**2.3900e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9305**	**1.9305**	**4.0000e-005**	**0.0000**	**1.9315**

3.4 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	0.1322	1.2102	1.2682	2.0900e-003		0.0627	0.0627		0.0590	0.0590	0.0000	179.5871	179.5871	0.0430	0.0000	180.6627
Total	**0.1322**	**1.2102**	**1.2682**	**2.0900e-003**		**0.0627**	**0.0627**		**0.0590**	**0.0590**	**0.0000**	**179.5871**	**179.5871**	**0.0430**	**0.0000**	**180.6627**

3.4 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	2.7500e-003	0.0920	0.0228	2.5000e-004	6.1000e-003	1.8000e-004	6.2800e-003	1.7600e-003	1.8000e-004	1.9400e-003	0.0000	23.8825	23.8825	1.1300e-003	0.0000	23.9108
Worker	7.7600e-003	5.1500e-003	0.0559	1.9000e-004	0.0214	1.4000e-004	0.0216	5.7000e-003	1.3000e-004	5.8300e-003	0.0000	17.4550	17.4550	3.6000e-004	0.0000	17.4641
Total	**0.0105**	**0.0972**	**0.0787**	**4.4000e-004**	**0.0275**	**3.2000e-004**	**0.0279**	**7.4600e-003**	**3.1000e-004**	**7.7700e-003**	**0.0000**	**41.3374**	**41.3374**	**1.4900e-003**	**0.0000**	**41.3749**

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	0.0838	1.8255	1.3852	2.0900e-003		0.0105	0.0105		0.0105	0.0105	0.0000	179.5869	179.5869	0.0430	0.0000	180.6625
Total	**0.0838**	**1.8255**	**1.3852**	**2.0900e-003**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**179.5869**	**179.5869**	**0.0430**	**0.0000**	**180.6625**

3.4 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	2.7500e-003	0.0920	0.0228	2.5000e-004	6.1000e-003	1.8000e-004	6.2800e-003	1.7600e-003	1.8000e-004	1.9400e-003	0.0000	23.8825	23.8825	1.1300e-003	0.0000	23.9108
Worker	7.7600e-003	5.1500e-003	0.0559	1.9000e-004	0.0214	1.4000e-004	0.0216	5.7000e-003	1.3000e-004	5.8300e-003	0.0000	17.4550	17.4550	3.6000e-004	0.0000	17.4641
Total	**0.0105**	**0.0972**	**0.0787**	**4.4000e-004**	**0.0275**	**3.2000e-004**	**0.0279**	**7.4600e-003**	**3.1000e-004**	**7.7700e-003**	**0.0000**	**41.3374**	**41.3374**	**1.4900e-003**	**0.0000**	**41.3749**

3.4 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	0.1140	1.0429	1.1777	1.9500e-003		0.0507	0.0507		0.0477	0.0477	0.0000	168.0584	168.0584	0.0400	0.0000	169.0579
Total	**0.1140**	**1.0429**	**1.1777**	**1.9500e-003**		**0.0507**	**0.0507**		**0.0477**	**0.0477**	**0.0000**	**168.0584**	**168.0584**	**0.0400**	**0.0000**	**169.0579**

3.4 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	1.9300e-003	0.0664	0.0191	2.3000e-004	5.7100e-003	8.0000e-005	5.7800e-003	1.6500e-003	7.0000e-005	1.7200e-003	0.0000	21.7155	21.7155	9.0000e-004	0.0000	21.7381
Worker	6.7900e-003	4.3300e-003	0.0481	1.7000e-004	0.0201	1.3000e-004	0.0202	5.3300e-003	1.2000e-004	5.4500e-003	0.0000	15.7035	15.7035	3.1000e-004	0.0000	15.7111
Total	**8.7200e-003**	**0.0707**	**0.0672**	**4.0000e-004**	**0.0258**	**2.1000e-004**	**0.0260**	**6.9800e-003**	**1.9000e-004**	**7.1700e-003**	**0.0000**	**37.4190**	**37.4190**	**1.2100e-003**	**0.0000**	**37.4492**

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	0.0784	1.7077	1.2959	1.9500e-003		9.8300e-003	9.8300e-003		9.8300e-003	9.8300e-003	0.0000	168.0582	168.0582	0.0400	0.0000	169.0577
Total	**0.0784**	**1.7077**	**1.2959**	**1.9500e-003**		**9.8300e-003**	**9.8300e-003**		**9.8300e-003**	**9.8300e-003**	**0.0000**	**168.0582**	**168.0582**	**0.0400**	**0.0000**	**169.0577**

3.4 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	1.9300e-003	0.0664	0.0191	2.3000e-004	5.7100e-003	8.0000e-005	5.7800e-003	1.6500e-003	7.0000e-005	1.7200e-003	0.0000	21.7155	21.7155	9.0000e-004	0.0000	21.7381
Worker	6.7900e-003	4.3300e-003	0.0481	1.7000e-004	0.0201	1.3000e-004	0.0202	5.3300e-003	1.2000e-004	5.4500e-003	0.0000	15.7035	15.7035	3.1000e-004	0.0000	15.7111
Total	**8.7200e-003**	**0.0707**	**0.0672**	**4.0000e-004**	**0.0258**	**2.1000e-004**	**0.0260**	**6.9800e-003**	**1.9000e-004**	**7.1700e-003**	**0.0000**	**37.4190**	**37.4190**	**1.2100e-003**	**0.0000**	**37.4492**

3.5 Paving - 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 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	4.0000e-004	2.6000e-004	2.8400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**4.0000e-004**	**2.6000e-004**	**2.8400e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9283**	**0.9283**	**2.0000e-005**	**0.0000**	**0.9287**

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	9.3100e-003	0.2012	0.1730	2.3000e-004		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.3100e-003**	**0.2012**	**0.1730**	**2.3000e-004**		**1.0000e-003**	**1.0000e-003**		**1.0000e-003**	**1.0000e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

3.5 Paving - 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	4.0000e-004	2.6000e-004	2.8400e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9283	0.9283	2.0000e-005	0.0000	0.9287
Total	**4.0000e-004**	**2.6000e-004**	**2.8400e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9283**	**0.9283**	**2.0000e-005**	**0.0000**	**0.9287**

3.6 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	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.7368**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 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	1.9000e-004	1.2000e-004	1.3300e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4332	0.4332	1.0000e-005	0.0000	0.4334
Total	**1.9000e-004**	**1.2000e-004**	**1.3300e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4332**	**0.4332**	**1.0000e-005**	**0.0000**	**0.4334**

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	0.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.7361**	**0.0235**	**0.0183**	**3.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

3.6 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	1.9000e-004	1.2000e-004	1.3300e-003	0.0000	5.5000e-004	0.0000	5.6000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4332	0.4332	1.0000e-005	0.0000	0.4334
Total	**1.9000e-004**	**1.2000e-004**	**1.3300e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.6000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4332**	**0.4332**	**1.0000e-005**	**0.0000**	**0.4334**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

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	0.1254	0.5567	1.4350	5.3600e-003	0.4799	4.3800e-003	0.4843	0.1288	4.0900e-003	0.1329	0.0000	492.2035	492.2035	0.0170	0.0000	492.6291
Unmitigated	0.1245	0.5515	1.4146	5.2600e-003	0.4706	4.3100e-003	0.4749	0.1263	4.0200e-003	0.1303	0.0000	483.3901	483.3901	0.0168	0.0000	483.8097

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	547.52	547.52	547.52	1,264,556	1,289,488
Total	547.52	547.52	547.52	1,264,556	1,289,488

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
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
City Park	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
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

	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	68.4915	68.4915	6.0400e-003	1.2500e-003	69.0150
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	69.9850	69.9850	6.1700e-003	1.2800e-003	70.5198
NaturalGas Mitigated	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
NaturalGas Unmitigated	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940

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					
City Park	0	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
Single Family Housing	1.68578e+006	9.0900e-003	0.0777	0.0331	5.0000e-004		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003	0.0000	89.9594	89.9594	1.7200e-003	1.6500e-003	90.4940
Total		**9.0900e-003**	**0.0777**	**0.0331**	**5.0000e-004**		**6.2800e-003**	**6.2800e-003**		**6.2800e-003**	**6.2800e-003**	**0.0000**	**89.9594**	**89.9594**	**1.7200e-003**	**1.6500e-003**	**90.4940**

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					
City Park	0	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
Single Family Housing	889299	4.8000e-003	0.0410	0.0174	2.6000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	47.4564	47.4564	9.1000e-004	8.7000e-004	47.7384
Total		**4.8000e-003**	**0.0410**	**0.0174**	**2.6000e-004**		**3.3100e-003**	**3.3100e-003**		**3.3100e-003**	**3.3100e-003**	**0.0000**	**47.4564**	**47.4564**	**9.1000e-004**	**8.7000e-004**	**47.7384**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	469253	69.9850	6.1700e-003	1.2800e-003	70.5198
Total		**69.9850**	**6.1700e-003**	**1.2800e-003**	**70.5198**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	459239	68.4915	6.0400e-003	1.2500e-003	69.0150
Total		**68.4915**	**6.0400e-003**	**1.2500e-003**	**69.0150**

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	0.4950	9.2200e-003	0.4326	5.0000e-005		2.7300e-003	2.7300e-003		2.7300e-003	2.7300e-003	0.0000	5.6272	5.6272	7.7000e-004	9.0000e-005	5.6733
Unmitigated	0.8364	0.0125	0.9279	1.0500e-003		0.0741	0.0741		0.0741	0.0741	7.3724	2.5137	9.8861	0.0146	4.2000e-004	10.3768

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	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.3419	7.4900e-003	0.4971	1.0200e-003		0.0717	0.0717		0.0717	0.0717	7.3724	1.8102	9.1826	0.0139	4.2000e-004	9.6564
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.8364**	**0.0125**	**0.9279**	**1.0400e-003**		**0.0741**	**0.0741**		**0.0741**	**0.0741**	**7.3724**	**2.5137**	**9.8861**	**0.0146**	**4.2000e-004**	**10.3768**

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	0.0735					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4080					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.0000e-004	4.2500e-003	1.8100e-003	3.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	4.9237	4.9237	9.0000e-005	9.0000e-005	4.9529
Landscaping	0.0130	4.9700e-003	0.4308	2.0000e-005		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	0.7035	0.7035	6.8000e-004	0.0000	0.7204
Total	**0.4950**	**9.2200e-003**	**0.4326**	**5.0000e-005**		**2.7200e-003**	**2.7200e-003**		**2.7200e-003**	**2.7200e-003**	**0.0000**	**5.6271**	**5.6271**	**7.7000e-004**	**9.0000e-005**	**5.6733**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.9585	0.1236	2.9900e-003	9.9398
Unmitigated	5.9585	0.1236	2.9900e-003	9.9398

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.893611	0.4665	4.0000e-005	1.0000e-005	0.4700
Single Family Housing	3.77893 / 2.38237	5.4921	0.1235	2.9900e-003	9.4697
Total		**5.9585**	**0.1236**	**3.0000e-003**	**9.9398**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.5412	0.2093	0.0000	8.7731
Unmitigated	14.1647	0.8371	0.0000	35.0925

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.06	0.0122	7.2000e-004	0.0000	0.0302
Single Family Housing	69.72	14.1525	0.8364	0.0000	35.0623
Total		**14.1647**	**0.8371**	**0.0000**	**35.0925**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.015	3.0400e-003	1.8000e-004	0.0000	7.5400e-003
Single Family Housing	17.43	3.5381	0.2091	0.0000	8.7656
Total		**3.5412**	**0.2093**	**0.0000**	**8.7731**

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

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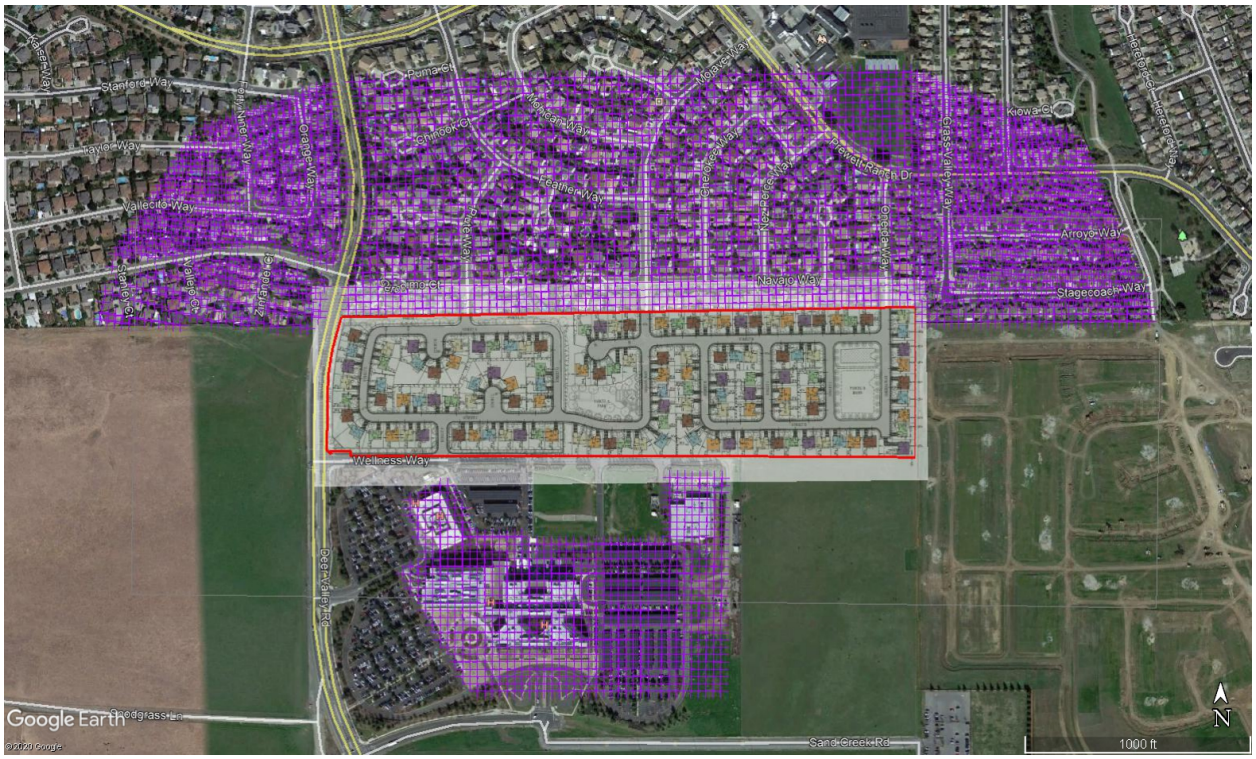
APPENDIX C

HEALTH RISK ASSESSMENT DATA

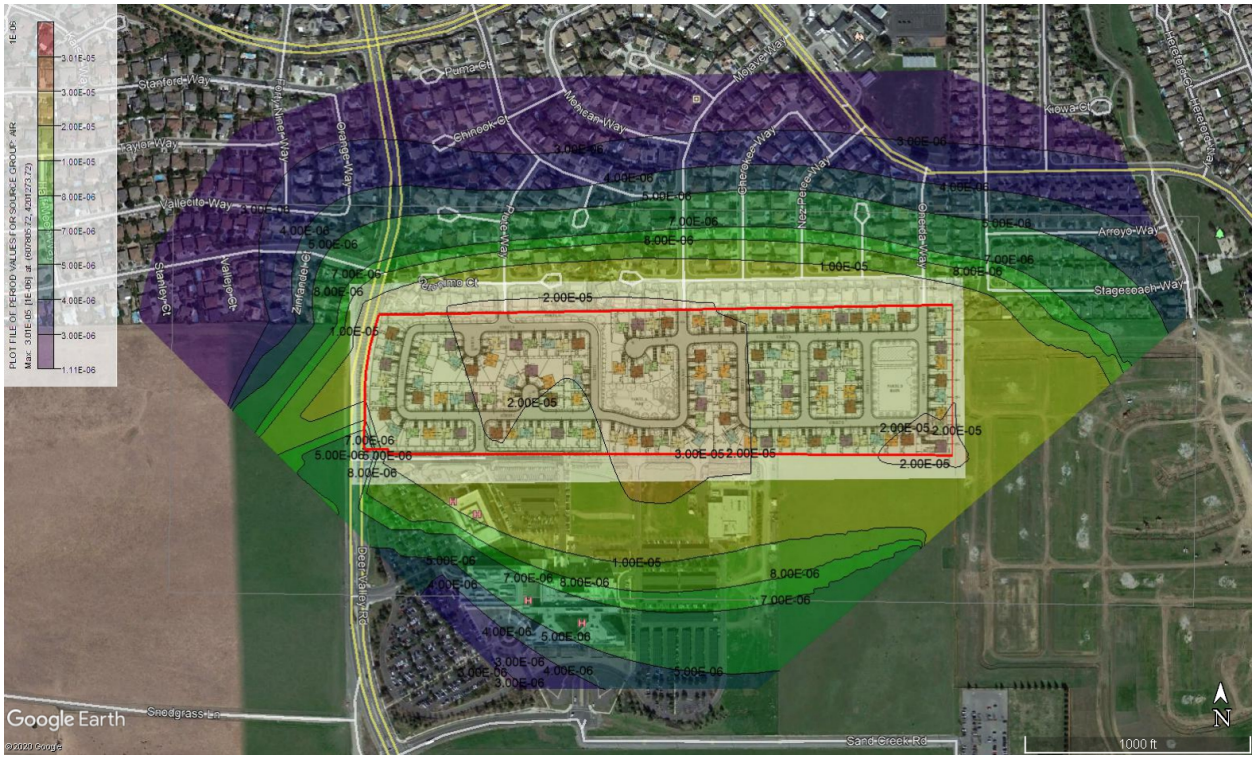
Project Boundary and Construction Area



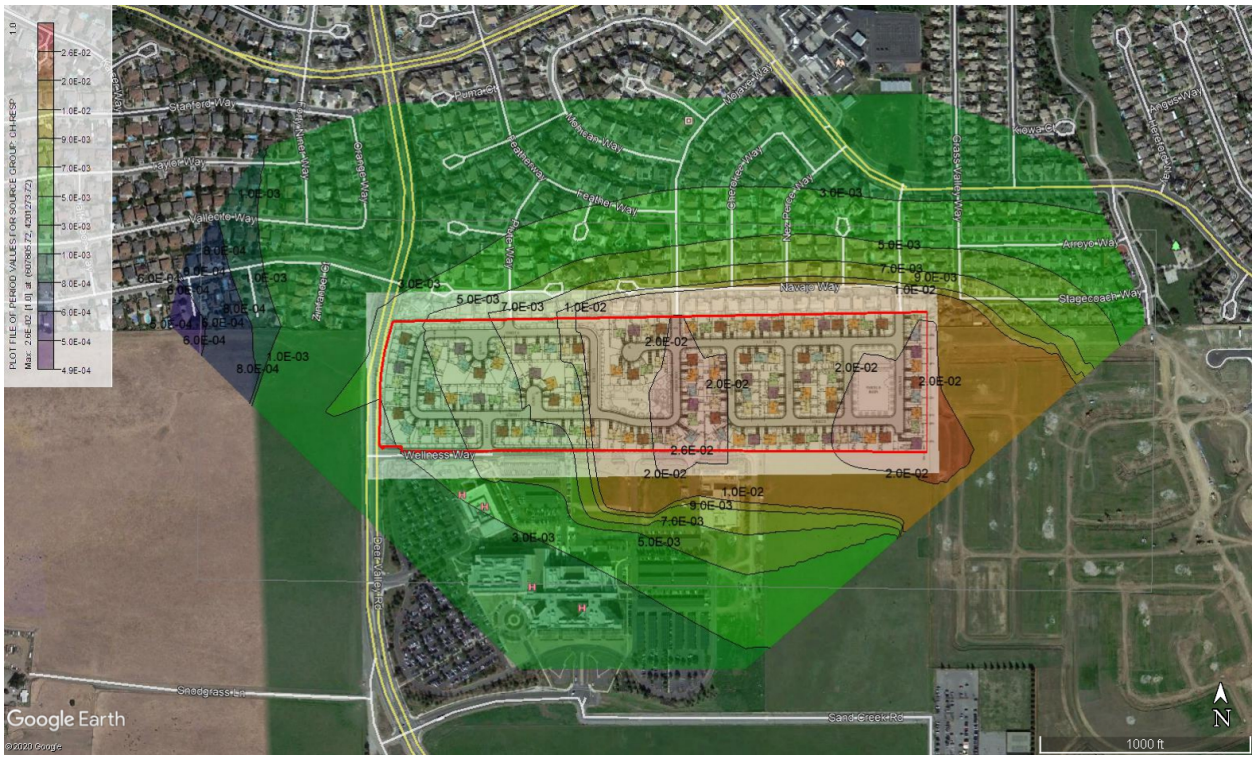
Project Receptors



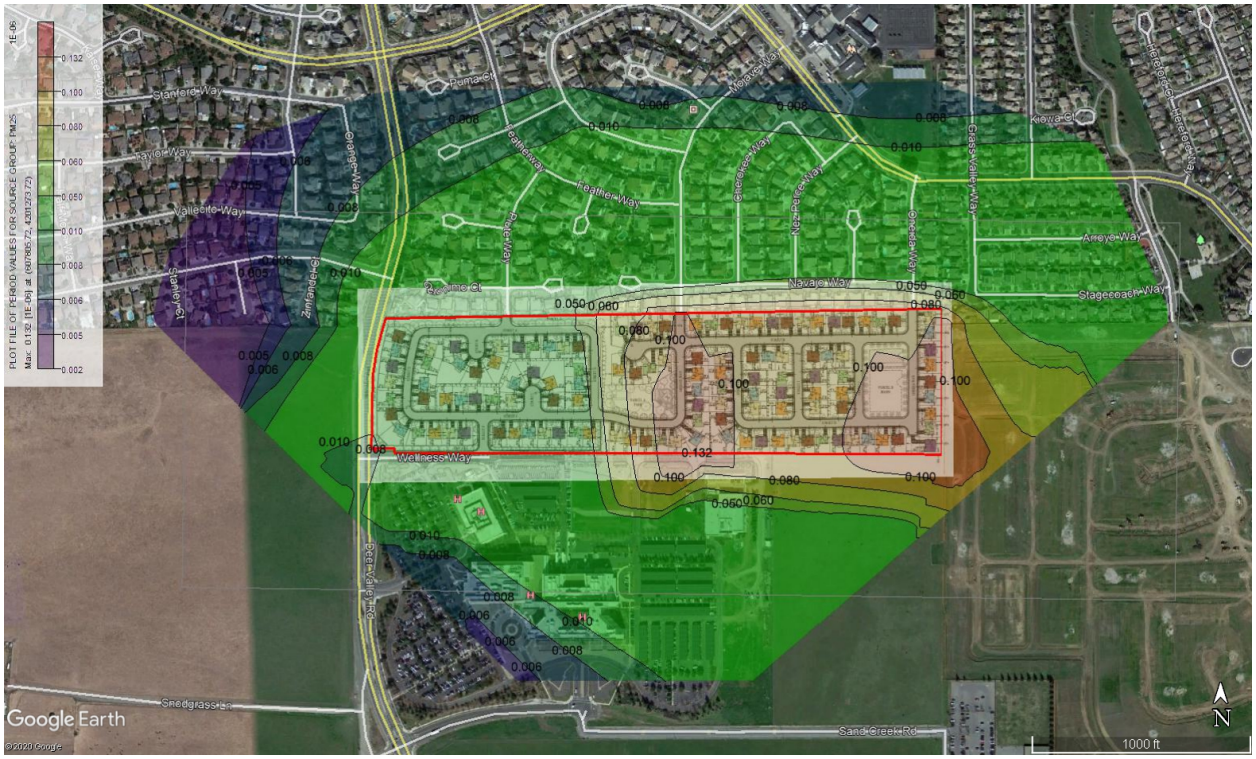
Unmitigated Cancer Risk



Unmitigated Hazard Index



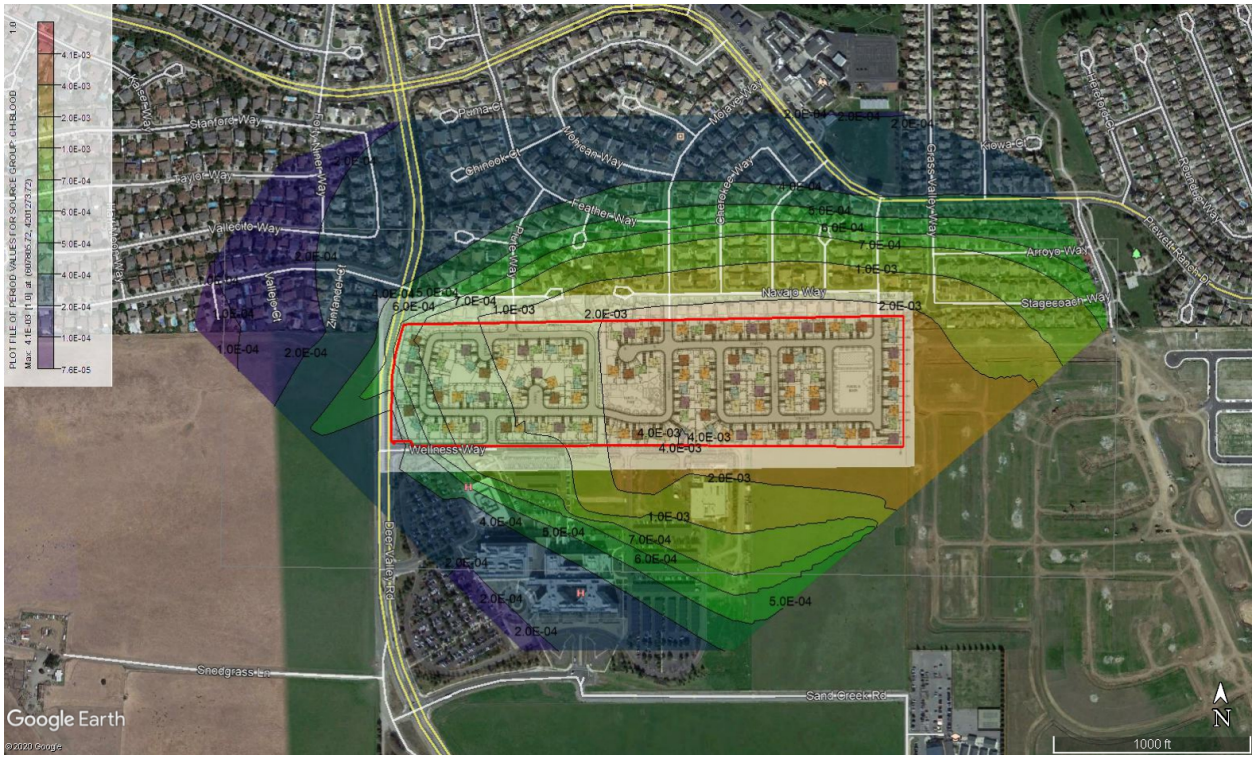
Unmitigated $PM_{2.5}$ Concentrations



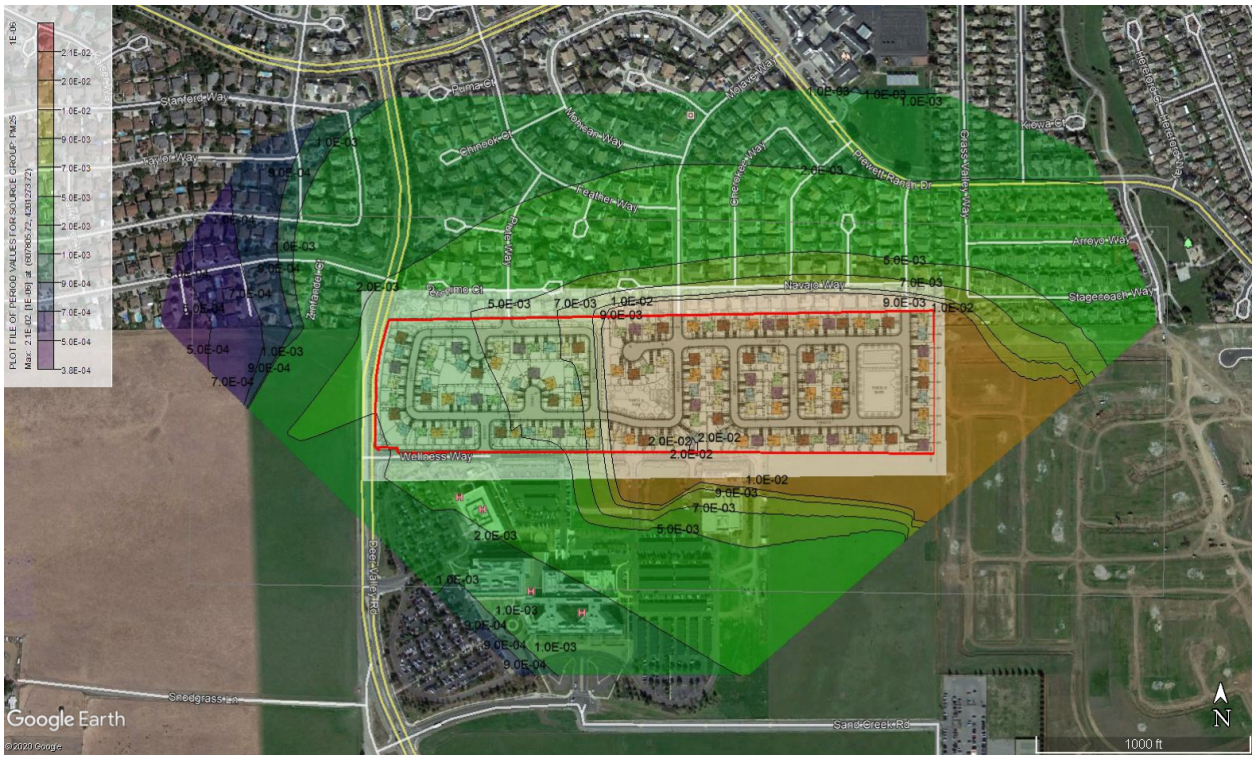
Mitigated Cancer Risk



Mitigated Hazard Index



Mitigated $PM_{2.5}$ Concentrations



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APPENDIX D

BIOLOGICAL RESOURCES ASSESSMENT

LSA

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

January 24, 2019

Carlos Yanez
Blue Mountain Communities
707 Aldridge Road
Vacaville, CA 95688

Subject: Biological Resources Assessment, 1600 Deer Valley Road, Antioch, Contra Costa County

Dear Carlos:

Per your request, LSA presents this letter regarding the results of a reconnaissance-level biological resources assessment for the above-referenced properties (Assessor's Parcel Numbers 057-022-013 and 055-071-026). LSA understands that you are exploring the construction of residential units on the approximately 38-acre site (see Figure 1). The primary objective of the biological assessment was to identify potentially significant biological resource constraints regarding development of the site, especially related to the potential presence of federal and State protected wildlife and plant species.

METHODS

LSA Senior Wildlife Biologist Gretchen Zantzinger conducted a reconnaissance-level survey of the 38-acre project site on January 3, 2019 to evaluate the potential occurrence of special-status species and sensitive habitats on the site. Prior to conducting the survey, LSA reviewed available background information/literature and searched the records of the California Department of Fish and Wildlife's (CDFW) *California Natural Diversity Database* (CNDDB) (CDFW 2019) and the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2019) for occurrences of special-status plant and wildlife species on or adjacent to the project site. LSA surveyed the project site by walking throughout the site to search for biological resources, such as the presence of special-status plants, animals, and their habitats, and sensitive habitats, such as wetlands or drainages. The potential presence of special-status species was determined based on an evaluation of the habitat types present on the site and the CNDDB records and other occurrence information from the vicinity of the site.

The survey was conducted by using meandering pedestrian transects, allowing for 100 percent visual coverage of the site. Plant and wildlife species observed were recorded in field notes. Digital photographs were taken to document site conditions.

The scientific and vernacular nomenclature for the plant and wildlife species used in this analysis are from the following standard sources: plants, Baldwin et al. (2012) and updates listed on the Jepson Herbarium website (http://ucjeps.berkeley.edu/eflora/); amphibians and reptiles, Crother (2017) and/or AmphibiaWeb (www.amphibiaweb.org); birds, American Ornithologists' Union (1998) and supplements through 2018; and mammals, Bradley et al. (2014).

California Native Plant Society Online Inventory

LSA accessed the CNPS Online Inventory of Rare and Endangered Vascular Plants of California for all rare plant records on the United States Geological Survey (USGS) *Antioch South Calif.* Quadrangle.

California Natural Diversity Database

LSA queried the CNDDB for occurrences of all wildlife and plant species subject within a 5-mile radius of the site boundary.

Other Sources

LSA reviewed the public draft of the Contra Costa County Habitat Conservation Plan (HCP) for information on protected biological resources that could occur on the site. The Environmental Impact Report (EIR) for the City of Antioch General Plan was also reviewed.

SPECIAL-STATUS SPECIES

Special-Status Plants

The query of the CNDDB produced a list of 25 plant species with a Rare Plant Rank of 1A, 1B, 2A, or 2B within 5 miles of the site:

- Antioch Dunes buckwheat (*Eriogonum nudum* var. *psychicola*)
- Antioch Dunes evening-primrose (*Oenothera deltoides* ssp. *howellii*)
- Big tarplant (*Blepharizonia plumosa*)
- Bolander's water-hemlock (*Cicuta maculata* var. *bolanderi*)
- Brewer's western flax (*Hesperolinon breweri*)
- Brittlescale (*Atriplex depressa*)
- Chaparral ragwort (*Senecio aphanactis*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Contra Costa wallflower (*Erysimum capitatum* var. *angustatum*)
- Delta mudwort (*Limosella australis*)
- Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- Diablo helianthella (*Helianthella castanea*)
- Diamond-petaled California poppy (*Eshscholzia rhombipetalia*)
- Hall's bush-mallow (*Malacothamnus hallii*)
- Hoover's cryptantha (*Cryptantha hooveri*)
- Large-flowered fiddleneck (*Amsinkia grandiflora*)
- Mason's lilaeopsis (*Lilaeopsis masonii*)
- Mt. Diablo manzanita (*Arctostaphylos auriculata*)
- Mt. Diablo fairy-lantern (*Calochortus pulchellus*)
- San Joaquin spearscale (*Extriplex joaquinana*)
- Showy golden madia (*Madia radiata*)
- Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)
- Showy golden (*Madia radiata*)
- Suisun Marsh aster (*Symphyotrichum lentum*)

- Round-leaved filaree (*California macrophylla*)

The CNDDB contained occurrences for three special-status plant species within 1 mile of the site:

- Brittlescale (*Atriplex depressa*)
- Hoover's cryptantha (*Cryptantha hooveri*)
- Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)

Special-Status Wildlife

The CNDDB contained occurrences for 19 special-status wildlife species:

- Lange's metalmark butterfly (*Apodemia mormo langei*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- Longfin smelt (*Spirinchus thaleichthys*)
- Sacramento perch (Archoplites interruptus)
- California red-legged frog (*Rana draytonii*)
- Foothill yellow-legged frog (*Rana boylii*)
- California tiger salamander (*Ambystoma californiense*)
- Alameda whipsnake (*Masticophis lateralis euryxanthus*)
- Giant garter snake (*Thamnophus gigas*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- Song sparrow "Modesto" population (*Melospiza melodia*)
- Swainson's hawk (*Buteo swainsoni*)
- Tricolored blackbird (*Agelaius tricolor*)
- White-tailed kite (*Elanus leucurus*)
- Loggerhead shrike (*Lanius ludovicianus*)
- Burrowing owl (*Athene cunicularia*)
- American badger (*Taxidea taxus*)
- San Joaquin kit fox (*Vulpes macrotis mutica*)

Focused rare plant and protocol-level wildlife surveys were beyond the scope of this reconnaissance-level survey.

RESULTS

Site Conditions

The project site is currently vacant and supports a disked field with ruderal/annual non-native grassland vegetation (see Figure 2). The field appeared to have been recently disked and exhibited minimal vegetation at the time of the field survey.

Soils

Soils of the generally sloped areas of the site consist of Altamont clay, 9 to 15 percent slopes. Soils of the generally flat areas of the site consist of Capay clay, 0 to 3 percent slopes. These soils are

generally moderately to well drained and have a moderate to high capacity for storing water, but they are not classified as hydric soils (NRCS Web Soil Survey 2018).

Wildlife

The white-tailed kite (*Elanus leucurus*) was the only special-status wildlife species detected during the survey.

Several common species of bird were observed flying over or in the vicinity of the site, consisting of:

- Rock pigeon (*Columba livia*)
- Mourning dove (*Zenaida macroura*)
- American white pelican (*Pelecanus erythrorhynchos*)
- Turkey vulture (*Cathartes aura*)
- Red-tailed hawk (*Buteo jamaicensis*)
- Ferruginous hawk (*Buteo regalis*)
- American kestrel (*Falco sparverius*)
- Northern flicker (*Colaptes auratus*)
- Ruby-crowned kinglet (*Regulus calendula*)
- California scrub-jay (*Aphelocoma californica*)
- Common raven (*Corvus corax*)
- Northern mockingbird (*Mimus polyglottos*)
- European starling (*Sturnus vulgaris*)
- White-crowned sparrow (*Zonotrichia leucophrys*)
- Black phoebe (*Sayornis nigricans*)
- Say's phoebe (*Sayornis saya*)
- Yellow-rumped warbler (*Setophaga coronata*)

California ground squirrels (*Otospermophilus beecheyi*) and their characteristic burrows are present across the entire site.

Vegetation

The majority of vegetation on the site has been disked. Remnants of walnut trees are located in the center of the site. Ruderal weedy species from the previous year's growth are present along the edges and in patches not disked. The disked field supports primarily non-native annual grassland and ruderal vegetation. Plant species observed on the site consist of common filaree (*Erodium cicutarium*), California burclover (*Medicago polymorpha*), shortpod mustard (*Hirschfeldia incana*), and gumplant (*Grindelia hirsutula*).

Due to its disturbed nature, the site is unlikely to support any special-status plant species. Most of the special-status plant species in the area have very specific habitat needs (e.g., vernal pools, alkali, playa, thin rocky soil, brackish marshes) that are not present on the site.

No special-status plant species are expected on the site due to the extensive disturbance that has occurred in the past, the isolated nature of the property, and the non-native, weedy plant cover that is current present.

Wildlife

Nine of the wildlife species, Lange's metalmark butterfly, Sacramento perch, longfin smelt, tricolored blackbird, song sparrow, black rail, Alameda whipsnake, giant garter snake, and foothill yellow-legged frog, can be eliminated from consideration due to the lack of suitable habitat on or near the site. Ten species have some potential to occur on the site and are discussed below.

SENSITIVE HABITATS

Wildlife Nursery Sites

The project site does not support any suitable habitat for wildlife nursery sites, including bird rookeries or roosting bat colonies.

Wildlife Movement Corridors

The project site is a vacant lot with a disked field situated within an urban/grassland setting, surrounded to the north and south by urban development, such as roads, buildings, and parking lots. The western side of the site is open grassland, and the property to the east is being graded at present. No significant wildlife movement corridors, such as stream channels or riparian corridors, occur at the site. Existing wildlife that currently move through the site are likely both rural and urban-adapted species that would likely continue to move through the site after project development. Typical wildlife that may move through the site include various native and non-native birds, raccoon (*Procyon lotor*), deer (*Odocoileus hemionus*), and small rodents, such as house mouse (*Mus musculus*), deer mouse (*Peromyscus maniculatus*), and California ground squirrel.

LOCAL AND STATE REGULATIONS

Tree Preservation Ordinance

No trees are present for protection at the site.

HABITAT CONSERVATION PLANS

The project site is not located within the limits of a conservation plan and therefore would not conflict with any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

POTENTIAL BIOLOGICAL CONSTRAINTS

Crustaceans

Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

No seasonal wetlands suitable for vernal pool fairy shrimp and vernal pool tadpole shrimp were observed on the site. However, the disking of the site may have impacted potentially suitable

habitat for these species, if present prior to disking. If these species inhabited the site prior to disking, the cysts (i.e., eggs) could remain on the site for several years, depending on the frequency of the disking. If suitable wetland habitat is present on the site in the future, vernal pool fairy shrimp and vernal pool tadpole shrimp could occur.

Amphibians

California Red-Legged Frog

The closest known record of California red-legged frogs occurs in Sand Creek less than 1 mile from the site. The site is within upland movement distance for California red-legged frog.

California Tiger Salamander

The closest suitable breeding habitat of California tiger salamander appears to be within 1 mile from the site. California ground squirrel burrows present on the site would be suitable refuge for the California tiger salamander.

Birds

Nests of special-status and common bird species that are protected by the federal Migratory Bird Treaty Act (MBTA) and/or California Fish and Game Code could occur on or adjacent to the site. Although there are no trees, ground-nesting birds, such as northern harrier, savanna sparrow, killdeer, and western meadowlark, could nest on the site. Numerous bird species could also nest in off-site trees and shrubs. Active bird nests, if present, could cause delays to construction. Timing activities, such as initial grubbing and grading to occur outside of the nesting season for birds, would minimize potential delays caused from bird nests. The generally accepted timeframe for the nesting bird season is February 1 through September 1.

LSA did not detect any nests on the site during the survey.

Swainson's Hawk

There is some potential for Swainson's hawk to forage on the site. Swainson's hawks, which are State-listed as threatened, could potentially forage on the site. The site's relatively small size and surrounding residential development limit the site's suitability for the species.

The nearest known Swainson's hawk nest site is located over 2 miles to the east of the site boundary. During the breeding season, Swainson's hawks may travel up to 18 miles to forage. The CDFW requires that projects consider impacts to Swainson's hawk if there are nests within 10 miles of the project.

Burrowing Owl

Although no burrowing owls or their sign were detected during this reconnaissance-level survey, their presence has been documented during previous surveys on and within 1 mile of the site. Despite the development of the adjacent properties, the presence and abundance of California ground squirrel burrows are sufficient to provide characteristics of habitat suitable for roosting and nesting, especially since the site has short or no vegetation across the entire site.

Loggerhead Shrike

Loggerhead shrikes could nest in trees present off site, but no suitable nesting structure for shrikes is present on site.

Mammals

American Badger

The American badger occurs in the same habitats as the burrowing owl and San Joaquin kit fox. The grassland on this site provides suitable habitat for this species.

San Joaquin Kit Fox

Although unlikely, San Joaquin kit foxes could move into and occupy the burrows on the site. This site is within the range of the San Joaquin kit fox.

CONCLUSION

No significant constraints are related to biological resources on the site.

RECOMMENDED MITIGATION MEASURES

Based on the field survey and review of CNDDB records (CDFW 2019), LSA recommends that the below measures be implemented to ensure impacts to biological resources are avoided.

Pre-Construction Surveys for Burrowing Owl

Pre-construction surveys should be conducted for burrowing owls prior to the commencement of construction activities. These surveys should conform to the survey protocol established by the California Department of Fish and Wildlife's Staff Report on Burrowing Owl Mitigation (Staff Report; CDFG 2012). The following measures are consistent with the provisions of the Migratory Bird Treaty Act and the Staff Report.

No more than 14 days prior to any ground disturbing activities (regardless of time of year), a qualified biologist will conduct a take avoidance survey for burrowing owls. If no owls are found during this first survey, a final survey will be conducted within 24 hours prior to ground disturbance to confirm that burrowing owls are still absent. If ground disturbing activities are delayed or suspended for more than 14 days after the initial take avoidance survey, the site will be resurveyed (including the final survey within 24 hours of disturbance). All surveys will be conducted in accordance with Staff Report guidelines.

If burrowing owls are found on the site during the surveys, mitigation may be required in accordance with Staff Report guidelines. If the surveys identify breeding or wintering burrowing owls on or adjacent to the site, occupied burrows will not be disturbed and will be provided with protective buffers. Where avoidance is not feasible, an exclusion plan will be implemented to encourage burrowing owls to move away from the work area prior to construction. The exclusion plan will be subject to CDFW approval and monitoring requirements. Compensatory mitigation,

including the preservation of suitable burrowing owl habitat at a minimum 1:1 ratio, may also be required by the CDFW as part of the approval of an exclusion plan.

Pre-Construction Surveys for Nesting Birds

The project should avoid construction activities during the bird nesting season (February 1 through August 31). If construction activities are scheduled during the nesting season, a qualified biologist should conduct a pre-construction survey of all suitable nesting habitat (i.e., field, trees) within 250 feet of the project site (where accessible). The pre-construction survey should be conducted no more than 14 days prior to the start of work. If the survey indicates the presence of nesting birds, protective buffer zones should be established around the nests as follows: for raptor nests, the size of the buffer zone should be a 250-foot radius centered on the nest; for other birds, the size of the buffer zone should be a 50- to 100-foot radius centered on the nest. In some cases, these buffers may be increased or decreased depending on the bird species and the level of disturbance that will occur near the nest.

Please contact me at gretchen.zantzinger@lsa.net or Ross Dobberteen, Principal in Charge, at ross.dobberteen@lsa.net if you have any questions and/or require further information regarding the results of this biological constraints analysis.

Sincerely,

LSA Associates, Inc.



Gretchen Zantzinger
Senior Wildlife Biologist

Attachment: Figure 1 – Regional Location and Study Area
Figure 2 – Study Area

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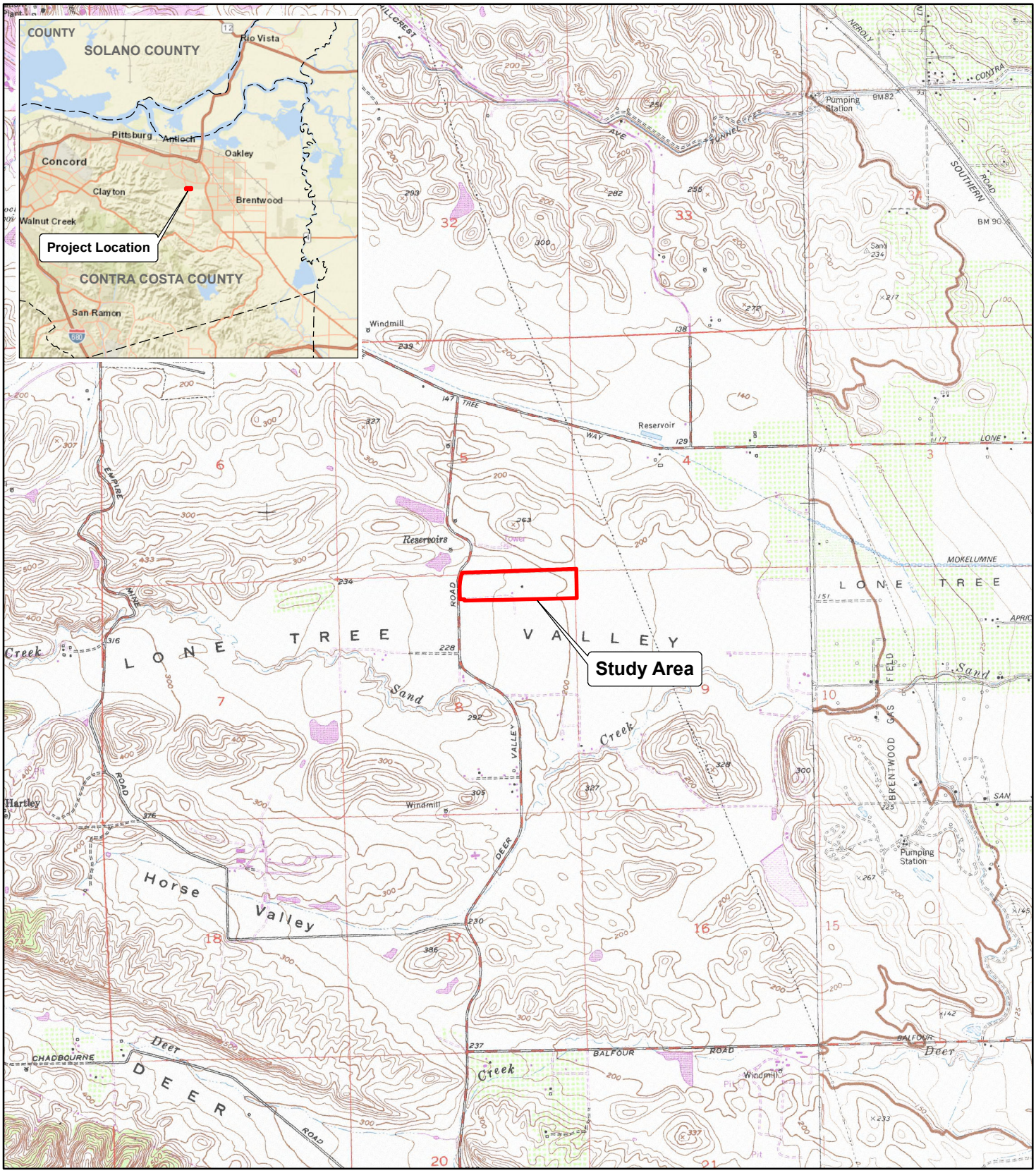
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U.S. Department of Agriculture Natural Resources Conservation Service (USDA). 2015. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (accessed March 5, 2015).



LSA

FIGURE 1

N

0 1500 3000

FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Regional Location and Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978). Esri World Street Map (c) 2018.

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LSA

LEGEND

Study Area

FIGURE 2

N

0 200 400

FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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APPENDIX E

JURISDICTIONAL DELINEATION

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: January 24, 2019

TO: Carlos Yanez, Blue Mountain Communities

FROM: Bernhard Warzecha, LSA

SUBJECT: CWA 404 Jurisdictional Delineation of 1600 Deer Valley Road, Antioch

LSA presents this memorandum which summarizes the methods and results of the Clean Water Act (CWA) Section 404 Jurisdictional Delineation (JD) of the property on December 27, 2018, at 1600 Deer Valley Road, Antioch, California.

STUDY AREA

The Study Area includes all of the approximately 38-acre property at 1600 Deer Valley Road in Antioch, Contra Costa County, California. Elevations of the Study Area range from about 200 feet in the eastern portion of the site to about 240 feet in the western portion. The Study Area is located within the Lower Marsh Creek Hydrological Unit (ID 180400030702), which drains to the San Joaquin River, a traditional navigable water of the United States.

METHODS

LSA senior biologist and certified wetland delineator Bernhard Warzecha surveyed the Study Area on December 27, 2018.

Wetlands

The presence or absence of potential wetlands was determined following requirements of the *Corps of Engineers Wetlands Delineation Manual*[1] (Corps Manual) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*[2] (Regional Supplement). These procedures evaluate the extent of hydrophytic vegetation, hydric soils, and wetland hydrology. All of these parameters must be satisfied for an area to be considered a jurisdictional wetland. Wetland indicator status of vegetation follows the *2016 National Wetland*

[1] Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi.

[2] U.S. Army Corps of Engineers. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Plant List for the Arid West Region.[1] Additional guidance of the 2015 Clean Water Rule and the *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States*[2] was incorporated into this JD.

The survey included five sample points in the Study Area. Field data sheets are attached. Sample point locations were mapped using a global positioning system (GPS) receiver capable of submeter accuracy.

Tributaries

If present, tributaries are determined through presence of bed, bank, and Ordinary High Water Mark (OHWM) and/or hydrological connectivity. OHWM is determined and characterized using definitions and guidance of *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.[3]

Additional Background Information

Additional relevant information about the Study Area was reviewed. This information included relevant sections of the Deer Valley Estates Master Plan Initial Study/Mitigated Negative Declaration (IS/MND; LSA 2007), current and historical aerial imagery (Google Earth Pro), the Watershed Assessment, Tracking and Environmental Results System (U.S. Environmental Protection Agency [EPA]), the Web Soil Survey, and the Climate Analysis for Wetlands (WETS) Tables (both National Resource Conservation Service [NRCS]). Specifically, the standard NRCS WETS analysis[4] includes a weighted comparison of historic rainfall to observed rainfall for the 3-month period before a wetland delineation field survey in order to evaluate if abnormal rainfall patterns may have contributed to observed presence or absence of wetland indicators. The WETS analysis is based on data from the nearest WETS-listed station (Antioch Pumping Plant #3).

RESULTS

Landscape Context and Hydrology

The Study Area consists to one half of flat and one half of sloped or hilly areas. Generally, the Study Area slopes to the southeast. Local depressional features occur. The Study Area is located in the watershed of Sand Creek. Sand Creek is an EPA-mapped “blue-line” stream located approximately 1,800 feet to the south. Sand Creek drains to Marsh Creek, which drains to the San Joaquin River, a traditional navigable water of the United States. However, no stream, channel, or other tributary characterized by an OHWM was observed connecting the Study Area to Sand Creek hydrologically.

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1 Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published April 28, 2016. ISSN 2153 733X.

2 Technical Support Document for the Clean Water Rule: Definition of Waters of the United States. 2015. U.S. Army Corps of Engineers.

3 Lichvar, R.W., and S.M. McColley. 2008. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. U.S. Army Corps of Engineers.

4 Part 650 Engineering Field Handbook - Chapter 19: Hydrology Test for Wetland Determination. NRCS 1997.

The majority of the Study Area, including all of the flat areas and a 0.37-acre area previously identified in the 2007 IS/MND as a potential seasonal wetland, were recently tilled and potentially leveled or filled. A pile of off-site fill material was observed on site.

Five concave/depressional sites with stunted re-growth and deeper tracks from tilling equipment suggested potential wetter areas. These focus areas are located in the northeast corner, the southwest corner, and along the southern parcel boundary. The focus areas were evaluated regarding the potential presence of wetland indicators, including hydrophytic vegetation, hydric soils, and indicators of hydrology. Data sheets for the sample points established in the focus areas are attached. The information presented below is applicable to all focus areas and sample points.

Vegetation

Due to recent tillage, vegetation throughout the Study Area and within the evaluated focus areas was difficult to reliably identify and quantify and therefore, results presented in this section are considered preliminary.

However, it could be determined that vegetation growing in the focus areas generally consisted of about 2-inch tall grass (Poaceae) seedlings (at a stage too early to reliably identify), a large quantity of common filaree (*Erodium cicutarium*) and California burclover (*Medicago polymorpha*), typical upland species and disturbance followers. Other unidentifiable forbs in cotyledon stage were present at non-dominant quantities. Additional plants or plant parts present indicate a substantial pre-tilling cover of shortpod mustard (*Hirschfeldia incana*; not a wetland species) and gumplant (*Grindelia hirsutula*), a facultative wetland (FACW) species. Several flowering gumplants were observed throughout the site. No typical and ubiquitous wetland plants, such as rush (*Juncus* sp.) or the previously documented hyssop loosestrife (*Lythrum hyssopifolia;* an obligate wetland plant), were observed.

Soils

Soils of the generally sloped areas of the Study Area consist of Altamont clay, 9 to 15 percent slopes. Soils of the generally flat areas of the Study Area consist of Capay clay, 0 to 3 percent slopes. These soils are generally moderately to well drained, have a moderate to high capacity for storing water, but are not classified as hydric soils (NRCS Web Soil Survey 2018).

All focus areas are located in areas mapped as Capay clay. Colors ranged from dark brown to brownish yellow. Sandy inclusions and were observed on the northeast focus areas and gravelly fill in the upper 2 inches was observed on the southwestern focus area. A restrictive Claypan layer at about 8 inches depth was observed in one location in the northeastern focus area.

No redox features were observed at any of the soil sample locations. No hydric soils were observed on the Study Area.

Hydrology

No primary or secondary wetland hydrology indicators were observed. No surface water was observed. No water table was present in the upper 12 inches. Soils were generally moist, but no saturation was present.

Climatic Factors

The results of the WETS analysis (attached) indicate that the relevant period prior this wetland delineation (October through December) has been drier than normal.

DISCUSSION

Both the Corps Manual and the Regional Supplement recognize atypical and difficult situations. These situations occur when one or more parameters have been altered by recent human activities to preclude the presence of wetland indicators, and situations in which "some wetlands can be difficult to identify because wetland indicators may be missing due to natural processes or recent disturbances" (Regional Supplement).

Recent tilling of the Study Area constitutes a recent disturbance or alteration and therefore, the situation found during the JD survey may qualify as atypical or difficult as defined by the Corps. Additionally, the absence of wetland indicators may have been compounded by climatic conditions, which have been drier than normal for the relevant period prior the delineation.

Generally, in atypical and difficult situations, the presence of at least one or two wetland indicators would support the interpretation that a missing wetland indicator was masked by recent alteration or abnormal climatic factors. In the case of this specific situation, however, the absence of both hydric soils and wetland hydrology suggest that no wetland is present in the Study Area at the time of the survey, regardless of the potential presence of facultative wetland vegetation.

CONCLUSION

Based on the information presented in this memorandum, LSA concludes that no wetlands or other waters of the U. S. are currently present in the Study Area located at 1600 Deer Valley Road, Antioch, California.

The findings and conclusions presented in this report represent the professional opinion of LSA.

Attachment: Data Sheets
WETS Table and Analysis
Figure 1: Study Area and Sample Point Locations

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 1

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-5

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks: SP-1 recently tilled. Below normal rainfall

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 1 m²)			
1. MEDICAGO POLYMORPHA	20	Y	FACU
2. ERODIUM CICUTARIUM	5	N	N/A
3. POACEAE SEEDLINGS	15	Y	N/A
4.			
5.			
6.			
7.			
8.			
	40 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust /

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

Recently tilled, 2" Poaceae seedlings, not identifiable

SOIL

Sampling Point: (1)

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	7.5YR/4/2	100					CLAY	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: (2)

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:
Below normal rainfall recently tilled, probably man-induced depression 10'x10' SP2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	8	Y	N/A
2. MEDICAGO POLYMORPHA	1	N	FACU
3. ERODIUM CICUTARIUM	1	N	N/A
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
recently tilled <5% grass seedlings 2", not identifiable

SOIL

Sampling Point: 2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Clay	
8-12								Restrictive Layer
								Claypan?

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Claypan ?

Depth (inches): 8

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: _____ State: CA Sampling Point: 3

Investigator(s): B. Warzecha Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0-3

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

Are Vegetation X, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

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

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

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

Remarks: site recently tilled, Below normal rainfall SP3 in swale

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2. HIRSCHFELDIA INCANA	3	N	N/A
3. CENTAUREA SOLSTITALIS	1	N	N/A
4. ERODIUM CICUTARIA	2	N	N/A
5. POACEAE SEEDLINGS	5	Y	N/A
6.			
7.			
8.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust _____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: recently tilled, 2" grass seedlings not identifiable HIRINC senescent present

SOIL

Sampling Point: 3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	70					Clay	
0-12	10YR 6/6	30					SCL	Sandy inclusions

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Claypan

Depth (inches): 12

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 4

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks:
Depression at SW corner, tilled, compacted.
Rainfall below normal during 3-month period prior

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	20	Y	N/A
2. MEDICAGO POLYMORPHA	6	N	FACU
3. ERODIUM CICUTARIUM	4	N	N/A
4.			
5.			
6.			
7.			
8.			
	= Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
tilled, compacted by driving
2". Poaceae seedlings not identifiable

SOIL

Sampling Point: 4

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	100					Clay	
0-3								Gravel fill surface

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Deer Valley Road, Antioch City/County: Contra Costa County Sampling Date: 12/26/2018

Applicant/Owner: State: CA Sampling Point: 5

Investigator(s): B. Warzecha Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Slope (%): 0-3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

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

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

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

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

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

Remarks: Rainfall below normal for prior 3-month period. Site recently tilled. SP-5 ↓

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: ____)			
1. POACEAE SEEDLINGS	5	Y	N/A
2. MEDICAGO POLYMORPHA	3	N	N/A
3. ERODIUM CICUTARIA	2	N	N/A
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: Site recently tilled. 2" Poaceae seedlings not identifiable. Erodium sp. present.

SOIL

Sampling Point: 5

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	—				(L) Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

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

Remarks:

WETS Table

WETS Station: ANTIOCH PUMPING PLANT #3, CA								
Requested years: 1982 - 2018								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	54.9	38.9	46.9	2.84	0.98	3.41	6	0.0
Feb	61.1	42.8	51.9	2.60	1.12	3.10	6	0.0
Mar	66.4	45.8	56.1	2.16	0.95	2.64	6	0.0
Apr	72.3	48.7	60.5	0.78	0.38	0.90	2	0.0
May	79.2	53.5	66.4	0.39	0.00	0.31	1	0.0
Jun	86.4	58.0	72.2	0.10	0.00	0.12	0	0.0
Jul	91.6	59.6	75.6	0.00	0.00	0.00	0	0.0
Aug	89.8	58.7	74.3	0.02	0.00	0.00	0	0.0
Sep	86.5	57.5	72.0	0.17	0.00	0.09	1	0.0
Oct	77.5	53.0	65.3	0.50	0.17	0.49	1	0.0
Nov	64.3	45.2	54.7	1.57	0.77	1.84	4	0.0
Dec	55.2	39.0	47.1	2.60	1.34	3.13	5	0.0
Annual:					-	-		
Average	73.8	50.1	61.9	-	-	-	-	-
Total	-	-	-	13.73			32	0.0

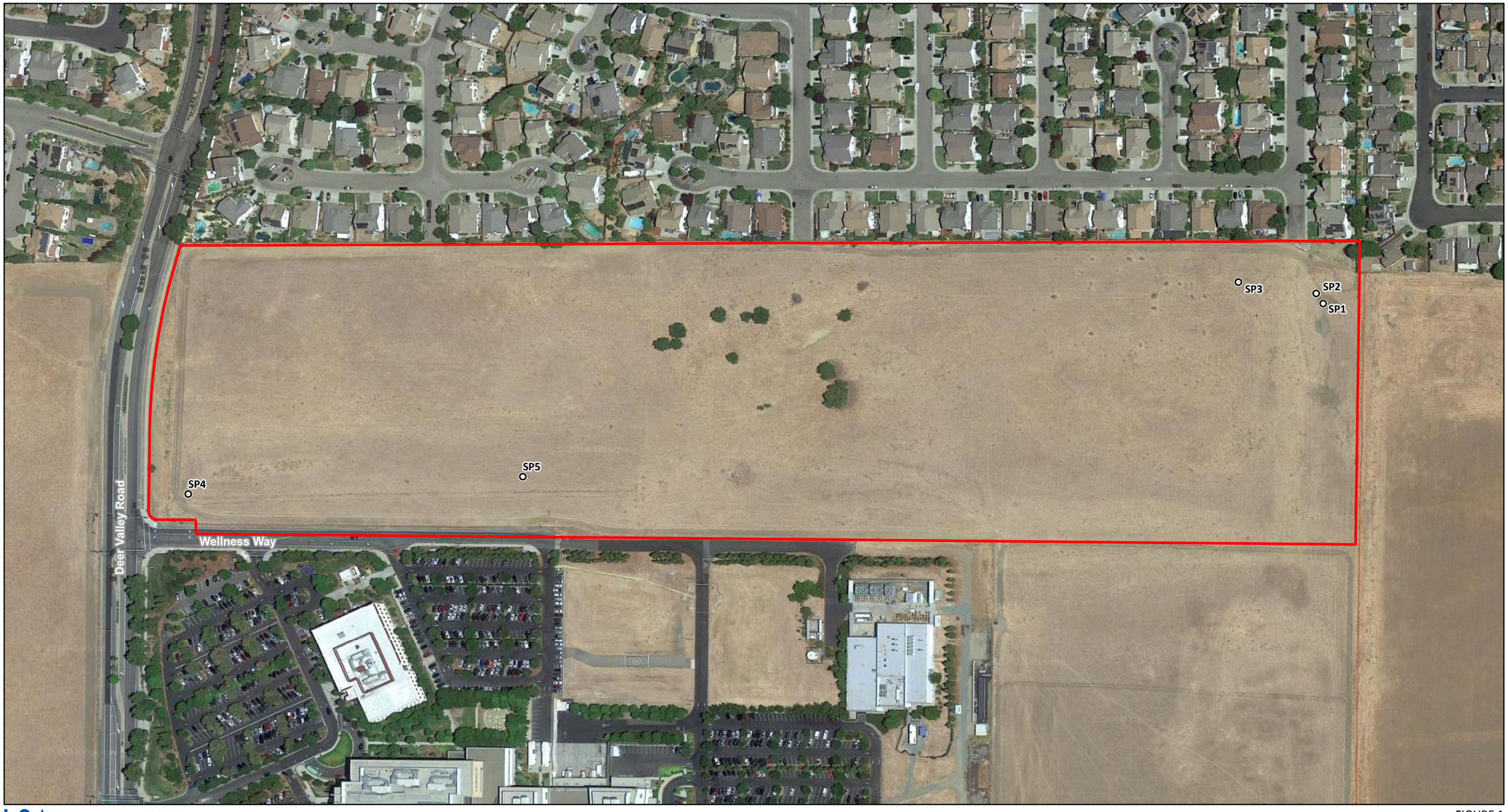
GROWING SEASON DATES			
Years with missing data:	24 deg = 14	28 deg = 17	32 deg = 15
Years with no occurrence:	24 deg = 23	28 deg = 11	32 deg = 2
Data years used:	24 deg = 23	28 deg = 20	32 deg = 22
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	No occurrence	No occurrence	1/25 to 12/9: 318 days
70 percent *	No occurrence	No occurrence	1/13 to 12/21: 342 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

WETS Analysis for 3-Month Period

Month	3 yrs in 10 have less than (inch)	Average (inch)	3 yrs in 10 have more than (inch)	Observed rainfall (inch)	Condition (dry, wet, normal)	Condition Value*	Weighting Factor	Product of previous 2 columns
October	0	0.45	0.44	0	dry	1	1	1
November	0.65	1.32	1.55	0.55	dry	1	2	2
December	1.36	2.71	3.25	1.4	normal	2	3	6
							Sum=	**9****

**If sum is:	
6-9	prior period has been drier than normal
10-14	prior period has been normal
15-18	prior period has been wetter than normal

*Condition values:
Dry=1
Normal=2
Wet=3



LSA

LEGEND

Study Area

Non-wetland Sample Point

0 100 200
FEET

SOURCE: Google Maps (c)2019.

I:\BLU1810\GIS\Maps\Delineation\Figure 1_Study Area and Sample Point Locations.mxd (1/23/2019)

FIGURE 1

1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area and Sample Point Locations

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APPENDIX F

CULTURAL RESOURCES REPORT

LSA

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

January 28, 2019

Carlos Yanez
Blue Mountain Communities
707 Aldridge Road
Vacaville, CA 95688

Subject: Cultural Resources Supplemental Report for APN 057-022-013, 1600 Deer Valley Road, Antioch, Contra Costa County, California

Dear Carlos:

Per your request, LSA conducted a cultural resources study for an approximately 38-acre parcel (the "study area") at 1600 Deer Valley Road in Antioch, Contra Costa County (Attachment A: Figures 1-2). We understand that you are considering using the property for residential development. This study was done to supplement LSA's previous investigation of the study area (McKale 2007) in order to confirm and update the baseline conditions for cultural resources. This supplemental report documents the background research and site visit completed for this study, the methods and results of which are described below.

CULTURAL RESOURCES

Background Research

Background research was done to identify recorded and potential unrecorded cultural resources in the study area. The background research consisted of records search updates at the Northwest Information Center (NWIC) and the Native American Heritage Commission (NAHC), a review of geologic maps and literature to assess the potential for buried precontact Native American archaeological sites, and a review of historical maps to assess the potential for buried historic-period archaeological sites.

Northwest Information Center

The NWIC records search was conducted on January 4, 2019, and included the study area and a 0.25-mile search radius for archaeological sites. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resources records and reports for Contra Costa County.

The NWIC database indicates that there is one recorded archaeological site in the study area (Attachment A: Figure 3). That site—assigned the designation C-1092 by the NWIC—was recorded in 1986 and consisted of a 12' x 20' foundation pad and associated artifact deposit with a 1930s automobile frame, hay cutter, bed frame, fuel tank, stove, 55-gallon drums, ceramic fragments, butchered cattle bone, and walnut and olive trees.

East and adjacent to the study area is the Shannon Ranch/Williamson Ranch [NWIC designation P-07-000303], an approximately 398-acre property listed in the National Register of Historic Places (NRHP) (Attachment A: Figure 3). P-07-000303 "is significant for its association with the early agricultural industry in Contra Costa County, namely wheat and barley", and is the only ranch complex in eastern Contra Costa County that is intact and maintains its integrity (Pape 1986). The ranch includes nine contributing physical elements, all of which are approximately 0.5-mile northeast of the study area along Lone Tree Road.

Three previous cultural resource investigations have been completed of the study area (Jensen & Associates 1986; McKale 2007; Samuelson, Rice, and Self 1994). In 1986 Jensen & Associates conducted a cultural resources field survey for six proposed water conveyance alternatives being considered by the Bureau of Reclamation for the improvement of water quality in the Contra Costa Water District service area. The survey completed for that proposed project bisected the current study area in a north-south aligned transect. As previously described above, Jensen & Associates identified C-1092 in the study area and stated that "Given the lack of integrity, significance is considered to be negligible to non-existent."

In 1994, William Self & Associates (Samuelson, Rice, and Self 1994) completed a cultural resources study for the 2,700-acre Future Urban Area 1 project, which included the current study area. The 2,700-acre Future Urban Area consisted of lands slated for potential future mixed-use developments in the City of Antioch. A field survey completed for the 1994 study identified no new cultural resources in the current study area.

In 2007, LSA (McKale 2007) completed a cultural and paleontological resources study for a proposed 136-lot subdivision of the study area. LSA's study included background research, a field survey, and an evaluation to determine the eligibility of C-1092 for listing in the California Register of Historical Resources (CRHR). LSA's evaluation of C-1092 included reviews of historical maps, probate documents, deeds, and grantor/grantee documents, and minor subsurface archaeological testing. Based on the results of these tasks, LSA concluded that C-1092 is not eligible for listing in the CRHR under any of the criterion for listing (California PRC Section 5024.1(c)).

Native American Heritage Commission

The NAHC reviewed its Sacred Lands File to determine the potential presence of Native American cultural resources in the study area. The NAHC maintains the Sacred Lands File and is the official State repository of Native American sacred site location records in California.

Sharaya Souza, NAHC Analyst, stated in a letter dated January 17, 2019, that "*A records search of the Native American Heritage Commission Sacred Lands File was completed.…The results were negative."* The NAHC's response letter is appended to this report (Attachment B).

Geologic Map Review

Geologic mapping indicates that Eocene sandstone (Tkm) and Holocene alluvial pebble gravel, sand, and clay sediment (Qa) underlie the study area (Dibblee 2006). Eocene landforms were formed before evolution of modern *Homo sapiens*, and buried precontact archaeological deposits would not occur within these landforms. Holocene-age landforms, however, have variable potential for

containing buried, formerly exposed surfaces that were available for human habitation during the past 11,700 years. Although all Holocene surfaces have some potential for buried precontact archaeological deposits, studies of known buried sites in central California indicate that the majority of these are within approximately 656 feet (200 m) to water, as drainages were an important factor in focusing human settlements on the landscape (Meyer and Rosenthal 2007; Rosenthal, Hildebrandt, and King 2003).

The study area is not in proximity to a natural drainage to indicate an elevated potential for buried precontact archaeological deposits.

Historical Map and Aerial Photograph Review

Sanborn Fire Insurance maps do not provide coverage of the study area or vicinity, indicating that physical development was too sparse to warrant inspection by the insurance industry in the late 19th and early 20th centuries.

The earliest U.S. Geological Survey map of the project sites dates from 1896, which depicts a building in the center of the study area. A building at this same location is depicted on a 1949 aerial photograph, which also shows the western half of the property planted in row crops. The previously recorded historic-period site C-1092 likely represents the remnants of this former structure.

Based on the presence of a historic-period homestead formerly on the property, there is a potential for identifying buried hollow-filled features (e.g., wells and privies) containing archaeological deposits in the study area. Please refer to the Conclusions and Recommendations section below for additional information.

Field Survey

LSA cultural resources staff visited the study area on January 10, 2019. The purpose of the visit was to revisit the location of previously mapped historic-period site C-1092 and to confirm the findings of LSA's 2007 (McKale 2007) study. Surface visibility was excellent, with soils recently disced.

LSA's visit identified a scatter of historic-period ceramic fragments; colorless, aqua, and solarized bottle glass; cut mammal bones; metal debris; tree stumps; a concrete structural foundation; and recent dumping of modern trash. The 12' x 20' foundation pad, automobile frame, hay cutter, bed frame, fuel tank, stove, and 55-gallon drums described in the 1986 record for C-1092 were not identified. With the exception of recent trash, the materials identified by LSA appear to be generally associated with historic use of the property and C-1092.

CONCLUSIONS AND RECOMMENDATIONS

The recorded historic-period site C-1092 was previously evaluated as lacking historical significance (Jensen & Associates 1986; McKale 2007). Based on LSA's current study, we concur with these previous assessments; C-1092 does not appear to meet any of the criterion for listing in the CRHR, nor does it otherwise qualify as a historical resource under CEQA (*CEQA Guidelines* Section 15064.5(a)). The potential for identifying previously unrecorded historic-period or precontact archaeological deposits cannot be ruled out, however, and procedures for work stoppage and

evaluation of discoveries should be adopted as a condition of project approval. Please see the recommendations below for Accidental Discovery of Archaeological Deposits and Human Remains.

Accidental Discovery of Archaeological Deposits and Human Remains

Should an archaeological deposit be encountered during ground disturbance within the study area, all ground-disturbing activities within 25 feet should be redirected and a qualified archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for Archeology contacted to assess the situation, determine if the deposit qualifies as a historical resource, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. If the deposit is found to be significant (i.e., eligible for listing in the CRHR), the project applicant would be responsible for funding and implementing appropriate mitigation measures. Mitigation measures may include recordation of the archaeological deposit, data recovery and analysis, and public outreach regarding the scientific and cultural importance of the discovery. Upon completion of the selected mitigations, a report documenting methods, findings, and recommendations should be prepared and submitted to the State for review, and the final report should be submitted to the NWIC at Sonoma State University. Significant archaeological materials should be submitted to an appropriate local curation facility and used for future research and public interpretive displays, as appropriate.

In the event that human remains are identified during project construction, these remains should be treated in accordance with Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code, as appropriate.

Please contact me at (510) 236-6810 if you have any questions regarding our study. Thank you for using the services of LSA.

Sincerely,

LSA Associates, Inc.

E. Timothy Jones

E. Timothy Jones, M.A., RPA 15531
Archaeologist/Cultural Resources Manager

Enclosures: Attachment A - Figures
Figure 1 - Regional Location
Figure 2 - Project Site and Vicinity (USGS 7.5-minute Topographic Quadrangle)
Figure 3 - Cultural Resource Locations
Attachment B - NAHC Sacred Lands File Review

REFERENCES

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2007 *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4.* Far Western Anthropological Research Group, Inc., Davis, California.

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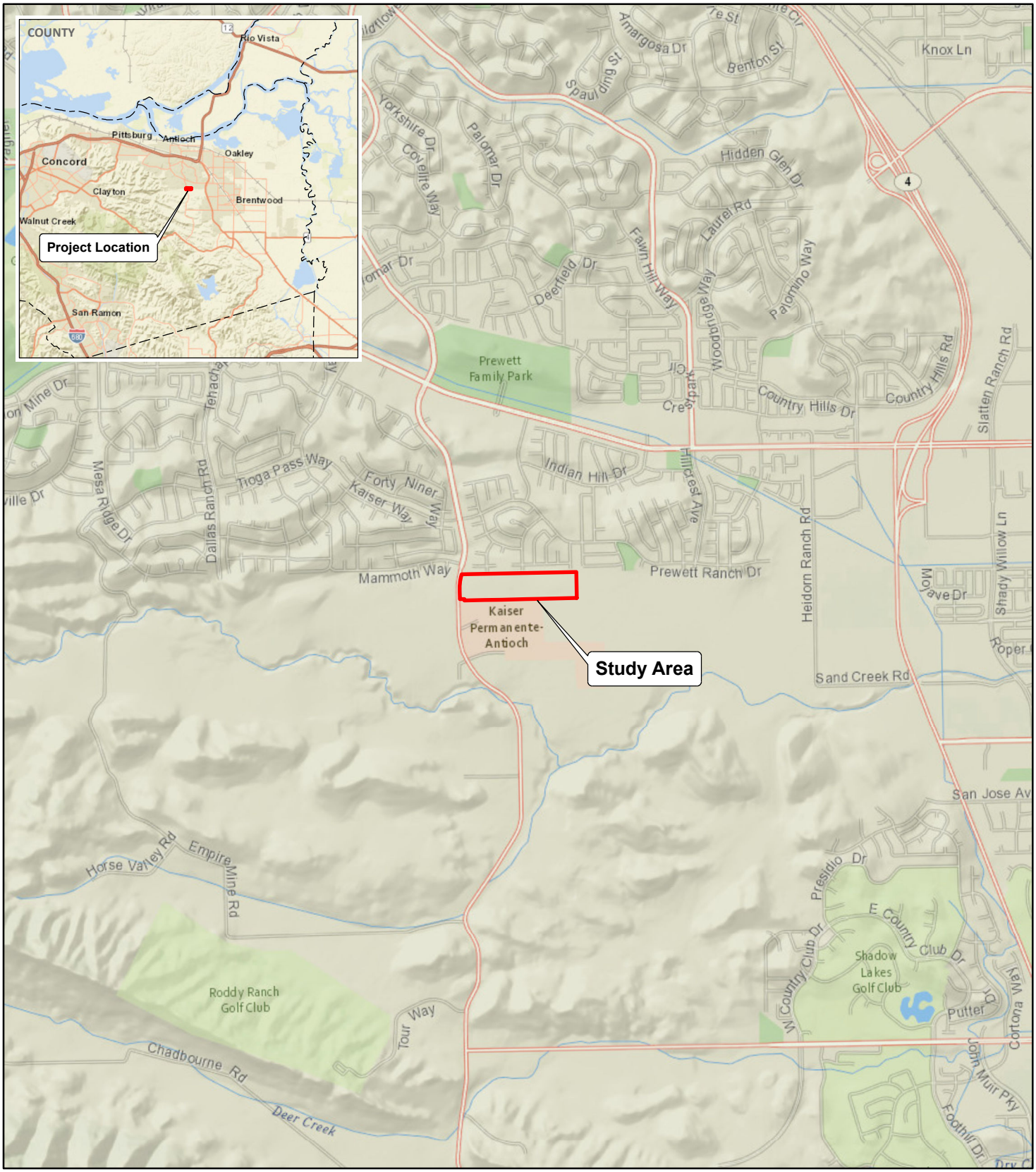
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ATTACHMENT A – FIGURES

Figure 1: Regional Location and Study Area

Figure 2: Study Area (USGS 7.5-minute Topographic Quadrangle)

Figure 3: Cultural Resource Locations



LSA

FIGURE 1

N

0 1500 3000

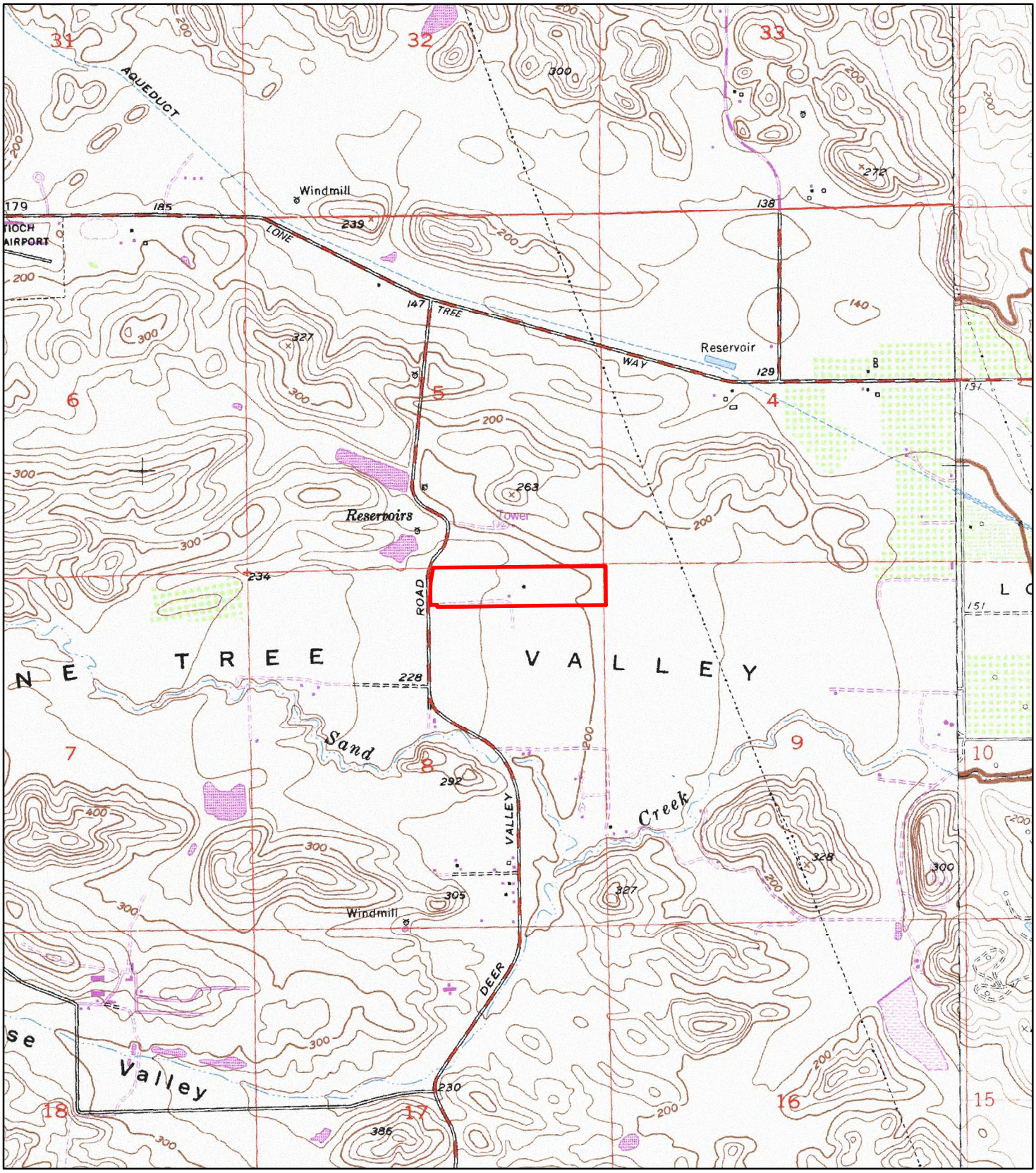
FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Regional Location and Study Area

SOURCE: National Geographic (c) 2018; Esri World Street Map (c) 2018.

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LEGEND

Study Area

FIGURE 2

0 1000 2000

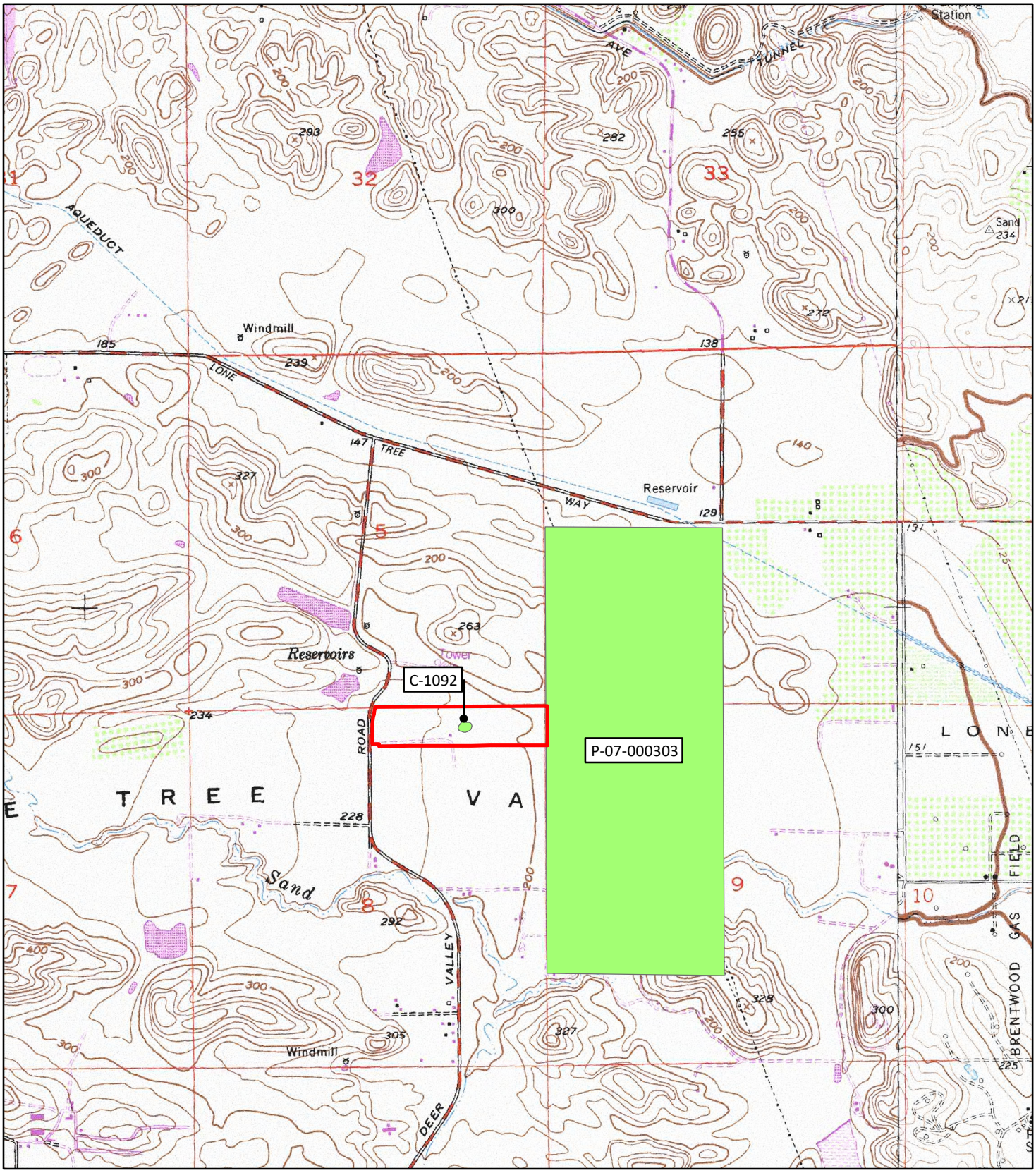
FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Study Area

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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LSA

LEGEND

Study Area

Resources

FIGURE 3

N

0 1000 2000

FEET

1600 Deer Valley Road
Antioch, Contra Costa County, California

Cultural Resource Locations

SOURCE: USGS 7.5-minute Topo Quads – *Antioch South Calif.* (1980) and *Brentwood, Calif.* (1978).

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ATTACHMENT B – NAHC SACRED LANDS FILE REVIEW

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Website: http://www.nahc.ca.gov

January 17, 2019

Timothy Jones
LSA Associates

Sent by Email: tim.jones@lsa.net
Number of Pages: 2

RE: 16000 Deer Valley Road, Antioch South, Contra Costa County

Dear Mr. Jones:

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 the NAHC. 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: Sharaya.Souza@NAHC.ca.gov or directly at (916) 573-0168.

Sincerely,

Sharaya Souza
Analyst

Attachment

Native American Heritage Commission
Native American Contacts List
1/17/2019

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road — Ohlone/Costanoan
Woodside ,CA 94062
amahmutsuntribal@gmail.com
(650) 851-7489 Cell
(650) 332-1526 Fax

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

Muwekma Ohlone Indian Tribe of the SF Bay Area
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232 — Ohlone / Costanoan
Castro Valley ,CA 94546
cnihmeh@muwekma.org
(408) 464-2892
(408) 205-9714

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

The Ohlone Indian Tribe
Andrew Galvan
P.O. Box 3388 — Ohlone/Costanoan
Fremont ,CA 94539 — Bay Miwok
chochenyo@AOL.com — Plains Miwok
(510) 882-0527 Cell — Patwin
(510) 687-9393 Fax

Wilton Rancheria
Raymond Hitchcock, Chairperson
9728 Kent Street — Miwok
Elk Grove ,CA 95624
rhitchcock@wiltonrancheria-nsn.gov
(916) 683-6000 Office
(916) 683-6015 Fax

This list is current as of the date of this document and is based on the information available to the Commission on the date it was produced.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code,Section 5097.94 of the Public Resources Code, or Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native American Tribes for the proposed:
16000 Deer Valley Road, Antioch South, Contra Costa County.

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APPENDIX G

NOISE MEASUREMENT SHEETS

Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-1 Date: 9/16/2020 Time: From 10:34 a.m. To 10:49 a.m.

Site Location: Southern terminus of Oneida Way, west sidewalk

Primary Noise Sources: Distant construction noise at tract east of project site and local traffic.

Measurement Results

	dBA
L_{eq}	46.9
L_{max}	57.2
L_{min}	36.0
L_{50}	42.3
L_{90}	37.8

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	8
Temperature (F)	77
Humidity (%)	48

Comments: Without construction, would be rather quiet

Location Photo:



Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-2 Date: 9/17/2020 Time: From 11:26 a.m. To 11:41 a.m.

Site Location: Southern property line, eastern terminus of paved road, north of HVAC at hospital

Primary Noise Sources: General ambient noise/ HVAC equipment

Measurement Results

	dBA
L_{eq}	57.9
L_{max}	70.5
L_{min}	55.8
L_{50}	57.4
L_{90}	56.8

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	3
Temperature (F)	78
Humidity (%)	54

Comments: 16 foot wall around mechanical equipment

Location Photo:



Project Number: CAN2002 Test Personnel: J.T. Stephens
Project Name: Deer Valley Estates Equipment: LD LxT

Noise Measurement Survey

Site Number: ST-3 Date: 9/17/2020 Time: From 12:19 p.m. To 12:34 p.m.

Site Location: North side of Wellness Way, just east of 1st parking lot entrance

Primary Noise Sources: Traffic on Wellness Way and Deer Valley Road, parking lot activities

Measurement Results

	dBA
L_{eq}	60.5
L_{max}	81.4
L_{min}	38.6
L_{50}	48.3
L_{90}	42.4

Atmospheric Conditions

Maximum Wind Velocity (mph)	
Average Wind Velocity (mph)	3
Temperature (F)	78
Humidity (%)	54

Comments:

Location Photo:



Noise Measurement Survey – 24 HR

Project Number: CAN2002
Project Name: Deer Valley Estates

Test Personnel: J.T. Stephens
Equipment: LD Spark 706RC

Site Number: LT-1 Date: 9/16-17/2020

Time: From 10:00 am To 10:00 am

Site Location: 70 feet east of Deer Valley Road Centerline

Primary Noise Sources: Traffic on Deer Valley Road

Comments:

Location Photo:



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