Branaugh Property
Stage 2 Planned Development

CEQA Addendum

December 15, 2022
Planning Application Number: PLPA-2021-00014

Branaugh Stage 2 Planned Development

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Project Overview

This Initial Study has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA) and assesses the potential environmental impacts of implementing the proposed project described below. The Initial Study consists of a completed environmental checklist and a brief explanation of the environmental topics addressed in the checklist.

The subject of this Initial Study is the Branaugh Property Stage 2 Planned Development project, which includes development of residential and industrial uses on approximately 40.2 acres in eastern Dublin within the Eastern Dublin Specific Plan (EDSP) area and Fallon Village project site. Implementation of the proposed project would result in subdivision of the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and EDSP. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and EDSP. In addition, the project proposes to optimize the signal timing at the intersection of Central Parkway and Sunset View Drive to improve existing traffic operations, particularly during peak periods.

Prior CEQA Analysis

Prior CEQA analysis includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan Environmental Impact Report (EIR) (1993); 2) the East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the "EDSP EIRs" or "previous CEQA findings," and are described below.

Eastern Dublin General Plan Amendment and Specific Plan EIR (1993)

The Eastern Dublin General Plan Amendment and Specific Plan EIR and an addendum (Eastern Dublin EIR) were certified by the City Council on August 22, 1994. This EIR analyzed General Plan Amendments affecting a 6,920-acre area and the adoption of the Eastern Dublin Specific Plan (EDSP), which encompassed a 3,328-acre area and provides a comprehensive planning framework for future development in Eastern Dublin. The area considered in this EIR included the project site within the General Plan Amendment area. The Eastern Dublin EIR evaluated the following impacts:

- Land Use
- Population, Employment and Housing
- Traffic and Circulation
- Community Services and Facilities
- Sewer, Water and Storm Drainage
- Soils, Geology and Seismicity
- Biological Resources
- Visual Resources
- Cultural Resources
- Noise
- Air Quality
- Fiscal Considerations

The Eastern Dublin EIR identified the following significant and unavoidable impacts:

- Cumulative loss of agriculture and open space land
- Cumulative traffic
- Extension of certain community facilities (natural gas, electric and telephone service)
- Consumption of non-renewable natural resources
- Increases in energy uses through increased water treatment and disposal and through operation of the water distribution system
- Inducement of substantial growth and concentration of population
- Earthquake ground shaking
- Loss or degradation of botanically sensitive habitat
- Regional air quality
- Noise
- Alteration of visual character

The City adopted a Mitigation Monitoring Plan, which mitigation measures and monitoring plan continue to apply to development in eastern Dublin. The City Council also adopted a Statement of Overriding Considerations (Resolution No. 53–93) in connection with their certification of the Eastern Dublin EIR.

East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002)

In 2002, the City of Dublin approved an annexation, pre-zoning, and related PD-Planned Development District Stage I Development Plan for the East Dublin Properties area (same area later named “Fallon Village”). The East Dublin Properties project site consists of 1,132 acres within the EDSP area and includes in its entirety the 40.2-acre Branaugh Property. An Initial Study (IS) was prepared to determine if the East Dublin Properties project required additional environmental review beyond that analyzed in the Eastern Dublin EIR. The IS found that many of the anticipated impacts of the East Dublin Properties project were adequately addressed in the Eastern Dublin EIR given: 1) the comprehensive planning for the development area; 2) the Eastern Dublin EIR‘s analysis of buildout under the EDSP land use designations and policies; 3) the long term 20-30 year focus of the EDSP and the Eastern Dublin EIR; 4) the fact that the East Dublin Properties project was specifically contemplated in the Eastern Dublin EIR; and 5) the fact that the East Dublin Properties project consisted of the same land uses analyzed in the Eastern Dublin EIR.

Although the IS concluded that the Eastern Dublin EIR adequately analyzed most of the potential environmental impacts of the East Dublin Properties project, it also identified the potential for new significant impacts or substantially intensified impacts beyond those previously analyzed. As a result, the Eastern Dublin EIR was updated and supplemented by the Programmatic East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002 Supplemental EIR), which updated the analyses of agricultural resources, biology, air quality, noise, traffic and circulation, schools, and utilities.

In certifying the 2002 Supplemental EIR, the City adopted a Mitigation Measures and Monitoring Program and a Statement of Overriding Considerations (Resolution No. 40-02) for the following impacts:

- Exceedance of Bay Area Air Quality Management District air quality standards
- Cumulative loss/degradation of sensitive habitats
- Cumulative traffic operations at several intersections, including Dougherty Road/Dublin Boulevard, Hacienda Drive/Dublin Boulevard, and Fallon Road/Dublin Boulevard
- Freeway operations on Interstate 580 (I-580) and I-680.

These mitigation measures continue to apply to development in eastern Dublin, including the project site.

Fallon Village Supplemental EIR (2005)

In 2005, the City of Dublin considered additional approvals for the 1,132-acre Fallon Village area. These requested approvals had three components:

1. Amendments to the General Plan and EDSP to include the entire 1,132-acre Fallon Village area and to reflect changes to the land use designations on the site;

2. Revisions to the 2002 approval of the Planned Development Rezone with a Stage I Development Plan to increase the number of dwellings units by 582 to a total of 3,108 units and increase non-residential uses from 1,081,725 square feet to 2,503,175 square feet of commercial and office uses; and

3. A Stage 2 Development Plan, Vesting Tentative Map, Development Agreement, and Lot Line Adjustment for the development of the northernly 488 acres of the Fallon Village area to allow 1,078 dwelling units, a school, parks and associated use.

The City approved all three components of the Fallon Village project.

On December 6, 2005, the City certified the Final Supplemental Fallon Village Project Environmental Impact Report (2005 Supplemental EIR) that analyzed the new uses and revisions to the previous approvals for the Fallon Village project.

The 2005 Supplemental EIR identified potentially significant environmental impacts and related mitigation measures. The City adopted a Mitigation Measures and Monitoring Program for this approval that continues to apply to development in the Fallon Village area, including the project site. In addition, as part of Resolution No. 222-05, the City adopted a Statement of Overriding Considerations for the following significant and unavoidable impacts: traffic impact to Dublin Boulevard/Dougherty Road intersection, cumulative impacts to local roadways, consistent with the Alameda County Congestion Management Plan, demolition of the Fallon Ranch House and an increase in regional emissions beyond Bay Area Air Quality Management District (BAAQMD) thresholds.

The City intended this 2005 Supplemental EIR to be used by state or regional agencies in their review of permits required for development in the Fallon Village area (e.g., California Department of Fish and Wildlife Streambed Alteration Agreements, California Endangered Species Act permits, Water Quality Certification or waiver by the Regional Water Quality Control Board under the Clean Water Act) (see, Draft 2005 Supplemental EIR, p. 27).

Proposed CEQA Analysis in this Document

The proposed project is generally based on the land use designations established by the City of Dublin General Plan and EDSP. This Initial Study relies on the EDSP EIRs which collectively evaluated the development of over 3,300 acres in the eastern part of the City.

The City prepared a CEQA analysis using the City's Initial Study Checklist, dated October 11, 2022, incorporated herein by reference, to assess whether any further environmental review is required for the proposed project. Pursuant to CEQA Guidelines Section 15164, the City determined that no subsequent EIR or Negative Declaration is required for the project and an Addendum to the EDSP EIRs is the appropriate CEQA review per the following:

No Subsequent Review is Required per CEOA Guidelines Section 15162

CEQA Guidelines Section 15162 identifies the conditions requiring subsequent environmental review. After a review of these conditions, the City determined that no subsequent EIR or Negative Declaration is required for this project. This is based on the following analysis:

a) *Are there substantial changes to the project involving new or more severe significant impacts?*

There are no substantial changes to the project as analyzed in the EDSP EIRs. The proposed project would maintain all existing land uses and development regulations except for an increase in floor area ratio (FAR) to 0.40 for the warehousing uses in industrial area. As demonstrated in the Initial Study, the project does not constitute a substantial change to the EDSP EIRs analysis, will not result in additional significant impacts, and no additional mitigation measures are required.

b) *Are there substantial changes in the conditions which the project is undertaken involving new or more severe significant impacts?*

There are no substantial changes in the conditions assumed in the EDSP EIRs that would result in new or substantially more severe significant impacts from the project than were previously identified in the EDSP EIRs. The proposed project would create additional flexibility to encourage the types of industrial uses prioritized under the City's Economic Development Zone (EDZ), which are compatible with the overall character and economic health of the surrounding industrial area. This is documented in the Initial Study.

c) *Is there new information of substantial importance, which was not known and could not have been known at the time of the previous EIR that shows the project will have a significant effect not addressed in the previous EIR; or previous effects are more severe; or, previously infeasible mitigation measures are now feasible but the applicant declined to adopt them; or mitigation measures considerably different from those in the previous EIR would substantially reduce significant effects but the applicant declines to adopt them?*

As documented in the Initial Study, there is no new information showing a new or more severe significant effect beyond those identified in the EDSP EIRs. Similarly, the Initial Study documents that there would be no new or different feasible mitigation measures or alternatives to reduce significant effects of the project which the applicant declines to adopt. All previously adopted mitigations continue to apply to the project. The EDSP EIRs adequately describe the impacts and mitigations associated with the proposed development on portions of the EDSP area.

d) *If no subsequent EIR-level review is required, should a subsequent negative declaration be prepared?*

No subsequent EIR or Negative Declaration is required because there are no significant impacts of the project beyond those identified in the EDSP EIRs and no other standards for supplemental review under CEQA are met, as documented in the Initial Study.

Conclusion

This Addendum is prepared pursuant to CEQA Guidelines Section 15164 based on the attached Initial Study. Through the adoption of this Addendum and related Initial Study, the City determines that the proposed project does not require a subsequent or supplemental EIR or Negative Declaration under CEQA Section 21166 or CEQA Guidelines Sections 15162 and 15163. The City further determines that the EDSP EIRs adequately address the potential environmental impacts of the proposed project.

As provided in Section 15164 of the CEQA Guidelines, this Addendum need not be circulated for public review, but shall be considered with the prior environmental documents before making a decision on this project.

The Initial Study and EDSP EIRs are incorporated herein by reference and are available for public review during normal business hours, Monday through Friday, from 8:00 a.m. to 12:00 p.m. and 1:00 p.m. to 5:00 p.m., in the Community Development Department, Dublin City Hall, 100 Civic Plaza, Dublin CA.

Branaugh Property
Stage 2 Planned Development

Environmental Checklist/Initial Study

December 15, 2022
Planning Application Number: PLPA-2021-00009

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List of Tables

Background & Project Description

Project Title

Branaugh Property Stage 2 Planned Development

Lead Agency Name and Address

City of Dublin
Community Development Department
100 Civic Plaza
Dublin, CA 94568

Contact Person and Phone Number

Amy Million
Principal Planner
Phone: 925-833-6610
amy.million@dublin.ca.gov

Project Location

The approximately 40.2-acre project site is located in the eastern portion of Dublin, adjacent to the city boundary with unincorporated Alameda County (Assessor's Parcel Number [APN]: 905-0001-004). The project site is located east of Croak Road and south of the future extension of Central Parkway. The future Dublin Boulevard Extension Project bisects the project site. Figures 1 and 2 provide the regional location and aerial photograph of the project site and surrounding land uses, respectively.

Project Applicant's/Sponsor's Name and Address

Randy Branaugh
BEX Development
19077 Madison Ave
Castro Valley, CA 94546

General Plan Designation

Medium Density Residential (9.8 acres) and Industrial Park (30.29 acres).

Zoning

Planned Development (PD) Ordinance No. 32-05

Project Description

Project Background and Prior Environmental Review

The project is included in several previous CEQA documents, as noted below.

Eastern Dublin General Plan Amendment and Eastern Dublin Specific Plan Program EIR (State Clearinghouse No. 1991103064). A Program EIR for the Eastern Dublin General Plan Amendment (Eastern Extended Planning Area) and the Eastern Dublin Specific Plan (EDSP) was certified by the City Council in 1993 by Resolution No. 51-93. This document and its related addenda collectively are referred to as the Eastern Dublin EIR. The Eastern Dublin EIR evaluated the following impacts:

- Land Use
- Population, Employment and Housing
- Traffic and Circulation
- Community Services and Facilities
- Sewer, Water and Storm Drainage
- Soils, Geology and Seismicity
- Biological Resources
- Visual Resources
- Cultural Resources
- Noise
- Air Quality
- Fiscal Considerations

The City adopted a Statement of Overriding Considerations (Resolution No. 53–93) for the following impacts:

- Cumulative loss of agriculture and open space land
- Cumulative traffic
- Extension of certain community facilities (natural gas, electric and telephone service)
- Consumption of non-renewable natural resources
- Increases in energy uses through increased water treatment and disposal and through operation of the water distribution system
- Inducement of substantial growth and concentration of population

- Earthquake ground shaking
- Loss or degradation of botanically sensitive habitat
- Regional air quality
- Noise
- Alteration of visual character

The Eastern Dublin EIR was challenged in court and was found to be legally adequate. Two addenda documents to the Eastern Dublin EIR have been approved by the City as noted above.

East Dublin Properties Supplemental EIR (State Clearinghouse No. 2001052114). In 2001 the Eastern Dublin Property Owners (EDPO) requested annexation, Prezoning, and related approvals for a 1,120-acre area within eastern Dublin. The City prepared a Supplemental EIR (2002 SEIR) to the Eastern Dublin EIR to evaluate potential development within this area. The 2002 SEIR was certified by the City on April 2, 2002, by City Council Resolution No. 40-02. The 2002 SEIR analyzed annexation of the property to the City of Dublin and Dublin San Ramon Services District (DSRSD), amendments to the Dublin General Plan and Eastern Dublin Specific Plan, a Planned Development (PD) Prezoning, and Stage 1 Development Plan. Following certification of the 2002 SEIR, the City approved a PD Prezoning with related Stage 1 and 2 Development Plans for the site.

The 2002 SEIR analyzed the environmental impacts associated with development of up to 2,526 residential units, 581,090 square feet of commercial use, 840,360 square feet of industrial space, a junior high school, elementary school, parks and open space uses (the EDPO Project). Based on an Initial Study prepared in 2001, the 2002 SEIR provided updated analyses for agricultural resources, biological resources, air quality, noise, traffic and circulation, schools, and utilities. The City adopted a Statement of Overriding Considerations (Resolution No. 40-02) for the following impacts:

- Exceedance of Bay Area Air Quality Management District air quality standards
- Cumulative loss/degradation of sensitive habitats
- Cumulative traffic operations at several intersections, including Dougherty Road/Dublin Boulevard, Hacienda Drive/Dublin Boulevard, and Fallon Road/Dublin Boulevard
- Freeway operations on Interstate 580 (I-580) and I-680.

Fallon Village Project Supplemental EIR (State Clearinghouse No. 2005062010). A Supplemental EIR was prepared to amend the previous entitlements to include the entire 1,132-acre site within the Eastern Dublin Specific Plan area and to modify the land uses and roadway alignments established in the 2002 Stage 1 Development Plan (PD-1) to allow for future development of up to 3,108 residential units, up to 2,503,175 square feet of commercial, office, light industrial, and mixed-use development, two elementary school sites, parks and open spaces.

The Fallon Village SEIR evaluated the following impacts:

- Land Use and Planning
- Traffic and Transportation
- Community Services and Facilities
- Sewer, Water and Storm Drainage
- Soils, Geology and Seismicity
- Biological Resources
- Visual Resources
- Cultural Resources
- Noise
- Air Quality
- Hazards and Hazardous Materials
- Parks and Recreation.

The Fallon Village SEIR identified significant and unavoidable impacts associated with the traffic impacts at the Dublin/Dougherty intersection, cumulative impacts to freeway operations on Interstate 580 (I-580) and I-680, traffic levels exceeding County monitoring standards, demolition of the historic Fallon Ranch House and increase in regional air quality emissions. The City adopted a Statement of Overriding Considerations (Resolution No. 40-02) for these impacts.

Proposed Project

The proposed project consists of a Planned Development Rezone with a Stage 2 Development Plan and Vesting Tentative Parcel Map. Implementation of the proposed project would result in subdivision of the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and EDSP. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and EDSP. Table A shows the proposed development program for the project site. Figure 3 shows the overall site plan.

Table A: Proposed Development

Parcel Number	Use	Number of Units/Building Size	Gross Acreage[1]	Density (dwelling units/acre)/FAR
1	Residential	78-97 units[2]	9.87	8.0-10.0
2	Bioretention and Slope[3]	527,773 square feet[4]	30.29	0.4
3	Industrial Park			
4	Industrial Park			
TOTAL		97 units 527,773 square feet	40.16	

Source: MacKay & Somps (2021)

[1] Acreages from prior EDSP and PD-1 approvals were based on assumed boundary locations. Acreages shown have been updated to match resolved boundary data.

[2] The Stage 2 PD proposes 78 single-family lots, with an option to add Multi-Family units (duplex or triplex) to obtain a maximum of 97 units, as evaluated in the prior EIR. The unit breakdown is preliminary and the final lot and unit count would be finalized as part of subsequent approvals but would not exceed 97 units.

[3] Parcel 2 is proposed to include a bioretention basin to treat the stormwater runoff of the public streets and residential lots located in Parcel 1. Stormwater treatment for the IP portions of the project would be provided by bioretention basins within Parcels 3 and 4.

[4] The building square footage is combined for all non-residential parcels within the project. The maximum building square footage shown reflects the increase in FAR.

In 2005, the Fallon Village Planned Development (PD) Stage 1 Development Plan (Stage 1 PD) and SEIR were approved, establishing the land uses and intensities for the Fallon Village properties. The proposed project would maintain the land uses and associated acreages for the Branaugh Property as identified in the Stage 1 PD, EDSP and General Plan as shown in Table B below.

Table B: Proposed Land Uses and Densities Compared to Existing Approved Land Uses and Densities

	Proposed Stage 2 PD			Existing Approved Stage 1 PD and Eastern Dublin Specific Plan			
Land Use	**Gross Acreage[1]**	**Number of Units/ Building Size**	**Density (dwelling units/acre)/ FAR**	**Gross Acreage[1]**	**Maximum Number of Units/ Building Size**	**Density Range/Max FAR (per EDSP and Stage 1 PD)**	**Density Range/Max FAR (per EDSP EIRs)**
Medium Density Residential (MDR)	9.87	78-97 units	8.0-10 du/acre	9.87	97	6.0-14 du/acre	10 du/acre
Industrial Park (IP)	30.29	527,773 square feet	0.4 FAR	30.29	372,002 square feet	0.35 FAR[2]	0.28 FAR
Total	40.16			40.16			

Source: MacKay & Somps (2021)

[1] Acreages from prior EDSP and PD-1 approvals were based on assumed boundary locations. Acreages shown have been updated to match resolved boundary data.

[2] Higher FAR may be approved at the discretion of the City Council based on specified criteria in the EDSP.

As shown in Table B, the project proposes a 0.4 floor area ratio (FAR) for the Industrial Park (IP) portion of the project site, which is an increase from the maximum 0.35 FAR allowed in the ESDSP and Fallon Village Stage 1 PD and an increase from the maximum 0.28 FAR evaluated in the EDSP EIRs. The EDSP provides discretion to the City Council to approve a higher FAR if the proposed uses meet one or more of the following criteria:

- Unique project characteristics which result in reduced impacts relative to other uses in the same area (e.g., lower traffic generation);
- Unique project building requirements (e.g., warehouse uses that have large land coverage requirements but low employment densities); or
- Extraordinary benefits to the City.

The increase in FAR is intended to provide flexibility within the design standards to encourage the types of industrial uses prioritized under the City's Economic Development Zone (EDZ), including medical technology and bio-technology companies and start-ups. The parking requirements for the IP parcel would adhere to the Dublin Municipal Code and future tenants would be required to provide the appropriate parking as described for the proposed industrial use.

No changes to the residential portion of the property are proposed.

Access & Circulation

Primary access into the residential neighborhood would be via the proposed extension of Central Parkway to the north, within the proposed East Ranch (Croak property) development. The project proposes to optimize the signal timing at the intersection of Central Parkway and Sunset View Drive to improve existing traffic operations, particularly during peak periods. Primary access to the IP parcels would be provided by the future Dublin Boulevard extension via a full access intersection. Potential connections to the adjacent Righetti and Town & County properties are proposed to allow for internal east-west connections in addition to Dublin Boulevard.

The 9.4-acre IP uses south of Dublin Boulevard would also have potential access from the adjacent Collier Canyon Road public right-of-way, from which the site is currently accessed. If Collier Canyon Road is abandoned, the right-of-way could be used for additional landscaping or bioretention for the adjacent IP parcel. A portion of Collier Canyon Road may also need to be reserved for the future Valleylink project. If Collier Canyon Road is not abandoned, Collier Canyon Road would be improved to provide at minimum 12-foot-wide travel lanes and five-foot-wide sidewalks. There would be no direct vehicular or pedestrian circulation between the residential uses in the northern portion of the project site and the IP uses to the south. Vehicular and pedestrian circulation between the residential and industrial uses would be provided indirectly via Central Parkway, Croak Road and Dublin Boulevard. The circulation plan and street sections for the IP development are shown in Figure 4.

Internal circulation for the residential development would consist of a system of looped streets. Street C would provide the primary entrance off the proposed extension of Central Parkway. Street C would provide access to both the Righetti and Branaugh residential parcels. Streets A and B along the south would also connect the Branaugh neighborhood to the future Righetti residential neighborhood. The circulation plan and street sections for the residential development are shown in Figure 5.

Open Space and Landscaping

Although a landscape plan has not yet been prepared for the project site, the Stage 2 PD would include Landscape Design Guidelines and a planting palette to promote a cohesive landscape within the residential and industrial areas of the project site, including flowering plants that complement the site architecture, provide seasonal color, and connect adjacent uses and activities. The landscaping would also need to comply with the existing criteria in the Stage 1 PD.

Residential Development. The residential development would include a neighborhood entrance from the proposed extension of Central Parkway with a monument and thematic landscaping. Flowering accent trees would line the entry on both sides of the street and provide seasonal color. Low-growing flowering shrubs and groundcover would provide continuous interest throughout the year as well as a colorful understory to the accent trees above.

Internal streets and sidewalks of the residential community would include a variety of deciduous trees for solar exposure coupled with low growing flowering groundcover. Streets C and B would have five-foot-wide landscaping and a five-foot-wide sidewalk on both sides of the street. Other streets would have a five-foot-wide sidewalk on both sides to link the neighborhood together. Street trees would be coordinated with the utilities and streetlights to provide a continuous canopy of trees. Additional flowering trees in an irregular pattern and the screening trees adjacent to building ends would be considered to soften the architecture. Low-growing groundcover, intermediate and background shrubs would be planted in a tiered effect to provide a variety of landscapes with seasonal color and textural contrast.

Eleven lots on the east side of the neighborhood would be identified as wildfire buffer lots. Trees along these lots would be fire safe, which have a favorable rating for plant performance per the Diablo Firesafe Council. A fire access road would be located on the east side of the neighborhood, connecting to a neighborhood street in East Ranch to the north. Fencing adjacent to the fire access road would conform to the Dublin Wildfire Management Plan and consist of heavy timber wood fencing treated with fire retardant, consistent with the California Building Code (CBC).

Industrial Development. The entry to each industrial development would be clearly marked with entry features, including landscaping, varied hardscape and/or monument signs that are consistent with the architectural style of the building. All signs would conform to the City of Dublin Sign Ordinance.

Parking lot landscaping would be provided to accent driveways, frame major circulation routes, and highlight pedestrian pathways. Landscape screening would also be used to minimize the visual impact of new development. The use of vines on walls may be used to reduce their visual impact and minimize opportunities for graffiti. Parking lots adjacent to and visible from public streets would be screened using evergreen hedges or rolling earth berms.

Utilities and Infrastructure

The project site is currently served by overhead electric and communication lines and by sanitary sewer septic systems and on-site well water. Existing and proposed utility connections are discussed below.

Water. Water service would be provided by the Dublin San Ramon Services District (DSRSD). The proposed project would include the installation of new water lines on the site that would connect to the proposed potable water and recycled water mains within the future Dublin Boulevard Extension and proposed potable water main within the future Central Parkway Extension to the northwest (within East Ranch).

Wastewater. Wastewater service would be provided by DSRSD. New sanitary sewer lines would be installed within the project site and would tie into proposed sanitary sewer mains within the future Dublin Boulevard Extension and future Central Parkway Extension to the northwest (within East Ranch).

Stormwater. The project site is currently largely undeveloped and covered in non-native grassland and, therefore, contains minimal impervious surfaces. Upon construction of the proposed project, approximately 60 percent of the project site would be covered with impervious surfaces, and the remaining 40 percent would be covered by pervious surfaces, consisting of the landscaped areas. The proposed project would include approximately 43,151 square feet of bioretention space on the project site that would be used for stormwater quality control. The proposed project would include multiple bioretention basins and storm drains throughout the project site, which would connect to downstream hydromodification facilities prior to discharging to existing/proposed stormdrain pipes. Hydromodification vaults would be included on-site to provide flow duration controls for the project. Proposed storm drainage facilities would conform to the Alameda County C.3 Stormwater Technical Guidelines and requirements. Runoff from the proposed project would drain to future Dublin Boulevard Extension and Collier Canyon Road and ultimately to the G3 box culvert along Fallon Road.

Electricity and Gas. Electricity and gas service would be provided to the project site by the Pacific Gas & Electric Company (PG&E). The proposed project would include connections to proposed electricity and natural gas lines within the future Dublin Boulevard Extension and future Central Parkway Extension (within East Ranch).

Demolition, Grading and Construction

The proposed project would include demolition of the existing buildings on the project site. Construction debris, such as old foundations and structures, would be collected and hauled off site for disposal. Approximately 100 cubic yards of demolition waste would be generated by the proposed project.

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 30 feet and the maximum depth of utility trenching would be approximately 15 feet.

If approved, construction of the proposed project is anticipated to begin in 2023 or once the Dublin Boulevard Extension is completed. The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months, and is anticipated to be fully improved by 2026, with development of the industrial uses pending the completion of the Dublin Boulevard Extension.

Project Entitlements

The City is the CEQA Lead Agency for the proposed project and will consider the environmental impacts of the proposed project as part of the project approval process. Permits and approvals required for the proposed project include a Planned Development Rezone with a Stage 2 Development Plan and Vesting Tentative Parcel Map No. 9306. In addition, subsequent Site Development Review Permits would be required for the project. Ministerial actions would be required for implementation of the project including issuance/approval of grading permits, encroachment permits, improvements plans, and building permits.

Environmental Setting

Project Site and Existing Facilities

The approximately 40.2-acre project site is located in the eastern portion of Dublin, adjacent to the city boundary with unincorporated Alameda County. The site is bounded by the vacant

Righetti and Town & Country properties to the west,[1] the East Ranch (Croak property) development to the north, undeveloped unincorporated Alameda County land to the east and Interstate 580 (I-580) to the south. The future Dublin Boulevard Extension bisects the project site.

Elevations on the project site range from approximately 370 to 580 feet above sea level with the highest elevations in the northern portion of the parcel, and the lowest elevations along the southern fence line of the property.

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural residential development in the northwest and southern portion. The land uses on nearby properties are largely agricultural, with residential, industrial, open space, and commercial uses as well. Five habitat types were identified within the project site during plant surveys: California annual grassland (31.41 acres), seasonal wetland (0.18 acre), developed (8.23 acres), culvert (0.1 acre), and ephemeral stream (0.04 acre).[2]

Existing structures on the project site include several houses, a barn and several sheds, located in the southern portion of the property, and a house located in the northwestern portion of the property. The agricultural and landscape contracting complex in the southern portion of the property includes several structures, including the barn, shed and house that were constructed circa 1958. A second house in this area was constructed circa 1965. The barn retains the original structure of the three-bay barn; however, it has been significantly altered over time. The yard surrounding the barn has been paved with asphalt for use in vehicle loading and parking, and a modern modular building is located to the immediate west. A single-story shed (circa 1958) is located southwest of the barn. Several modern shed buildings are also located in this portion of the project site. A third house, constructed in 1980, is located in the northwestern portion of the project site. All of the existing site structures would be demolished as part of the proposed project.

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1 Current plans for the Righetti property would include development of 78 residential units (with the potential to provide up to 96 units), up to 372,350 square feet of industrial use and up to 321,125 square feet of campus office/light industrial uses.

2 H.T. Harvey. 2021. Results of Protocol-level Special-Status Plant Surveys in Support of the Branaugh Property Development. May 27.

Environmental Checklist

Environmental Factors Potentially Affected by the Project

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 on the following pages.

	Aesthetics		Agricultural 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 / Traffic		Tribal Cultural Resources
	Utilities / Service Systems		Wildfire		Mandatory Findings of Significance

Instructions

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question (see Source List, attached). A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially

significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that any effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. "Negative Declaration: Less Than Significant With Mitigation Incorporated: applies where incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.
5. Earlier Analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, one or more effects have been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case a discussion should identify the following on attached sheets:
   a. Earlier analysis used. Identify earlier analyses and state where they are available for review.
   b. Impacts adequately addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
   c. Mitigation measures. For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
   - the significance criteria or threshold, if any, used to evaluate each question; and

- o the mitigation measure identified, if any, to reduce the impact to less than significance

10. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?

    Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

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 or a 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 EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	X

CITY OF DUBLIN

__________________________________ ______________________________

Amy Million, Principal Planner Date

Explanation of Environmental Checklist Responses

Aesthetics

	ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
1.	**AESTHETICS. Would the project:**			
a)	Have a substantial adverse effect on a scenic vista?			X
b)	Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X
c)	Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality			X
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X

Environmental Setting

The project site is located within the southernmost portion of the Eastern Dublin area. As described in the Eastern Dublin EIR, the southern portion of the Eastern Dublin area is flat, open, and covered with grasslands and agricultural field crops. The northern portions include steeper foothills with canyons settled with farms and ranchettes. Much of the Eastern Dublin area has since been developed consistent with the land uses identified in the EDSP and subsequent planning approvals.

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural residential development in the northwest and southern portions of the site. Developed/landscaped areas consist of parking lots, driveways, a house, and other buildings associated with the property, and landscaping/planted vegetation. A swale bisects the northern half of the property, which follows what was likely a historic drainage through the project site.

The project site slopes gently down from the highest elevations in the northern portion of the parcel to the lowest elevations along the southern fence line of the property.

No designated State scenic highways are located near the project site. However, I-580 located just south of the project site, is an eligible State scenic highway and a designated Alameda County scenic route. The project site is visible from both eastbound and westbound I-580.

Vehicle headlights and taillights on area roadways, and lighting associated with I-580, are the existing sources of light and glare in the project area.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to standardized tract development, obscuring distinctive natural features, alteration of hillsides, ridges, and watercourses, alteration of Dublin's visual identity as a freestanding city, scenic vistas, and scenic routes. All of these impacts were determined to be less than significant with implementation of mitigation measures identified in the Eastern Dublin EIR. The Eastern Dublin EIR determined that impacts associated with the alteration of the rural/open space visual character of the project area and alteration of the visual character of the flatlands would be significant and unavoidable. Thus, a Statement of Overriding Considerations was adopted. The following mitigation measures would apply to the proposed project:

MM 3.8/1.0 Establish a visually distinctive community which preserves the character of the natural landscape by protecting key visual elements and maintaining views from major travel corridors and public spaces.

MM 3.8/2.0 Implement the land use plan for the Project site which emphasizes retention of the predominant natural features, such as ridgelines and watercourses, and sense of openness that characterize eastern Dublin.

MM 3.8/3.0 Preserve the natural open beauty of the hills and other important visual resources, such as creeks and major stands of vegetation.

MM 3.8/4.0 Visual impacts of extensive grading shall be reduced by sensitive engineering design, by using gradual transition from graded areas to natural slopes and by revegetation.

MM 3.8/4.1 Alterations of existing natural contours shall be minimized. Grading shall maintain the natural topography as much as possible. Grading beyond actual development areas shall be for remedial purposes only.

MM 3.8/4.4 Graded slopes shall be re-contoured to resemble existing landforms in the immediate area. Cut and graded slopes shall be revegetated with native vegetation suitable to hillside environments.

MM 3.8/4.5 The height of cut and fill slopes shall be minimized to the greatest degree possible. Grades for cut and fill slopes should be 3:1 or less whenever feasible.

MM 3.8/5.1 Structures shall not be located where they would obstruct scenic views or appear to extend above an identified scenic ridgetop (i.e., silhouetted) when viewed from designated scenic routes.

MM 3.8/6.0 Tassajara Creek and other stream corridors are visual features that have special scenic value for the planning area. The visual character of these corridors should be protected from unnecessary alteration or disturbance and adjoining development should be sites to maintain visual access to the stream corridors.

MM 3.8/7.0 Preserve views of designated open space areas.

MM 3.8/8.1 The City should require that projects with potential impacts on scenic corridors to submit a detailed visual analysis with development project application. Applicants will be required to submit graphic simulations and/or section drawn from affected travel corridors through the parcel in question, representing typical views of the parcel from scenic routes. The graphic depiction of the location and massing of the structure and associated landscaping can then be used to adjust the project design to minimize the visual impacts.

2002 SEIR

The effects of the Eastern Dublin Property Owners (EDPO) Project on visual resources were addressed in the Initial Study prepared as part of the 2002 SEIR. The Initial Study determined that the EDPO Project would have no impacts beyond those identified in the Eastern Dublin EIR because the development footprint and intensity of development was the same as previously analyzed.

Fallon Village SEIR

No additional impacts or mitigation were identified in the Fallon Village SEIR.

Project Impacts and Mitigation Measures

(a) Scenic vistas, views

A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. Aesthetic components of a scenic vista generally include: 1) scenic quality; 2) sensitivity level; and 3) view access. The City of Dublin General Plan identifies the visually sensitive ridgelines located in the open space areas in the Western and Eastern Extended Planning Areas of the City as scenic resources. I-580 provides scenic views of these ridgeline areas and is an Alameda County-designated scenic route.

Implementation of the proposed project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and EDSP. Residential development would be two to three stories in height, with a maximum height of 35 to 40 feet. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and EDSP. The proposed industrial development would be a maximum of three-stories high, with a maximum height of 35 feet, which is consistent with the maximum height of 35 feet established in the Fallon Village Stage 1 PD. The proposed development would be visible from public vantage points, including Collier Canyon Road, the future Dublin Boulevard Extension, and I-580, which is an eligible State scenic highway and a designated Alameda County scenic route.

The Eastern Dublin EIR also contains Figure 3.8-H, Visually Sensitive Ridgelands, depicting portions of the Eastern Dublin area that contains ridges and ridgelands which are considered to be visually sensitive. As identified in the Eastern Dublin EIR, the lower and hillside areas located closer to I-580 with topographic elevations generally ranging between approximately 460 and 480 feet above sea level are designated as "Visually Sensitive Ridgelands-restricted development." As described above, the Eastern Dublin EIR determined that development associated with implementation of the EDSP would alter the character of existing scenic vistas and obscure important sightlines. These impacts were determined to be less than significant with implementation of mitigation measures identified in the Eastern Dublin EIR and listed above.

Consistent with the findings in the Fallon Village SEIR, due to the elevation and existing topography of the project site, proposed development would continue to limit views of the primary ridgeline and affect scenic vistas from I-580 and other public vantage points. Although the density of the proposed industrial use would be greater than previously analyzed in the EDSP EIRs, the general type and massing of buildings would not be significantly different than analyzed in the EDSP EIRs. The proposed industrial use would be located in the southern portion of the project site where the elevation is lower and the topography is flatter; thereby minimizing the potential visual effect of the increased height. However, consistent with the findings of the Fallon Village SEIR, proposed development would continue to limit views of the primary ridgeline, designated as scenic resource in the Eastern Dublin EIR.

Consistent with Mitigation Measure 3.8/5.0, identified in the Eastern Dublin EIR, the proposed project would be required to undergo site-specific design review to ensure the project is consistent with City of Dublin design standards, property development regulations and performance standards related to aesthetics and to lessen the severity of visual changes resulting from the proposed project. Further, the proposed project would be required to implement other Mitigation Measures (MM 3.8/3.0, MM 3.8/4.0, MM 3.8/4.1, MM 3.8/4.4, MM 3.8/4.5, MM 3.8/5.1) identified in the Eastern Dublin EIR, which include design features to minimize visual impacts (e.g., sensitive grading, sensitive engineering design, revegetation).

(b) Scenic resources

As described above, I-580 located just south of the project site, is an eligible State scenic highway and an Alameda County designated scenic route. The I-580 scenic corridor is defined as the area which is both within 3,500 feet on each side of the centerline of I-580 and visible from I-580. Per the City of Dublin General Plan policies, design review would be required for all projects visible from a designated scenic route in order to enhance a positive image of Dublin as seen by through travelers.

As described in Section 1.a, the proposed project would alter views from I-580 and result in a change in visual conditions, as described in the EDSP EIRs. However, development of the proposed project would not substantially damage scenic resources, such as trees, rock outcroppings, or historic buildings, as these resources are not currently present on the project site. Further, the mitigation measures identified in the EDSP EIRs and the visual policies in the City of Dublin General Plan would apply to the proposed project, and the proposed project would be required to undergo site-specific design review to ensure the project is consistent with City of Dublin design standards.

(c) Substantially degrade the visual character of public views of the site or surrounding area

Development of the proposed project would alter the existing visual character of the project area and vicinity by introducing residential and industrial uses onto the existing largely undeveloped parcel. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and EDSP. Residential development would be two to three stories high, with a maximum height of 35 to 40 feet. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and EDSP. The proposed industrial development would be a maximum of three-stories high, with a maximum height of 35 feet, which is consistent with the maximum height of 35 feet established in the Fallon Village Stage 1 PD. The proposed project would include establishment of residential and industrial design guidelines to regulate the design of the residential and industrial uses within the project site. Design guidelines include variation in roof forms and heights, setbacks for the upper floors, variation in materials, and earth-toned colors to minimize the visual scale of proposed structures and provide visual interest. Landscaping is proposed to promote a cohesive landscape within the residential and industrial areas of the project site, including flowering plant material that complements the site architecture, provides seasonal color, and connects adjacent uses and activities. Implementation of these design elements would further mitigate the visual impact of the building heights and massing.

As described above, the Eastern Dublin EIR determined that visual impacts associated with the alteration of the rural/open space character of the project area and alteration of the visual character of the flatlands would be significant and unavoidable. Other impacts to visual resources, including impacts to distinctive natural features, scenic vistas, and scenic routes, and alteration of hillsides, ridges, and watercourses were determined to be less than significant with implementation of mitigation measures identified in the Eastern Dublin EIR. Although the density of the proposed industrial use would be greater than previously analyzed in the EDSP EIRs, it is limited to warehousing uses only and the general type and massing of buildings would not be significantly different. Consistent with the findings of the Eastern Dublin EIR, the proposed project would alter the visual character of the project site, which would be converted from rural development to urban development, with industrial and residential buildings. The difference in density would not substantially increase the severity of this previously identified impact. Therefore, changes to the existing visual environment would be the same as described in the EDSP EIRs.

The mitigation measures identified in the Eastern Dublin EIR and the visual policies in the City of Dublin General Plan would apply to the proposed project. In addition, the proposed project would be required to undergo site-specific design review to ensure the project is consistent with City of Dublin design standards, property development regulations and performance standards related to aesthetics and to lessen the severity of visual changes resulting from the proposed project.

(d) Create a new source of substantial light or glare

Similar to the development evaluated in the EDSP EIRs, the proposed project would introduce new light sources to the project site, including new building lighting, light standards along proposed roadways, parking areas and pedestrian pathways, and loading facilities. At night, these new sources of light would be visible from a distance; however, the addition of new light sources associated with the proposed project would generally blend in with lighting proposed as part of adjacent development projects to the north and west and would represent a continuation of the existing development within this area of the City. Consistent with City requirements, exterior lighting would be shielded so that direct glare and reflections are confined within the boundaries of the project site. Site lighting would be directed downward and away from adjoining properties and public rights-of-way such that no light spillover onto adjacent properties or streets would occur. In addition, the project site is within Safety Zone 6 of the Livermore Executive Airport Land Use Compatibility Plan (ALUCP) and development on the project site must meet the criteria established by the ALUCP prior to development.

Glare is caused by light reflections from pavement, vehicles, and building materials such as reflective glass and polished surfaces. During daylight hours, the amount of glare depends on intensity and direction of sunlight. Glare can create hazards to motorists and can be a nuisance for pedestrians and other viewers. Proposed exterior building materials primarily include stucco with stone, brick or wood. These non-reflective building materials would not result in potential glare impacts within the project site or surrounding areas, and notably at the street level. Therefore, the proposed project would not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified aesthetic/visual impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to aesthetic resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Agricultural and Forestry Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
2.	**AGRICULTURE 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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. 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?			X
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X
c)	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?			X
d)	Result in the loss of forest land or conversion of forest land to non-forest use?			X
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?			X

Environmental Setting

The project site is not used for agricultural production and is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. The surrounding area is characterized by undeveloped open space and residential uses.

The Farmland Mapping and Monitoring Program categorizes the project site as Grazing Land and Other Land. Grazing Land is defined as land on which the existing vegetation is suited to the grazing of livestock. Other Land includes land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than forty acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified less than significant impacts related to discontinuation of agricultural uses, loss of farmlands of local importance, indirect impacts resulting from non-renewal of Williamson Act contracts, and conversion of non-urban lands. Although the Eastern Dublin EIR determined that the loss of agricultural uses within the EDSP was less than significant, the Eastern Dublin EIR identified the cumulative loss of agricultural lands and open space as a significant unavoidable impact and a Statement of Overriding Considerations was adopted for this impact.

2002 SEIR

A review of potential prime agricultural soils within the project area was conducted as part of the 2002 SEIR. The 2002 SEIR determined that no additional prime agricultural lands occur in the project area beyond those identified at the time the Eastern Dublin EIR was certified; therefore, no new significant impacts related to prime agricultural soils or cancellation of Williamson Act contracts were identified.

Fallon Village SEIR

No additional impacts or mitigation related to agricultural resources were identified in the Fallon Village SEIR.

Project Impacts and Mitigation Measures

(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland)

As described above, the project site is not used for agricultural production and is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, the proposed project would not convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance, or any other type of farmland to non-agricultural uses. No new impacts or substantially more severe significant impacts to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur. No additional analysis is required.

(b) Conflict with existing zoning for agricultural use or a William Act contract

The project site is currently classified as Planned Development (PD) Ordinance No. 32-05 on the City's Zoning Map. The project site is not currently used for agricultural purposes, not zoned for agricultural uses, and is not protected by, or eligible for, a Williamson Act contract. Therefore, the proposed project would not conflict with existing zoning for agricultural uses or Williamson Act contracts.

(c) Conversion of land from Farmland or forest use

As described above, the project site is currently classified as Planned Development (PD) Ordinance No. 32-05 on the City's Zoning Map, which allows for a mix of residential and industrial uses on the project site. Neither the project site nor the surrounding area is zoned for agricultural use, forest land, timberland, or timberland production.

(d) Result in loss of forest land or conversion of forest

No forest or timberland exists on the project site or in the surrounding area and the proposed project would not result in the loss of forest land or the conversion of forest land to non-forest use.

(e) Conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use

None of the project parcels are currently used as farmland or forest land. The proposed project would not result in the conversion of farmland on or off the project site to non-agricultural uses because there are no agricultural uses on or in the immediate vicinity of the project site. Likewise, the proposed project would not result in impacts related to changes in the existing environment that could result in the conversion of agricultural land to non-agricultural uses.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified agricultural impacts, nor result in new significant impacts to agricultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

California Department of Conservation (DOC). California Farmland Conservancy. California Important Farmland Finder. Website: maps.conservation.ca.gov/dlrp/ciff/ (accessed June 24, 2021).

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Air Quality

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
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. Would the project:**			
a)	Conflict with or obstruct implementation of the applicable air quality plan?			X
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?			X
c)	Expose sensitive receptors to substantial pollutant concentrations?			X
d)	Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?			X

Environmental Setting

The proposed project is located in the City of Dublin 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 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 Dublin, 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 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 federal government. The State has also set standards for sulfate and visibility. BAAQMD is under State non-attainment status for ozone and particulate matter standards. 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.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified that mobile source CO emissions would be less than significant and construction dust emissions would be less than significant with implementation of mitigation measures identified in the Eastern Dublin EIR. In addition, the Eastern Dublin EIR identified that impacts associated with construction equipment/vehicle emissions, mobile source ROG and NO_x emissions, and stationary source emissions would be significant and unavoidable. Thus, a Statement of Overriding Considerations was adopted. The following mitigation measures would apply to the proposed project:

MM 3.11/1.0 The City of Dublin shall:

- Require watering in late morning and at the end of the day; the frequency of watering should increase if wind exceeds 15 mph. Watering should include all excavated and graded areas and material to be transported off-site. Use recycled or other non-potable water resources where feasible.
- Require daily cleanup of mud and dust carried onto street surfaces by construction vehicles.
- Require excavation haul trucks to use tarpaulins or other effective covers.
- Require that, upon completion of construction, measures shall be taken to reduce wind erosion. Replanting and repaving should be completed as soon as possible.
- Require that unnecessary idling of construction equipment is avoided.
- Require that, after grading is completed, fugitive dust on exposed soil surfaces shall be controlled using the following methods:
  - All inactive portions of the construction site should be seeded and watered until grass growth is evident.
  - Require that all portions of the site shall be sufficiently watered to prevent excessive amounts of dust.
  - Require that, at all times, the following procedures should be followed:
    - On-site vehicle speed shall be limited to 15 mph.
    - Use of petroleum-based palliative shall meet the road oil requirements of the Air Quality District. Non-petroleum-based tackifiers may be required by the Public Works Director.

- The Public Works Department will handle all dust complaints. The Public Works Director may require the services of an air quality consultant to advice the City on the severity of the dust problem and additional ways to mitigate impacts on residents, including temporarily halting project construction. Dust concerns in adjoining communities as well as the City of Dublin shall be controlled. Control measures shall be related to wind conditions. Air quality monitoring of PM levels shall be provided as directed by the Public Works Director in Dublin.

MM 3.11/2.0 Minimize construction interference with regional non-project traffic movement by:

- Scheduling receipt of construction materials to non-peak travel periods.
- Routing construction traffic through areas of least impact sensitivity.
- Limiting lane closures and detours to off-peak travel periods.
- Providing ride-share incentives for contractor and subcontractor personnel.

MM 3.11/3.0 Require emissions control from on-site equipment through a routine mandatory program of low-emissions tune-ups.

MM 3.11/4.0 Require preparation of a construction impact reduction plan that incorporates all proposed air quality mitigation strategies with clearly defined responsibilities for plan implementation and supervision.

MM 3.11/5.0 Exercise interagency cooperation with a sub-regional and on a regional basis to integrate air quality planning efforts with transportation, transit, and other infrastructure plans.

MM 3.11/6.0 Maintain consistency among specific development plans and regional transportation and growth management plans.

MM 3.11/7.0 Implement transportation demand management (TDM) techniques to reduce mobile source emissions.

MM 3.11/8.0 Optimize the existing transportation system to reduce congestion and shift travel to non-peak travel periods.

MM 3.11/9.0 Coordinate levels of growth with roadway transportation facilities improvements to accommodate travel demand without inducing demand by providing excess system capacity.

MM 3.11/10.0 Encourage mixed-use development that provides housing, jobs, goods and services in close proximity.

MM 3.11/11.0 Require linkage between growth of housing and job opportunities consistent with a positive sub-regional contribution to jobs/housing ratio balances.

MM 3.11/12.0 Stationary source emissions associated with Project development should also be minimized where feasible to reduce overall cumulative impacts. Minimum energy conservation standards are established in Title 24 of the California Code of Regulations. Design practice can achieve a slightly greater level of conservation than the minimum standards. A conservation target level for some fraction of Eastern Dublin development of 10 percent above the minimum should be implemented as an appropriate acknowledgement of the desired "environmentally-friendly" community character for this Project.

MM 3.11/13.0 Solid waste recycling should be included in all development planning to ensure that recycling criteria specified in AB-939 can be most easily met.

2002 SEIR

A review of potential operational air quality impacts was conducted as part of the 2002 SEIR. The 2002 SEIR determined that no additional operational air quality impacts would occur beyond those identified at the time the Eastern Dublin EIR was certified; therefore, no new significant impacts related to air quality were identified.

Fallon Village SEIR

No additional impacts were identified in the Fallon Village SEIR. However, the Fallon Village SEIR identified the following supplemental mitigation measures that would be applicable to the proposed project:

SM-AQ-1: In addition to the measures identified in Mitigation Measure 3.11/1.0 of the East Dublin EIR, the City of Dublin shall:

a) Require construction contractors to water or cover stockpiles of debris, soil, sand or other materials that can be blown by the wind.

b) Require construction contractors to sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites.

c) Require construction contractors to install sandbags or other erosion control measures to prevent silt runoff to public roadways.

SM-AQ-2: In addition to the measures identified in Mitigation Measure 3.11/5.0-11.0 of the East Dublin EIR, the City of Dublin shall require that the following be implemented:

a) The Project proponent should coordinate with LAVTA for the eventual extension of transit service to the Project area. Project proponents should construct or reserve necessary right-of-way for transit facilities such as bus turnouts/bus bulbs, benches, etc.

b) Bicycle land and/or paths, connected to community-wide network should be provided as part of the Stage 1 Development Plan.

c) Sidewalks and/or paths, connected to adjacent land uses, transit stops, and/or community-wide network should be provided as part of the Stage 1 Development Plan.

d) Consider shuttle service to regional transit system or multimodal center.

e) Consider providing a satellite telecommute center for Project residents if this is feasible in terms of a convenient location.

f) Provide interconnected street network, with a regular grid or similar interconnected street pattern.

SM-AQ-3: Same as Supplemental Mitigation AQ-2.

Project Impacts and Mitigation Measures

(a) Consistency with air quality plans

BAAQMD's 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 (GHG) 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.

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 GHG emissions and protect climate.

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 below in Section 3b, implementation of the proposed project would result in less-than-significant operation-period emissions and, with implementation of implementation of Supplemental Mitigation Measure SM-AQ-1, as modified below, and Mitigation Measures 3.11/2.0 and 3.11/3.0 from the Eastern Dublin EIR, 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- GHG Pollutants Measures.

Stationary Source Control Measures. The Stationary Source Control 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 BAAQMD and then enforced by BAAQMD's Permit and Inspection programs. Since the project would not include any stationary sources of emissions, the Stationary Source Control Measures of the Clean Air Plan are not applicable to the project.

Transportation Control Measures. BAAQMD identifies Transportation Control 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. The project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development within the EDSP area. The proposed project would increase pedestrian connectivity through the site and to adjacent developments, which would support the ability of employees and residents to use alternative modes of transportation. Therefore, the project would promote BAAQMD initiatives to reduce vehicle trips and vehicle miles traveled (VMT) 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. 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 enact 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 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.

<u>Clean Air Plan Implementation.</u>

As discussed above, the proposed project would 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. The EDSP EIRs did not evaluate consistency with the applicable clean air plan; however, because the proposed project would be consistent with the Clean Air Plan, the proposed project would not result in any new or more severe impacts compared to those previously identified in the EDSP EIRs.

(b) Violate air quality standards or cause cumulatively considerable air pollutants

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). These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. As identified above, 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 ROG, 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. As discussed above, the EDSP EIRs found that that proposed development would result in significant and unavoidable impacts associated with construction activities. Mitigation Measures 3.11/1.0, 3.11/2.0, 3.11/3.0, and 3.11/4.0, and SM-AQ-1 were identified, but were insufficient to reduce impacts to a less-than-significant level.

During construction of the proposed project, construction dust would affect local and regional air quality at various times during the build-out period of the project. The dry, windy climate of the area during the summer months combined with the fine, silty soils of the region create a high potential for dust generation. Emissions during the grading phase of construction are primarily associated with the exhaust of large earth moving equipment and the dust which is generated through grading activities. Emissions in later stages of construction are primarily associated with construction employee commute vehicles, asphalt paving, mobile equipment, stationary equipment, and architectural coatings.

The effects of construction activities would be increased dustfall and locally elevated levels of PM_{10} near the construction activity. Depending on the weather, soil conditions, the amount of activity taking place, and nature of dust control efforts, these impacts could affect existing or future residential areas within or near the project.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. 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 2020.4.0, consistent with BAAQMD recommendations. The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months, and is anticipated to be fully operational by 2026, which was included in CalEEMod. In addition, approximately 100 cubic yards of demolition waste would be generated by the proposed project, which was also included in CalEEMod. Cut and fill from project grading would be balanced on-site. This analysis also assumes the use of Tier 2 construction equipment, as required by current CARB OFFROAD regulation. Construction-related emissions are presented in Table C. CalEEMod output sheets are included in Appendix A.

Table C: 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 $PM_{2.5}$**
Average Daily Emissions	9.7	28.6	0.8	2.6	0.8	0.8
BAAQMD Thresholds	54.0	54.0	82.0	BMP	54.0	BMP
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: LSA (November 2021).
BMP = Best Management Practices

As shown in Table C, construction emissions associated with the project would be less than significant for ROG, NO_x, $PM_{2.5}$, and PM_{10} exhaust emissions. BAAQMD requires the implementation of the BAAQMD's Basic Construction Mitigation Measures (best management practices) to minimize construction fugitive dust impacts. The EDSP EIRs identified Mitigation Measure 3.11/1.0 and Supplemental Measure SM-AQ-1 to minimize emission of dust. BAAQMD has since adopted newer and more restrictive standards to reduce construction dust and construction vehicle emissions to which the project applicant must adhere in order to reduce this construction impact to a less-than-significant level. Supplemental Mitigation Measure SM-AQ-1, as identified in the Fallon Village SEIR, has been modified, as shown below, to include BAAQMD's most current Basic Construction Measure. Mitigation Measures 3.11/2.0 and 3.11/3.0 would still be applicable to the proposed project.

SM-AQ-1: In addition to the measures identified in Mitigation Measure 3.11/1.0 of the East Dublin EIR, the City of Dublin shall:

a) Require construction contractors to water or cover stockpiles of debris, soil, sand or other materials that can be blown by the wind.

b) Require construction contractors to sweep daily (preferably with water sweepers) all paved access road, parking areas and staging areas at construction sites.

c) Require construction contractors to install sandbags or other erosion control measures to prevent silt runoff to public roadways.

d) <u>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</u>

e) <u>All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</u>

f) <u>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.</u>

g) <u>All vehicle speeds on unpaved roads shall be limited to 15 mph.</u>

h) <u>All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.</u>

i) <u>Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</u>

j) <u>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.</u>

k) 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.

l) A publicly visible sign shall be posted with the telephone number and person to contact at the City of Dublin regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

With implementation of Supplemental Mitigation Measure SM-AQ-1, as modified above, and Mitigation Measures 3.11/2.0 and 3.11/3.0, the proposed project would not result in any new or more severe impacts related to construction period emissions compared to those previously identified in the EDSP EIRs.

Operational Emissions. The EDSP EIRs found that proposed development would result in significant and unavoidable impacts associated with operation activities. Mitigation Measures 3.11/5.0, 3.11/6.0, 3.11/7.0, 3.11/8.0, 3.11/9.0, 3.11/10.0, and 3.11/11.0 and SM-AQ-2 and SM-AQ-3 were identified but were insufficient to reduce impacts to a less-than-significant level.

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 proposed project would comply with the latest CALGreen Code, which was accounted for in the analysis.

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.

Emission estimates for operation of the project were calculated using CalEEMod. Model results are shown in Table D. Trip generation rates for the project were based on the project's trip generation estimate, as identified in the Transportation Impact Review, which estimates that the proposed project would generate approximately 2,630 average daily trips.

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 D for ROG, NO_x, PM_{10}, and $PM_{2.5}$.

Table D: Project Operational Emissions

	ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Pounds Per Day				
Area Source Emissions	17.0	1.2	0.1	0.1
Energy Source Emissions	0.3	2.8	0.2	0.2
Mobile Source Emissions	6.4	6.9	14.1	3.8
Total Project Emissions	**23.7**	**10.9**	**14.4**	**4.2**
BAAQMD Thresholds	54.0	54.0	82.0	54.0
Exceed Threshold?	**No**	**No**	**No**	**No**
Tons Per Year				
Area Source Emissions	3.1	<0.1	<0.1	<0.1
Energy Source Emissions	0.1	0.5	<0.1	<0.1
Mobile Source Emissions	0.9	1.1	2.2	0.6
Total Project Emissions	**4.1**	**1.6**	**2.3**	**0.6**
BAAQMD Thresholds	10.0	10.0	15.0	10.0
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: LSA (November 2021).

The results shown in Table D indicate the project would not exceed the significance criteria for daily or annual ROG, NO_x, PM_{10} or $PM_{2.5}$ emissions; therefore, the proposed project would not have a significant effect on regional air quality.

Localized CO Impacts. The EDSP EIRs found that the project would generate additional traffic volumes, increasing local levels of carbon monoxide. However, the EDSP EIRs determined that such increases would be below the standard of air quality significance.

Emissions and ambient concentrations of CO have decreased dramatically in the Bay Area with the introduction of the catalytic converter in 1975. No exceedances of the State or federal CO standards have been recorded at Bay Area monitoring stations since 1991. BAAQMD's 2017 CEQA Guidelines include recommended methodologies for screening and quantifying concentrations of localized CO levels for intersections that would be in a project vicinity. A screening level analysis using guidance from the BAAQMD CEQA Guidelines was performed to determine the impacts of the project. The screening methodology provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to BAAQMD's 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 Alameda County Transportation Commission's congestion management programs. The proposed project would generate approximately 246 AM peak hour trips and 266 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.

(c) Expose sensitive receptors to pollutant concentrations

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 noncancer health risks. The closest sensitive receptors to the project site include a residence located approximately 710 feet east of the project site along Collier Canyon Road.

The EDSP EIRs found that the project would not result in potential impacts related to substantial pollutant concentrations. Construction of the proposed project may expose surrounding sensitive receptors to airborne particulates, as well as a small quantity of construction equipment pollutants (i.e., usually diesel-fueled vehicles and equipment). However, construction contractors would be required to implement BAAQMD's Basic Construction Mitigation Measures as identified in the Fallon Village SEIR and Supplemental Mitigation Measure SM-AQ-1, as modified above. With implementation of modified Supplemental Mitigation Measure SM-AQ-1, project construction pollutant emissions would be below BAAQMD significance thresholds. Once the project is constructed, the project would not be a source of substantial pollutant emissions. Therefore, sensitive receptors are not expected to be exposed to substantial pollutant concentrations during project construction and operation.

(d) Odors

During construction, the various diesel-powered vehicles and equipment in use on the site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is, therefore, considered to be less than significant. In addition, once the project is operational, it would not be a source of odors. Therefore, the proposed project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified air quality impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs, as modified above, there would be no new or substantially more severe significant impacts to air quality resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

BAAQMD. 2017. Final 2017 Clean Air Plan. April 19. Website: www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en (accessed November 2021).

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Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

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Biological Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
4.	**BIOLOGICAL RESOURCES. 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 Wildlife or U.S. Fish and Wildlife Service?			X
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 Wildlife or U.S. Fish and Wildlife Service?			X
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?			X
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?			X
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X
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?			X

Environmental Setting

The following discussion of biological resources within the project site is based on the results of the special-status plant surveys and the wetland delineation prepared for the proposed project (Appendices B and C).

Habitat Types

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural development in the northwest and southern portion of the project site. The land uses on nearby properties are largely agricultural, with residential, industrial, open space, and commercial uses as well. Five habitat types were identified within the study area during the plant surveys: California annual grassland (31.41 acre), seasonal wetland (0.18 acre), developed (8.23 acre), culvert (0.1 acre), and ephemeral stream (0.04 acre). These habitats are discussed below.

California Annual Grassland

The majority of the study area consists of California annual grassland habitat. Much of this grassland is currently dominated by a suite of non-native grasses, such as meadow barley (*Hordeum murinum*), soft chess (*Bromus hordeaceus*), wild oats (*Avena barbata* and *Avena fatua*), and ripgut brome (*Bromus diandrus*). Common weedy (and non-native) forbs include various species of filaree and geranium (*Erodium* spp. and *Geranium* spp., respectively), shortpod mustard (*Hirschfeldia incana*), and black mustard (*Brassica nigra*).

Several invasive species occur in the study area, including but not limited to black mustard, wild oat, and Italian ryegrass (*Festuca perennis*). There is even less diversity of species in the southern portion of the study area, where the alkaline soils were mapped, with the small patches of grassland dominated by filaree and geranium species and ripgut brome.

Developed

This habitat contains existing structures such as buildings, trailers, driveways, and parking lots. Man-made drainage ditches were also observed near the parking lot of the developed areas within the study area. This developed habitat type contains little to no vegetation and is not suitable for any rare plant species.

Ephemeral Drainage and Culvert

A single ephemeral drainage exists near the center of the study area and runs parallel to the fence that bounds the Branaugh property to the west. This segment of ephemeral drainage is rock-lined and is fed by a culvert from which a small amount of water was observed flowing during the spring survey. This segment of ephemeral stream is approximately 100 feet long and 10 feet wide and is connected at the downstream end by a culvert which conveys flows under a road to a seasonal wetland at its downstream end. This stream was verified by the United States Army Corps of Engineers (USACE) as part of the Dublin Boulevard Extension Project Jurisdictional Determination.

Seasonal Wetland

Seven seasonal wetlands were mapped within the study area. Five of the seasonal wetlands are situated in subtle depressions within the study area, located adjacent to or within a swale/saddle between two hills in the northern portion of the study area. Two additional wetlands are in an excavated ditch west of the developed area. At the time of the spring survey, these wetlands were saturated with pockets of standing water. The seasonal wetlands were dominated by hydrophytic vegetation, including Mexican rush (*Juncus mexicanus*), Italian wild rye (*Hordeum murinum*), and English plantain (*Plantago lancelota*).

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to direct habitat loss, indirect habitat loss due to vegetation removal for construction and development activities, and loss or degradation of sensitive habitat. The Eastern Dublin EIR also identified potentially significant impacts related to special-status wildlife, including San Joaquin kit fox, California red-legged frog (CRLF), California tiger salamander (CTS), western pond turtle, tri-colored blackbird, golden eagle, burrowing owl, American badger, special-status invertebrates and others. Mitigation measures were identified to reduce significant impacts. One significant and unavoidable impact was identified related to the cumulative loss or degradation of botanically sensitive habitat, and a Statement of Overriding Considerations was adopted. The following mitigation measures would apply to the proposed project:

MM 3.7/1.0 Direct disturbance or removal of trees or native vegetation cover should be minimized and be restricted to those areas actually designated for the construction of improvements.

MM 3.7/5.0 All areas of disturbance should be revegetated as quickly as possible to prevent erosion. Native trees (preferably those species already on site), shrubs, herbs, and grasses should be used for revegetation of areas to remains as natural open space. The introduction of non-native plant species should be avoided.

MM 3.7/14.0 The City should enact and enforce an erosion and sedimentation control ordinance establishing performance standards to ensure maintenance of water quality and protection of stream channels. The ordinance should regulate grading and development activities adjacent to streams and wetland areas and require revegetation of all ground disturbance immediately after construction to reduce erosion potential. Until such an ordinance is in place, the City shall require project applicants to provide a detailed erosion and sedimentation control plan as part of the project submittal.

MM 3.7/16.0 Existing sensitive habitats shall be avoided and protected where feasible.

MM 3.7/17.0 Construction near drainages shall take place during the dry season.

MM 3.7/19.0 The use of rodenticides and herbicides within the Project area should be restricted to avoid impacts on wildlife. The City shall require any poisoning programs to be done in cooperation with and under supervision of the Alameda County Department of Agriculture.

MM 3.7/20.0 The City shall require development applicants to conduct a pre-construction survey within 60 days prior to habitat modification (clearing construction and road site, etc.) to verify the presence of sensitive species, especially the San Joaquin kit fox, nesting raptors, the red-legged frog, the western pond turtle, the California tiger salamander, the tri-colored blackbird and other species of concern.

MM 3.7/22.0 Maintain a minimum buffer (at least 100 feet) around breeding sites of the red-legged frog, California tiger salamander and the western Pond turtle identified by MM 3.7/20.0.

MM 3.7/27.0 Maintain a minimum buffer (at least 300 feet) around known or those identified by pre-construction surveys (MM 3.7/20.0) nesting sites of the burrowing owl and breeding sites of the American badger during the breeding season to avoid direct loss of individuals (March – September).

2002 SEIR

The 2002 SEIR determined that implementation of the EDPO project would result in potentially significant supplemental impacts to seasonal wetlands and intermittent streams, sensitive habitats not previously analyzed, special-status plant species, San Joaquin kit fox, California red-legged frog (CRLF), special-status invertebrates, California tiger salamander (CTS), nesting raptors, golden eagle, burrowing owl, nesting passerines, and bat species. Supplemental mitigation measures were identified to reduce these impacts to a less than significant level. The following supplemental mitigation measures are applicable to the proposed project site:

SM-BIO-1 (*reference only)*: A Resource Management Plan (RMP) shall be prepared for the Project area for the City of Dublin's review and approval prior to or concurrent with submittal of any land use entitlement requests. The RMP shall include all properties in the Project area and any necessary off-site mitigation lands, and address consistency with local policies, such as the Stream Restoration Program and the Grazing Management Plan and mitigation measures contained in the Eastern Dublin EIR and this SEIR (for the full text of this mitigation see Chapter 3.3 [in the SEIR]).

SM-BIO-2: Plant surveys, as outlined in United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) protocols, shall be conducted across the Project area in early spring, late spring, and late summer to confirm presence or absence of special-status plant species. Results of these surveys shall be addressed in the RMP (SM-BIO-1) and in project-level environmental review of all subsequent development applications in the Project area.

SM-BIO-3: Once presence is determined for a special-status plant species, areas supporting the species should be avoided to the extent feasible.

SM-BIO-4: If a special-status plant species cannot be avoided, then the area containing the plant species must be measured and one of the following steps must be taken to ensure replacement on a 1:1 ratio (by acreage):

a) Permanently preserve, through use of a conservation easement or other similar method, an equal amount of acreage either within the Project area or off-site that contains the plant; or

b) Harvest seeds from the plants to be lost or use seeds from another source within the Tri-valley area and seed an equal amount of area suitable for growing the plant either within the Project area or off-site. Such area shall be preserved and protected in perpetuity. If the plants fail to establish after a five-year period, then step “a” above must be implemented.

   Prior to submittal of a Stage 2 development plan or tentative map, the developer shall submit a written report to the City for its review and approval demonstrating how the developer will comply with this mitigation measure, including the steps it will take to ensure that transplanting or seeding will be successful.

SM-BIO-5: To the extent feasible, implementation of the Project through subsequent preparation of Stage 2 development proposals on a property-by-property basis shall be designed to avoid and minimize adverse effects to waters of the United States (which include seasonal wetlands and intermittent streams) within the Project area. Examples of avoidance and minimization include (1) reducing the size of future individual development projects within the Project area, (2) design future development projects within the Project area so as to avoid and/or minimize impacts to waters of the United States, and (3) establish and maintain wetland or upland vegetated buffers to protect open water such as streams. In order to protect the particularly sensitive Arroyo willow riparian woodland and red-legged frog habitat found in the Fallon Road drainage from Fallon Road upstream to its terminus, future development projects within the Project area either shall completely avoid this drainage or limit impacts to bridge crossings (as opposed to fill) or other such minimally impacting features.

SM-BIO-6: To the extent that avoidance and minimization are not feasible and wetlands, intermittent streams or other waters will be filled, such impacts shall be mitigated at a 2:1 ratio (measures by acreage) within the Project area if feasible, through the creation, restoration or enhancement of wetlands, intermittent streams or other waters. Such mitigation area shall be preserved and protected in perpetuity. Prior to submittal of a Stage 2 development plan or tentative map for any property within the Project area, the property owner shall submit a written report to the City for its review and approval demonstrating how the owner will comply with this mitigation measure.

SM-BIO-7: If mitigation within the Project area is not feasible, then the developer shall mitigate the fill of wetlands or other waters at a 2:1 ratio (measured by acreage) at an off-site location acceptable to the City Such mitigation area shall be preserved and protected in perpetuity. Prior to submittal of a Stage 2 development plan or tentative map, the property owner shall submit a written report to the City for its review and approval demonstrating how the owner will comply with this mitigation measure.

SM-BIO-8: Botanically sensitive habitats shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan, as outlined in Mitigation Measure BIO-SM-1 above.

SM-BIO-9: Future development of properties within the Project area shall comply with the amended Eastern Dublin San Joaquin Kit Fox Protection Plan which reflects the latest protocols for kit fox habitat evaluations, presence/absence surveys, pre-construction surveys and precautionary construction measures.

SM-BIO-10: San Joaquin kit fox habitat shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan, as outlined in Mitigation Measure BIO-SM-1 above.

SM-BIO-11: Focused surveys following USFWS protocol shall be conducted in habitat considered suitable for CRLF on properties within the Project area which have not already been surveyed. The current protocol (USFWS 1997b) requires that two daytime and two nighttime surveys be performed over a suitable four-day period. Results of these surveys shall be submitted to the City for review.

SM-BIO-12: Specific CRLF habitat areas, including the drainage upstream and east of the current Fallon Road alignment shall be included in and protected and enhanced by implementation of the Resource Management Plan, as outlined in Mitigation Measure BIO-SM-1 above.

SM-BIO-13: To the extent feasible, development on individual properties within the Project area shall avoid all areas of identified suitable CRLF aquatic and dispersal habitat. Specifically, development should avoid aquatic habitat and provide a 300 to 500-foot buffer on each side of any stream which provides CRLF habitat. Limited permanent development may occur within this buffer zone (such as a trail through the length of the buffer zone, or a bridge crossing across the buffer zones) so long as it will have only minor impacts on the habitat. Limited temporary development activity may occur within this buffer zone to create trails, install bridges, etc. and to allow for grading activities along the edge of the buffer zone, so long as such activity will have only minor impacts on the habitat.

SM-BIO-14: If avoidance is infeasible, then mitigation lands providing similar or better habitat for CRLF at a 3:1 replacement ratio or suitable ratio determined by the USFWS, shall be preserved and protected in perpetuity. This mitigation, to be proposed in a mitigation and monitoring plan submitted to the City, shall be required prior to submittal of the Stage 2 Development Plans and tentative maps for any specific property within the Project area. In selecting off-site mitigation lands, preference shall be given to preserving large blocks of habitat rather than many small parcels, linking preserved areas to existing open space and other high-quality habitat, and excluding or limiting public use within preserved areas. If the identified mitigation lands have been approved by the City, the following guidelines [outlined in SM-BIO-15] implemented prior to and during construction would reduce impacts to individual CRLF and preserved CRLF habitat.

SM-BIO-15: The following construction-related CRLF avoidance and protection measures shall be followed for all future development activity in the Project area, on a property-by-property basis:

- Prior to construction, a map shall be prepared to delineate upland areas from preserved wetland areas.
- The wetland construction boundary shall be fenced to prohibit the movement of CRLF into the construction area and control siltation and disturbance to wetland habitat. Following installation of fencing, its property location shall be verified by a qualified biologist. The biologist shall ensure that at no time during construction is vegetation removed inside of the fenced area. If construction necessitates the removal of vegetation within the fenced area, additional mitigation will be required. Additionally, the biologist shall walk the length of the fence once each construction day to ensure the CRLF are not trapped within

the enclosure. The biologist shall walk the length of the fence more than once a day in areas where CRLF are most abundant.

- Pre-construction surveys within the construction zone shall be conducted by a qualified biologist with appropriate permits to handle CRLF. If no CRLF are detected during these surveys then construction activities may proceed. If CRLF are found within the construction disturbance zone, they shall immediately be moved passively, or captured and moved, to suitable upstream sites.
- All construction employees shall participate in an endangered species/special-status habitat education program to be presented by a qualified biologist prior to construction activities. The program shall cover such topics as identifying wetland habitat and areas used by CRLF, identification by CRLF by photos, the state and federal Endangered Species Acts, and the consequence of violating the terms of these acts.
- All construction adjacent to wetlands shall be regularly monitored to ensure that impacts do not exceed those included within the protect standards of the mitigations. Work performed within 500 feet of aquatic habitat shall be monitored by the biologist, who shall document pre-project and post-project conditions to ensure compliance.
- During construction, the biologist shall be on-site whenever construction within any aquatic habitats is to occur. Any construction activity within ordinary high water shall be photo documented by the biologist. In addition, a biologist with the appropriate permits to relocate CRLF shall be available for construction as needed.

SM-BIO-16: Special-status invertebrate habitat shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan, as outlined in Mitigation Measure BIO-SM-1 above.

SM-BIO-17: The following vernal pool habitat surveys and mitigation shall be implemented for each property within the Project area:

- Surveys of potential habitat for special status invertebrates are required. If suitable habitat is identified, then such habitat shall be surveyed to determine whether it is occupied by special-status invertebrates. If impacts to occupied habitat will occur (including direct impact as a result of habitat destruction, and indirect impact due to disturbance of areas within 250 feet of occupied habitat), the following measures shall be followed:
  a) Preservation: For every acre of habitat directly impacted at least two vernal pool credits shall be dedicated within a USFWS-approved mitigation

bank or, in accordance with USFWS evaluation of site-specific conservation values, three acres of vernal pool habitat may be preserved within the Project area or off-site as approved by the USFWS.

b) Creation: For every acre of habitat indirectly impacted, at least one vernal pool credit shall be dedicated within a USFWS-approved mitigation bank, or, in accordance with USFWS evaluation of site-specific conservation values, two acres of vernal pool habitat may be created and monitored within the Project area or on off-site as approved by the USFWS.

- Vernal pool habitat and associated upland areas which are preserved on-site shall be preserved and managed in perpetuity.
- All avoided habitat on-site shall be monitored by a qualified biologist during the time of construction. The monitoring biologist shall have authority to stop all activities that may result in destruction or take of listed invertebrate species or destruction of their habitat. Resumption of construction shall occur after appropriate corrective measures have been taken. The biologist shall report any unauthorized impacts to USFWS.
- Fencing shall be placed and maintained around any and all preserved vernal pool habitat.
- All on-site construction personnel shall receive instruction regarding the presence of listed species and their habitat maintained around any and all preserved vernal pool habitat.
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- All on-site construction personnel shall receive instruction regarding the presence of listed species and their habitat.

SM-BIO-18: California tiger salamander habitat shall be included in and shall be protected and enhanced by implementation of a Resource Management Plan as outlined in Mitigation Measure SM-BIO-1.

SM-BIO-19: If avoidance is infeasible, mitigation lands, providing similar or better aquatic and upland habitat for California tiger salamander (CTS) at a 1:1 ratio shall be set aside in perpetuity. Upland habitat shall be mitigated by preserving upland on-site, or if necessary, by preserving currently occupied upland tiger salamander habitat off-site. Aquatic habitat shall be mitigated by creating an equal number (or acreage) of new aquatic California tiger salamander breeding areas within the preserved upland habitat. This mitigation, included in a mitigation and monitoring plan, shall be submitted to the City prior to submittal of Stage 2 development plans and tentative maps. In selecting off-site mitigation lands, preference shall be given to preserving large blocks of habitat rather than many small parcels, linking preserved areas to existing open space and other high-quality habitat, and excluding or limiting public use within preserved areas.

SM-BIO-20: A qualified biologist shall conduct pre-construction surveys for nesting raptors. If an active nest is found the following mitigation measures shall also be implemented.

SM-BIO-21: If construction must occur during the nesting season, all potential nesting trees within the footprint of development should be removed prior to the nesting season to prevent occupied nests from being present when construction begins.

SM-BIO-22: Construction should occur between August 1 and February 1 to avoid disturbance of nesting raptors during the nesting season. This construction window could be adjusted if monitoring efforts determine that nesting was completed before August 1.

SM-B1O-23: If removal of nesting trees is infeasible and construction must occur within the breeding season, a nesting raptor survey shall be performed by a qualified biologist prior to tree disturbance.

SM-BIO-24: All active nests shall be identified by flagging and a buffer zone, depending on the species, shall be established around the nesting tree. Buffer zones shall be no smaller than 200 feet.

SM-B1O-25: If construction is scheduled when young birds have not yet fledged, an exclusion zone around the nest shall be established or construction shall be delayed until after the young have fledged as determined by a qualified biologist.

SM-BIO-26: Nesting raptor habitat shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan as outlined in Mitigation Measure SM-BI0 1.

SM-BIO-27: The territory of the golden eagle nesting pair shall be included in and protected and enhanced by implementation of a Resource Management Plan, as outlined in Mitigation Measure SM-BI0-1. The protected golden eagle foraging territory affects areas in the northern portion of the Project area designated for Rural

Residential/ Agricultural uses. Development standards and uses for these areas shall incorporate the following measures:

- Homesites in this portion of the Project area shall be located in valley bottoms adjacent to existing or planned residential development.
- Permitted agricultural uses shall be limited to grazing to maintain suitable golden eagle foraging habitat.
- Rodent control in this portion of the Project area shall be prohibited.

SM-BIO-28: If construction is scheduled during the nesting season (February 1 - August 31), preconstruction survey should be conducted on the entire Project area and within 150 meters (500 feet) of the Project area prior to any ground disturbance. To avoid take of over-wintering birds, all burrows should be surveyed 30 days prior to ground disturbance between the months of September 1 and January 31. If ground disturbance is delayed or suspended for more than 30 days after the preconstruction survey, the site should be resurveyed.

SM-BIO-29: If over-wintering birds are present no disturbance should occur within 150 feet of occupied burrows. If owls must be moved away from the disturbance area, passive relocation techniques, following CDFG 1995 guidelines, should be used rather than trapping. If no over-wintering birds are observed, burrows may be removed prior to the nesting season.

SM-BlO-30: Maintain a minimum buffer (at least 250 feet) around active burrowing owl nesting sites identified by pre-construction surveys during the breeding season to avoid direct loss of individuals (February 1- September 1).

SM-BIO-31: If removal of unoccupied potential nesting burrows prior to the nesting season is infeasible and construction must occur within the breeding season, a nesting burrowing owl survey shall be performed by a qualified biologist within 30 days prior to construction. Owls present on site after February 1 will be assumed to be nesting on site or adjacent to the site. All active burrows shall be identified.

SM-BIO-32: All active nesting burrows shall have an established 250-foot exclusion zone around the burrow.

SM-BIO-33: If construction is scheduled during summer, when young are not yet fledged, a 250-foot exclusion zone around the nest shall be established or construction shall be delayed until after the young have fledged, typically by August 31.

SM-BIO-34: When destruction of occupied burrows is unavoidable, existing unsuitable burrows should be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a 2:1 ratio on protected lands, as provided for below.

SM-BIO-35: A minimum of 6.5 acres of foraging habitat per pair or unpaired resident bird, shall be acquired, and permanently preserved and protected. The protected lands shall be adjacent to occupied burrowing owl habitat and at a location acceptable to CDFG.

SM-BIO-36: The project proponent shall provide funding for long-term management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to CDFG.

SM-BIO-37: Burrowing owl habitat shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan as outlined in Mitigation Measure BIO-SM-1.

SM-BIO-38: If construction is scheduled to occur during the nesting season (February 1-August 15), all potential nesting sites and structures (i.e., shrubs and tules) within the footprint of development should be removed prior to the beginning of the nesting season. However, because the removal of grassland habitat is infeasible, mitigation for impacts to California horned lark are addressed more particularly in Mitigation Measures SM-BI0-39 to SM-BI0-41, below.

SM-BIO-39: If removal of nesting trees and shrubs within the footprint of development is infeasible and construction must occur within the breeding season, a nesting bird survey should be performed by a qualified biologist within 30 days prior to construction. These surveys shall cover grassland habitat for potential nesting California horned lark. Birds present on site after February 1 will be assumed to be nesting on-site or adjacent to the site.

SM-BIO-40: All active nests shall be identified by flagging and a buffer zone, depending on the species, shall be established around the nest site. Buffer zones can range between 75 feet to 100 feet.

SM-BIO-41: If construction is scheduled during summer, when young have not yet fledged, an exclusion zone around the nest shall be established or construction shall be delayed until after the young have fledged, typically by July 15.

SM-BIO-42: Habitat for nesting passerines shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan as outlined in SM-B10-1.

SM-BI0-43: A qualified bat biologist shall conduct occupancy surveys of the Project area to determine whether any mature trees, snags or suitable buildings that would be removed during future project construction provide hibernacula or nursery colony roosting habitat.

SM-BI0-44: If presence is observed, removal of roost habitat should be conducted at specific times of the year. Winter roosts are generally occupied between October 15 through January 30 and maternity colonies are generally occupied between February 15 and July 30. If bats are using roost sites that need to be removed, the roosting season of the colony shall be determined, and the removal shall be conducted when the colony is using an alternate roost.

SM-BI0-45: Habitat for these bat species shall be included in and shall be protected and enhanced by implementation of the Resource Management Plan as outlined in Mitigation Measure SM-B10-1.

Fallon Village SEIR

The Fallon Village SEIR determined that although the Fallon Village Project proposed a similar type and density of development analyzed in the Eastern Dublin EIR and 2002 SEIR, due to changes in the project design and identification of new sensitive habitats not identified in the EDSP EIRs, new impacts to biological resources, including California tiger salamander, California red-legged frog, burrowing owl, and western pond turtle were identified. Supplemental mitigation measures were identified to reduce these impacts to a less-than-significant level. The following supplemental mitigation measures are applicable to the proposed project site:

SSM-BIO-1 (revised). If special-status plants cannot be avoided, then the area containing the plant that is to be impacted, and the approximate number of plants to be impacted, must be determined, and the following steps must be taken:

a) Harvest seeds from the plants to be lost, or use seeds from another source within the in Livermore and Amador valleys, and their surrounding watersheds, and seed an area suitable for supporting the plant, either within the Project area or off-site, at a level sufficient to replace the impacted individuals at a 1:1 ratio on an individual plant and basis, and at a ratio no less than 0.5:1 on an occupied habitat basis. The mitigation site shall be preserved and protected in perpetuity. If the mitigation site fails to support at least as many plants as were impacted within a five-year period, then step "b" below must be implemented.

b) Permanently preserve, through use of a conservation easement or other similar method, an equal amount of acreage either within the Project area or off-site that contains the plant.

   Prior to submission of a Stage 2 development plan or tentative map, the developer shall submit a written report to the City for its review and approval demonstrating how the developer will comply with this mitigation measure, including the steps it will take to ensure that transplanting or seeding will be successful.

SSM-BIO-2 (revised) (burrowing owl). During the breeding season (February 1-August 31) prior to submittal of Stage 2 development proposals for a particular parcel, or during a subsequent breeding season but prior to the initiation of construction, a survey shall be conducted according to CDFG protocols to determine whether Burrowing Owls are present, and if present, the number of nesting pairs of Burrowing Owls present on the parcel.

SSM-BIO-3 (revised) (burrowing owl). Pre-construction surveys for burrowing owls shall be conducted by a qualified biologist prior to any ground disturbance between September 1 and January 31. If ground disturbance is delayed or suspended for more than 30 days after the survey, the site should be re-surveyed. If no over-wintering birds are present, burrows should be removed prior to the nesting season. If over-wintering birds are present, no disturbance should occur within 150 feet of occupied burrows. If owls must be moved away from the disturbance area during this period, passive relocation measures must be prepared according to current CDFG burrowing owl guidelines, approved by CDFG, and completed prior to construction.

SSM-BIO-4 (revised) (burrowing owl). If construction is scheduled during the nesting season (February 1-August 31), pre-construction surveys should be conducted on the entire site-specific Project area and within 500 feet of such Project area prior to any ground disturbance. A minimum buffer (at least 250 feet) shall be maintained during the breeding season around active burrowing owl nesting sites identified in pre-construction surveys to avoid direct loss of individuals. Owls present on-site after February 1 will be assumed to be nesting on or adjacent to the site unless evidence indicates otherwise. All active burrows shall be identified. If construction around active nests is scheduled to occur when nests are active (i.e., if they contain, or are assumed to contain, eggs or un-fledged young), a 250-foot exclusion zone around the nest shall be established or construction shall be delayed until after the young have fledged, typically by August 31. If owls are present during the early part of the breeding season, and evidence indicates that they have not yet begun nesting, they may be passively relocated from the site if authorized by CDFG.

SSM-BIO-5 (revised) (burrowing owl). If destruction of occupied (breeding or non-breeding season) burrows, or any burrows that were found to be occupied during pre-construction surveys, is unavoidable, a strategy will be developed to replace such burrows by enhancing existing burrows or creating artificial burrows at a 2:1 ratio on permanently protected lands adjacent to occupied burrowing owl habitat, and will include permanent protection of a minimum of 6.5 acres of burrowing owl habitat per pair or unpaired resident owl. A plan shall be developed and approved by CDFG describing creation or enhancement of burrows, maintenance of burrows and management of foraging habitat, monitoring procedures and significance criteria, funding assurance, annual reporting requirements to CDFG, and contingency and remediation measures.

Supplemental Mitigation Measure SM-BI0-1 (loss or degradation of botanically sensitive habitats). Impacts to central coast riparian scrub habitat shall be mitigated through the restoration or enhancement of riparian habitat at a 3:1 ratio (on an acreage basis), preferably within the proposed aquatic and buffer zone or corridor zone management areas on-site. If mitigation within the Project area is not feasible, then the developer shall mitigate impacts to central coast riparian scrub through the restoration or enhancement of riparian habitat at a 3:1 ratio (measured by acreage) at an off-site location acceptable to the City. Any riparian mitigation areas shall be preserved and protected in perpetuity. Restored habitat shall be monitored for a period of five years including preparation of an annual report each year.

Supplemental Mitigation Measure SSM-BI0-2 (California red-legged frog). If avoidance is infeasible, then mitigation lands providing similar or better habitat for CRLF shall be preserved and protected in perpetuity. Mitigation will be required at a 3:1 replacement ratio for essential aquatic habitat (including verified aquatic breeding habitat) and associated upland habitat within 100 m of essential aquatic habitat, and at a 1.5:1 replacement ratio for dispersal habitat as defined herein (Figure 3.3-D Exhibit 4.7.4). Alternately, the latter ratio may be reduced at the discretion of the City if additional essential aquatic habitat is provided. The amount of reduction shall be proportional to the amount of additional essential habitat provided, up to a maximum reduction of fifty percent. Because aquatic breeding habitat and perennial water bodies providing summer refugia are expected to limit CRLF population size in the dry eastern Alameda/Contra Costa region more than the availability of suitable upland habitat, flexibility in this mitigation requirement (i.e., to allow for the creation of ponds to serve as partial mitigation for impacts to upland habitat) provides an opportunity to create greater benefit to CRLF populations on a landscape level. This mitigation shall be proposed in a mitigation and monitoring plan submitted to the City. In selecting off-site mitigation lands, preference shall be given to preserving large blocks of habitat rather than many small parcels, selecting mitigation land within the Livermore and Amador valleys, and their surrounding watersheds, to account for local loss of proposed critical habitat, linking preserved areas to existing open space and other high-quality habitat, and excluding or limiting public use within preserved areas.

Supplemental Mitigation Measure SSM-B10-3 (California tiger salamander). To compensate for the permanent loss of up to 1.31 acres of aquatic CTS breeding habitat, developers of individual parcels will create and/or enlarge suitable breeding ponds at a 2:1 ratio (mitigation to impact, on an acreage basis), in or adjacent to areas currently supporting CTS and with sufficient surrounding upland habitat to provide a high likelihood of establishment and persistence of a breeding population. In selecting off-site mitigation lands, preference shall be given to preserving one large block of habitat rather than many small parcels, selecting mitigation land within the Livermore and Amador valleys, and their surrounding watersheds, to account for local loss of proposed critical habitat, linking preserved areas to existing open space and other high-quality habitat, and excluding or limiting public use within preserved areas. Land selected for mitigation shall be permanently preserved through use of a conservation easement or similar method and shall be managed for use by CTS by a conservation entity. This mitigation shall be proposed in a mitigation and monitoring plan submitted to the City for approval.

Supplemental Mitigation Measure SSM-BIO-4 (California tiger salamander). To compensate for the permanent loss of up to 658.3 acres of upland CTS habitat, developers of individual parcels will acquire, preserve, and manage suitable upland habitat at a 1:1 ratio (mitigation to impact, on an acreage basis), in or adjacent to areas currently supporting CTS and within 2200 feet of a suitable breeding pond. Alternately, this ratio may be reduced (i.e., to less than 1:1 mitigation for lost upland habitat), at the discretion of the City, if additional aquatic breeding habitat (beyond that required by SM-BIO-11) is provided. The amount of reduction shall be proportional to the amount of additional essential habitat provided, up to a maximum reduction of fifty percent. Because aquatic breeding habitat is expected to limit CTS population size in the dry eastern Alameda/Contra Costa region more than the availability of suitable upland habitat, flexibility in this mitigation requirement (i.e., to allow for the creation of breeding ponds to serve as partial mitigation for impacts to aestivation habitat) may benefit CTS populations on a landscape level. This mitigation requirement may be combined with SM-BIO-11 from the 2002 SEIR so that the overall mitigation results in creation/restoration and preservation of breeding ponds (to mitigate impacts to aquatic breeding habitat according to SM-BIO-11) and preservation of associated upland habitat (to mitigate impacts to upland habitat according to SM-BIO-12). In selecting off-site mitigation lands, preference shall be given to preserving one large block of habitat rather than many small parcels, selecting mitigation land within the in Livermore and

Amador valleys, and their surrounding watersheds, to account for local loss of proposed critical habitat, linking preserved areas to existing open space and other high-quality habitat, and excluding or limiting public use within preserved areas. Land selected for mitigation shall be permanently preserved through use of a conservation easement or similar method and shall be managed for use by CTS by a conservation entity. This mitigation shall be proposed in a mitigation and monitoring plan submitted to the City for approval.

Project Impacts and Mitigation Measures

(a) Substantial adverse effect on candidate, sensitive, or special status species

Rare plant surveys were conducted April 9 and 10, 2020, September 29, 2020, and March 25 and April 29, 2021, for early blooming species. The purpose of these surveys was to conduct protocol-level, floristic surveys for special-status plants that were determined to have potential to occur on the site. No special-status plants were observed during the protocol-level surveys conducted on the project site. Please refer to Appendix B.

In December 2021, a memorandum[3] was prepared to provide the project applicant and owner of the adjacent Righetti property with the acreages of impacts to California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) habitat that would result from development of various portions of the project site by the adjacent Trumark development, the Dublin Boulevard Extension project, the proposed project and the proposed Righetti development. In addition, the memorandum describes how mitigation would be provided for the areas being affected by each of these projects, and how incidental take approval from the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) would be obtained for the lands impacted by these various projects. The memorandum is provided in Appendix D.

The Fallon Village SEIR identified potentially significant impacts to several special-status wildlife species on the project site, including California tiger salamander (CTS) (*Ambystoma californiense*), California red-legged frog (CRLF) (*Rana aurora draytonii*), burrowing owl (*Athene cunicularia hypogea*), golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*), pallid bat (*Antrozous pallidus*), Yuma myotis (*Myotis yumanensis*), and white-tailed kite (*Elanus leucurus*) and American badger (*Taxidea taxus*). These species are discussed in further detail below.

California tiger salamander. As described in the Fallon Village SEIR, pools in the vicinity of the project site provide suitable breeding habitat for CTS, which aestivate in upland areas

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[3] H.T. Harvey & Associates. 2021c. Branaugh and Righetti Property Development – Listed Species Impacts, Mitigation and Take Approval Summary. December 8.

surrounding the ponds. Adult or juvenile CTS have been observed in terrestrial areas on the project site and the Fallon Village SEIR determined that approximately 29.43 acres of upland habitat for CTS on the project site would be impacted by proposed development. The proposed project would be required to implement Mitigation Measures 3.7/20.0 through 3.7/22.0, as identified in the Eastern Dublin EIR, SM-BIO-18, as identified in the 2002 SEIR, and SM-BIO-8 and SM-BIO-9, as identified in the Fallon Village SEIR. With implementation of these mitigation measures, impacts to CTS would be reduced to a less-than-significant level.

California red-legged frog. A 2001 site assessment and focused survey for CRLF detected no CRLF or any evidence of CRLF breeding on the project; however, suitable dispersal and upland habitats were considered present in isolated wetland areas and uplands adjacent to aquatic features. Given their ability to disperse long distances, the dispersion of known or potential breeding ponds, and the potential habitat for CRLF in Doolan Canyon to the east, dispersing CRLF could occur on the project site. Per the recent memorandum prepared for the proposed project,[4] development of the proposed project would result in impacts to 31.41 acres of upland habitat, including USFWS-designated critical habitat for CRLF, 0.096 acre of wetland habitat and 0.129 acre of stream habitat for CRLF. The proposed project would be required to implement Mitigation Measures 3.7/20.0 through 3.7/22.0, as identified in the Eastern Dublin EIR, SM-BIO-11, SM-BIO-12, SM-BIO-13, and SM-BIO-15 of the 2002 SEIR, and SM-BIO-2, as identified in the Fallon Village SEIR. With implementation of these mitigation measures, impacts to CRLF would be reduced to a less-than-significant level.

Burrowing owl. Technical studies conducted within the Fallon Village Project area determined that potential foraging habitat is present in grassland, wetlands, and ruderal habitats throughout the project area, and the project site could provide potential nesting habitat. Development of the proposed project could result in the loss of suitable burrowing owl nesting, roosting, and foraging habitat, and potentially the loss of owls and their nests in occupied burrows. The proposed project would be required to implement Mitigation Measures SM-BIO-28 through SM-BIO-37, as identified in the 2002 SEIR, as well as, SM-BIO-2, SM-BIO-3, and SM-BIO-4, as identified in the Fallon Village SEIR to mitigate impacts to burrowing owls. Implementation of these measures would ensure impacts to burrowing owls are reduced to less-than-significant levels.

Golden eagle. As described in the Fallon Village SEIR, a pair of golden eagles has successfully nested northwest of the project site at least since 1990. Documented primary foraging areas for this pair are to the north and east and the Dublin Ranch project has established a conservation area that includes this nesting pair of eagles and considerable foraging habitat. In addition, these eagles also forage over the Fallon Village Project area (especially the northern portion). The Eastern Dublin EIR and 2002 SEIR identified potentially significant impacts to this species

4 H.T. Harvey & Associates. 2021c. op. cit.

due to loss of foraging habitat, impacts to the nesting site, and potential electrocutions. As described in the Fallon Village SEIR, it is unlikely that the project site is used for nesting; however, the site provides suitable foraging habitat for this species. Mitigation Measures 3.7/25.0 and 3.7/23.0, identified in the East Dublin EIR, and SM-BIO-27, as described in the 2002 SEIR, establish a golden eagle protection zone, including protected open space land, to provide suitable foraging habitat for this species. Implementation of these measures would ensure impacts are reduced to a less-than-significant level.

Loggerhead shrike and other nesting birds. As described in the Fallon Village SEIR, loggerhead shrikes have been observed on numerous occasions on and adjacent to the Fallon Village Project area. Suitable breeding habitat for this species occurs within central coast riparian scrub habitat and in trees and shrubs in the area. Suitable foraging habitat is present on the project site. Implementation of Mitigation Measures SM-BIO-38 through SM-BIO-42, identified in the 2002 SEIR, which require a preconstruction nesting bird survey be conducted during the nesting bird season, and establishment of buffer zones around nest sites would reduce potential impacts to loggerhead shrike and other nesting bird species to a less than significant level.

Pallid bat, Yuma myotis and other bat species. Barns and other structures with appropriate roosting sites, and possibly crevices within loose tree bark, may supply roosting habitat for pallid bat and other bat species. Although these species have not been observed within the project area, based on the availability of suitable roosting habitat, bats could potentially roost and/or forage on the project site. Implementation of Mitigation Measures SM-BIO-43 through SM-BIO-45, identified in the 2002 SEIR, which require that a preconstruction survey be conducted and limits on removal of potential roosting habitat, would reduce potential impacts to bat species to a less than significant level.

White-tailed kite and other raptors. White-tailed kites forage in grasslands throughout the Fallon Village Project area and are expected to nest in scattered trees within the project site. While not specifically described in the EDSP EIRs, impacts to the white-tailed kite were evaluated as a protected raptor in the Eastern Dublin EIR (IM 3.7 / O) and the 2002 SEIR (SEIR p. 3.3-10). Implementation of Mitigation Measure 3.7/25.0, identified in the Eastern Dublin EIR, and SM-BIO-20 through SM-BIO-26, identified in the 2002 SEIR, would reduce potential impacts to white-tailed kite and other raptor species to less than significant levels.

American badger. American badger could occur in the grasslands on the project site and could be affected by destruction of burrows by construction activities such as grading, clearing, and movement of heavy equipment. Implementation of Mitigation Measure 3.7/20.0 and 3.7/27.0 identified in the Eastern Dublin EIR would reduce potential impacts to American badger to a less-than-significant level.

(b) Substantial adverse effect on any riparian habitat or other natural community

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural development in the northwest and southern portion. As previously discussed, five habitat types were identified within the project area during the plant surveys: California annual grassland (31.41 acre), seasonal wetland (0.18 acre), developed (8.23 acre), culvert (0.1 acre), and ephemeral stream (0.04 acre). According to the Preliminary Delineation of Wetlands/Other Waters (Appendix C), approximately 0.028 acre of habitat associated with an excavated ditch would be considered jurisdictional by the California Department of Fish and Wildlife (CDFW); however, while the ditch has a bed and banks, no woody riparian vegetation is present.

As described further below, the project would permanently impact 0.225 acre of jurisdictional waters, including seasonal wetlands and other waters present on the project site. Implementation of Mitigation Measures SM-BIO-5 through SM-BIO-8, as identified in the 2002 SEIR and SM-BIO-1, as identified in the Fallon Village SEIR, would reduce potential impacts to sensitive natural communities to a less-than-significant level.

(c) Substantial adverse effect on wetlands

A delineation of wetlands and other waters was conducted on April 9 and 10, 2020, to assess the extent of jurisdictional waters that may be subject to regulation under Section 404 of the Clean Water Act (CWA) administered by the USACE, as well as waters of the state that may be subject to regulation under Section 401 of the CWA and the Porter Cologne Water Quality Control Act administered by the Regional Water Quality Control Board (RWQCB) and CDFW. The Preliminary Delineation of Wetlands/Other Waters is provided in Appendix C.

In total, approximately 0.124 acre of potentially jurisdictional features as defined by the USACE were identified within the project, consisting of approximately 0.124 acre of seasonal wetland, which would also be considered waters of the state. A portion of the 0.124 acre includes 0.028 acre of CDFW jurisdiction. The potentially jurisdictional features identified and delineated during the April 2020 surveys include two regulatory wetlands and waters features that were previously mapped on the project site as part of a larger delineation for the Dublin Boulevard-North Canyons Parkway Extension Project and were verified by USACE. These features are located in the center of the project site, have not appreciably changed since the area was verified in 2019, and include 0.053 acre of seasonal wetlands, and 0.048 acre of other waters (ephemeral stream/culvert). Table E below provides a summary of jurisdictional waters and wetlands within the project site.

Table E: Summary of Jurisdictional Waters and Wetlands within the Project Site

Feature	Acres
Section 404 Wetlands	
Seasonal Wetland	0.124
Total Section 404 Waters of the U.S.	**0.124**
Section 401 Waters of the State	
Seasonal Wetland	0.124
CDFW Jurisdictional Habitats	0.028
Total Section 401 Waters of the State	**0.124**
Wetlands and Waters Previously Verified by the USACE	**0.101**
Total Jurisdictional Area	**0.225**

Source: H.T. Harvey & Associates. 2021

Implementation of the proposed project would permanently impact 0.225 acre of jurisdictional waters, including seasonal wetlands and other waters present on the project site. The 2002 SEIR identified potentially significant impacts to seasonal wetlands and intermittent streams and included mitigation measures to reduce these impacts to a less-than-significant level. Consistent with Mitigation Measures SM-BIO-6 and SM-BIO-7, identified in the 2002 SEIR, the proposed project would be required to mitigate impacts to wetlands at a 2:1 ratio through the creation, restoration or enhancement of wetlands, intermittent streams or other waters either on-site (SM-BIO-6) or off-site (SM-BIO-7). With implementation of Mitigation Measures SM-BIO-6 and SM-BIO-7, no new impacts or substantially more severe significant impacts related to wetlands would occur.

(d) Interfere or impede the movement of migratory fish or wildlife

The majority of the study area consists of California annual grassland habitat. Much of this grassland is currently dominated by a suite of non-native grasses. A single ephemeral drainage runs parallel to the fence that bounds the property to the west. This drainage does not form a connection with any areas of natural habitat as it is connected to culverts at both ends.

As described above, CRLF and CTS may disperse across the project site to breeding habitat off-site. In addition, structures and large hollow trees present on the project site could support bat maternity roosts and vegetation on or adjacent to the project site could provide nesting habitat for some species of native birds protected under the federal Migratory Bird Treaty Act and the California Fish and Game Code. Implementation of the mitigation measures identified above would reduce potential impacts to nesting birds and bat roosts to a less than significant level.

(e) Conflict with local policies or ordinance include tree preservation

The project site is mostly vacant on the northern portion of the site, with agriculture and some rural residential development in the southern portion of the site. The existing vegetation consists mostly of grasses, with a few clusters of trees in the far north portion and far south portion of the site.

Heritage trees and approved street trees are protected under the Dublin Municipal Code, specifically Sections 7.56, Street Trees, and 5.60, Heritage Trees.

As defined in the Dublin Municipal Code, approved street trees include:

1. Any tree planted within any street right-of-way or adjacent easement, which conforms to the approved streetscape master plan;

2. Any existing tree within the right-of-way or adjacent easement, which conforms to the established species and location in any given area, and which was planted as a required street tree under the provisions of any improvement agreement, or as otherwise approved by the City; or

3. Any tree of the approved species and in an acceptable location, which was or may be planted as a replacement.

Heritage trees include any of the following:

1. Any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter measured at four (4) feet six (6) inches above natural grade.

2. A tree required to be preserved as part of an approved development plan, zoning permit, use permit, site development review, or subdivision map;

3. A tree required to be planted as a replacement for an unlawfully removed tree.

For private development projects, a permit is required from the City for the removal of any heritage tree and the removal/pruning of any approved street tree. In addition, for any property containing one or more heritage trees, a plan to protect heritage trees must be prepared and submitted to the City prior to the issuance of a demolition, grading, or building permit.

Implementation of the proposed project would likely require removal or disturbance of trees to accommodate proposed development. New trees would be planted as part of the proposed project, which would replace any trees to be removed. There are no heritage trees or street trees on the project site.

(f) Conflict with adopted habitat conservation or natural community conservation plans

The project site is located in Conservation Zone 4 of the East Alameda County Conservation Strategy (EACCS). The City of Dublin utilizes the EACCS as guidance for environmental permitting for public projects, and private development projects are encouraged to use the EACCS as a resource. However, the EACCS is neither a Habitat Conservation Plan nor a Natural Community Conservation Plan, but is a document intended to provide guidance during the project planning and permitting process to ensure that impacts are offset in a biologically effective manner. With implementation of the mitigation measures identified above, the project would be consistent with the EACCS. The project site is not subject to any other adopted habitat conservation plan or natural community conservation plan. Therefore, the proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Plan, or other approved local, regional, or State habitat conservation plan.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified biological resources impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to biological resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

H.T. Harvey & Associates. 2021a. Results of Protocol-level Special-Status Plant Surveys in Support of the Branaugh Property Development (Project # 4423-01). May 27.

H.T. Harvey & Associates. 2021b. Lands of Branaugh Preliminary Delineation of Wetlands and Other Waters Alameda County, California. January 11.

H.T. Harvey & Associates. 2021c. Branaugh and Righetti Property Development – Listed Species Impacts, Mitigation and Take Approval Summary. December 8.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Cultural Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
5.	**CULTURAL RESOURCES. Would the project:**			
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines section 15064.5?			X
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?			X
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?			X

Environmental Setting

Background research consisting of a records search at the Northwest Information Center (NWIC), a review of historical maps and aerial photographs, a search of the Sacred Lands File (SLF) at the Native American Heritage Commission (NAHC), and a review of published geological information were conducted to determine the potential sensitivity for buried historic and archaeological sites. In addition, a Historic Resources Evaluation (HRE) was prepared to evaluate the potential significance of the historic-period farm complex containing four buildings over 50 years old. These two studies are provided in Appendix E and F, respectively.

A cultural resources records search was conducted on November 6, 2021, by staff at the NWIC of the California Historical Resources Information System to identify previous archaeological site records and cultural resource studies within the project site and vicinity. The NWIC, an affiliate of the Office of Historic Preservation (OHP), is the official State repository of cultural resources records and reports for Alameda County. The search encompassed the project site and surrounding 0.5-mile radius.

The project site contains a historic-period farm complex (the Collier Ranch) consisting of four buildings over 50 years old: a circa 1958 shed and two-story, three-bay barn, and two mid-20th century single-family homes. These buildings were evaluated for significance as a historical resource and were found to be not eligible, either individually or as a group, for inclusion on the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). The other structures on the project site, consisting of several modern sheds and a circa 1980 single-story single-family residence, have not yet reached sufficient age to warrant evaluation for significance.

Three previous cultural resource studies overlapped the current project site, and another seven were conducted within a half-mile radius. No archaeological resources are recorded within the project boundaries or within a half-mile of the project site.

A request was submitted to the NAHC to search the Sacred Lands File (SLF) for Native American cultural resources that may be impacted by the proposed project. The NAHC maintains the SLF database and is the official State repository of Native American sacred-site location records in California. Cody Campagne, NAHC Cultural Resources Analyst, responded to the SLF search request on February 4, 2022, stating that the results were negative and that there were no known Native American cultural resources in the project site. The letter noted, however, that "the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area."

Background research indicated that buildings were present as early as 1949 in the area of the extant historic-period farm complex, and also in the southeast corner of the project site. It is unclear if the former were later demolished or incorporated into the extant farm complex. The structure in the southeast corner of the project site was removed between 1966 and 1968. There is high potential for any of these past or existing historical structures to have associated features, such as wells, refuse deposits, and structural remnants, buried within the project site.

Holocene-age alluvial deposits are mapped along the bottom of the drainage in the northern half of the project site, as well as on the valley floor in the southern half of the project site. Soils information indicates that the alluvium on the valley floor could reach considerable depths. The project site straddles the interface between the valley floor and adjacent uplands but does not appear to have been historically in close proximity to a stream. Based on the age of the landforms present and position in the landscape, there is general potential for the portions of the project site in the bottom of drainage and on the valley floor to contain (possibly deeply) buried pre-contact archaeological deposits. However, these areas likely have relatively low sensitivity given the distance to the closest historically documented stream.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to the disruption or destruction of identified and unidentified prehistoric resources, and disruption or destruction of identified and unidentified historic resources. Mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following mitigation measures would apply to the proposed project:

> **MM 3.9/1.0** All locations of prehistoric resources will need a program of mechanical and/or hand subsurface testing to determine the presence or absence of midden deposits associated with the surface indictors of aboriginal presence.

MM 3.9/2.0 All locations containing either midden components or concentrations of cultural materials located on the surface will be recorded on State of California site survey forms. The borders of any midden deposits or concentrations of cultural materials (other than single isolated artifact discoveries) will be staked so that accurate location maps can be produced by professional survey teams.

MM 3.9/3.0 If it can be demonstrated that these recorded and mapped locations will be impacted in any manner by future construction or indirectly impacted as a result of increased access to the area, a plan of evaluative testing of each resource will have to be devised in order to prepare responsive mitigation measures. Evaluative testing will consist of the collection and analysis of any surface concentrations of cultural materials, and the hand excavation and analysis of the scientific content of any midden components discovered during present or absence testing.

MM 3.9/4.0 The City shall retain the services of a qualified archaeologist to develop a protection program for prehistoric sites which contain either a surface or subsurface deposit of cultural materials or information which qualify under Appendix K of CEQA as "significant" and which are located in areas of the project site where development will significantly alter the current conditions of the prehistoric resource.

MM 3.9/5.0 The discovery of historic or prehistoric remains during grading and construction will result in the cessation of such activities until the significant and extent of those remains can be ascertained by a certified archaeologist.

MM 3.9/6.0 The City of Dublin will require the following series of actions as part of the application process for development in eastern Dublin: site sensitivity determination; detailed research and field reconnaissance by a certified archaeologist; development of a mitigation plan pursuant to the policies of the Eastern Dublin Specific Plan and current CEQA guidelines.

MM 3.9/7.0 All properties with historic resources, which may be impacted by future development shall be subjected to in-depth archival research to determine the significance of the resources prior to any alteration.

2002 SEIR

Cultural resources were addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR determined that although the Fallon Village Project proposed a similar type and density of development analyzed in the Eastern Dublin EIR and 2002 SEIR, due to changes in the project design and identification of new historic resources not identified in the EDSP EIRs, new impacts to cultural resources, including potential impacts on unknown prehistoric resources on the Fallon Enterprises, Jordan and Chen Properties, potential impacts to the historic Fallon House and at the historic Croak Ranch Homestead could occur. An assessment of the Collier Canyon Ranch determined that no structures eligible for the CRHR exist there. Supplemental mitigation measures were identified to reduce potential impacts to cultural resources on these properties to a less-than-significant level; however, none of these supplemental mitigation measures apply to the proposed project site.

Project Impacts and Mitigation Measures

(a) Historic resources

For a cultural resource to be considered a historical resource (i.e., eligible for listing in the CRHR), it generally must be 50 years or older. Under CEQA, historical resources can include precontact (i.e., Native American) archaeological deposits, historic-period archaeological deposits, historic buildings, and historic districts. CEQA requires agencies considering projects that are subject to discretionary action to consider the potential impacts on cultural resources that may occur from project implementation (see CEQA Guidelines Section 15064.5).

As described above, the project site does contain a historic-period farm complex (the Collier Ranch) consisting of four buildings over 50 years old. These buildings were evaluated for significance as a historical resource. They were found to be not eligible, either individually or as a group, for inclusion on the CRHR or the NRHP. Although these existing buildings would be demolished as part of the proposed project, this impact would be less than significant as these buildings do not qualify as historical resources for the purposes of CEQA.

However, there is high potential for past or existing historical structures to have associated features, such as wells, refuse deposits, and structural remnants, buried within the project site. These features could be uncovered during ground disturbing activities associated with the proposed project. Due to the high potential for historic-period archaeological deposits, Mitigation Measure 3.9/4.0 from the Eastern Dublin EIR, as modified below, would reduce potential impacts to a less than significant level.

> **MM 3.9/4.0** The City shall retain the services of a qualified archaeologist to develop a protection program for prehistoric <u>and/or historic-period</u> sites which contain either a surface or subsurface deposit of cultural materials or information which qualify under Appendix K of CEQA as "significant" and which are located in areas of the project site where development will significantly alter the current conditions of the ~~prehistoric~~ resource. <u>Following demolition of the existing structures, an archaeological monitor</u>

shall observe ground-disturbing construction activities, including grading, utility trenching, and foundation-related excavation, in two areas of the project site: the general vicinity of the extant historic-period farm complex and the southeast corner of the project site).

(b) Archaeological resources

Pursuant to CEQA Guidelines Section 15064.5(c)(1), "When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource." Those archaeological sites that do not qualify as historical resources shall be assessed to determine if they qualify as "unique archaeological resources" pursuant to California Public Resource Code (PRC) Section 21083.2.

Although no archaeological resources have been identified at the project site, it cannot be entirely ruled out that archaeological cultural resources could be encountered during project construction at the project site. Should archaeological deposits be encountered during project ground disturbance, a substantial adverse change in the significance of a historical resource would occur from its demolition, destruction, relocation, or alteration such that the significance of the resource would be materially impaired (CEQA Guidelines Section 15064.5(b)(1)). If such resources are encountered, implementation of Mitigation Measure 3.9/5.0 as identified in the Eastern Dublin EIR would reduce any potential impacts to archaeological and/or Native American resources to a less-than-significant level.

(c) Human remains

Based on previous archaeological investigation and analysis, there is a low potential for the disturbance of archaeological cultural resources or human remains. However, in the event that human remains are encountered at any time during project work, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the NAHC within 24 hours. The NAHC would determine and notify a Most Likely Descendant (MLD) per PRC 5097.98. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD's recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Compliance with Section 7050.5 of the California Health and Safety Code and PRC Section 5097.98 regarding the treatment of human remains would ensure that potential impacts to human remains would be less than significant.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified cultural resources impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs, as modified above, there would be no new or substantially more severe significant impacts to cultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

LSA, 2021. Historical Resource Evaluation of the Branaugh Property at 1881 Collier Canyon Road, Dublin, Alameda County, California (LSA Project No.: DUB2101.02). November.

LSA, 2022. Cultural Resource Study for the Branaugh Property Stage 2 Planned Development Project, Dublin, Alameda County, California (LSA Project No. DUB2101.02, Phase 2). February.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Energy

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
13. ENERGY. Would the project:			
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X

Environmental Setting

The project site is located within Fallon Gateway of the EDSP. Commercial and industrial land within Fallon Gateway, east of Fallon Road, is required to incorporate the following sustainability practices:

- Build off the City’s Complete Streets Policy and incorporate complete streets concepts within the private development’s circulation system to ensure strong bicycle, pedestrian and transit connections within and between the private developments and connections to the City's streets and existing and future transit hubs.
- Strong bicycle and pedestrian connections per the vision and goals of the City's Bicycle and Pedestrian Master Plan.
- Electric vehicle charging stations within each development.
- Transportation Demand Management (TDM) measures to reduce the demand of single occupancy vehicles, such as transit subsidy programs, shuttles, showers/lockers, bike share programs, parking, mobility and micromobility hubs.
- Buildings and related private infrastructure to help with electric grid management, by incorporating load shifting technologies, solar panels, battery storage and micro-grids.
- Reduce consumption of materials through reuse or recycling of all municipal solid waste materials back into nature or the marketplace in a manner that protects human health and the environment toward zero-waste goals.

- Incorporate smart cities technology infrastructure, and fiber-optic communications infrastructure.
- Street infrastructure for private drive aisles and streets and public streets certified as Greenroads.org Gold level or greater, ASCE Envision Rating of Gold or greater or similar equivalent.
- Design and construct buildings that meet the requirements to achieve LEED Gold status or above.

Electricity

Electricity is a man-made resource. The production of electricity requires the consumption or conversion of energy resources (including water, wind, oil, gas, coal, solar, geothermal, or nuclear resources) into energy. Electricity is used for a variety of purposes (e.g., lighting, heating, cooling, and refrigeration, and for operating appliances, computers, electronics, machinery, and public transportation systems).[5] In 2020, California consumed approximately 279,510 gigawatt-hours (GWh) or 279,510,007,246 kilowatt-hours (kWh).[6] Of this total, Alameda County consumed 10,247 GWh or 10,247,410,444 kWh.[7]

Natural Gas

Natural gas is a non-renewable fossil fuel. Fossil fuels are formed when layers of decomposing plant and animal matter are exposed to intense heat and pressure under the surface of the Earth over many years. Natural gas is a combustible mixture of hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas is found in naturally occurring reservoirs in deep underground rock formations. Natural gas is used for a variety of uses (e.g., heating buildings, generating electricity, and powering appliances such as stoves, washing machines and dryers, gas fireplaces, and gas grills).[8] In 2020, California consumed approximately 12,331 million therms or 12,331,530,178 therms, while Alameda County consumed approximately 366 million therms or approximately 366,465,038 therms.[9]

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5 California Energy Commission, 2018. 2018 Total System Electric Generation. Website: https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation/2018 (accessed November 2021).

6 California Energy Commission, 2021. Energy Consumption Data Management Service. Electricity Consumption by County. Website: www.ecdms.energy.ca.gov/elecbycounty.aspx (accessed November 2021).

7 Ibid.

8 U.S. Energy Information Administration. 2019. Natural Gas Explained-Use of Natural Gas. Website: eia.gov/energyexplained/index.php?page=natural_gas_use (accessed November 2021).

9 California Energy Commission, 2021. Energy Consumption Data Management Service. Gas Consumption by County. Website: www.ecdms.energy.ca.gov/gasbycounty.aspx (accessed November 2021).

Fuel

Petroleum is also a non-renewable fossil fuel. Petroleum is a thick, flammable, yellow-to-black mixture of gaseous, liquid, and solid hydrocarbons that occurs naturally beneath the earth's surface. Petroleum is primarily recovered by oil drilling. It is refined into a large number of consumer products, primarily fuel oil and gasoline. Gasoline is the most used transportation fuel in California, with 97 percent of all gasoline being consumed by light-duty cars, pickup trucks, and sport utility vehicles. Based on fuel consumption obtained from EMFAC2021, vehicle trips in Alameda County in 2021 are anticipated to consume 133,053,883 gallons of diesel fuel and 530,048,591 gallons of gasoline.

Previous CEQA Documents

Eastern Dublin EIR

At the time the Eastern Dublin EIR was prepared, the Environmental Checklist Form (Appendix G of the CEQA Guidelines) did not include energy. Therefore, the Eastern Dublin EIR did not specifically analyze impacts to energy. Utilities and service systems impacts and mitigation measures, some of which are related to the demand for energy of additional service systems, were identified and found that the demand for utility extensions and consumption of non-renewable natural resources would result in a significant and unavoidable impact. The following mitigation measures would apply to the proposed project:

> **MM 3.4/45.0** Demonstration Projects. The City shall require major developers in eastern Dublin to provide one or more demonstration projects of cost-effective energy conservation techniques. Demonstration of techniques such as photovoltaics, which are not currently cost-effective, shall be encouraged but not required. The developer shall be encouraged to coordinate efforts with PG&E in planning and design of demonstration projects. Options for demonstration projects may include:
>
> - Model Homes. Solar water heating, space heating, and demonstration of thermal mass. Demonstration landscaping for energy and water conservation. Use of trellises and arbors for shading.
> - Public Facilities. Use of solar water heating, space heating, and thermal mass. Possible use of photovoltaics, wind power, or innovative cooling technology.
>
> **MM 3.4/46.0** Site Planning, Building Design, and Landscaping. The City shall require project applicants to demonstrate that specific site planning, building design, and landscaping measures have been incorporated into their projects to conserve the use of energy during construction and long-term operation. Such measures might include orientation of lots; buildings and windows; protection of solar access; active and passive solar applications; use of energy efficient materials; and function of landscaping. These

measures will be incorporated into an energy conservation plan and shall be reviewed and approved by the City as part of specific development proposals.

2002 SEIR

A review of potential utilities impacts, including energy supply, was conducted as part of the 2002 SEIR. The 2002 SEIR determined that no additional utilities/energy supply impacts would occur beyond those identified at the time the Eastern Dublin EIR was certified. However, the 2002 SEIR identified the following supplemental mitigation measures that would be applicable to the proposed project:

> **SM-UTS-1** Require discretionary City review prior to the installation and use of distributed generators, including emergency generators.
>
> **SM-UTS-2** Prior to approval of future subdivision maps or Site Development Review applications (as may be applicable) by the City of Dublin, project developers shall submit "will serve" letters from PG&E indicating that adequate electricity and natural gas services are available to serve the proposed development project.

Fallon Village SEIR

No additional impacts or mitigation were identified in the Fallon Village SEIR.

The City of Dublin adopted a Statement of Overriding Considerations for the significant unavoidable impacts described above, which includes the project.

Project Impacts and Mitigation Measures

(a) Wasteful consumption of energy resources

The EDSP EIRs determined that development of the EDSP area would result in a significant and unavoidable impact due to the consumption of non-renewable natural resources, including energy consumption. Mitigation measures are identified in the EDSP EIRs to minimize this impact. Since preparation of the EDSP EIRs, the California Building Energy Efficiency Standards contained in Title 24 in the California Code of Regulations have been revised and updated to include more stringent requirements to prevent the unnecessary consumption of energy. Any future development on the project site would be required to comply with these standards. In addition, Chapter 7.94, Green Building, of the City of Dublin Municipal Code encourages sustainable construction in the following categories: planning and design, energy efficiency, water efficiency and conservation, materials conservation and resource efficiency and environmental quality. Furthermore, commercial and industrial land within Fallon Gateway, east of Fallon Road, is required to incorporate the sustainability practices, as described above.

(b) Conflict with local plan for renewable energy

The proposed project does not contain any features that would conflict with or obstruct a State or local plan for renewable energy or energy efficiency and is required to comply with state and local energy regulations, as described above.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified energy impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to energy resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

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Geology and Soils

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
6.	**GEOLOGY AND SOILS. 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?			X
ii)	Strong seismic ground shaking?			X
iii)	Seismic-related ground failure, including liquefaction?			X
iv)	Landslides?			X
b)	Result in substantial soil erosion or the loss of topsoil?			X
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?			X
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?			X
e)	Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?			X
f)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X

Environmental Setting

The project site is located within the Coast Range Geomorphic Province of Northern California. This province is generally characterized by northwest-trending mountain ranges and intervening valleys, which are a reflection of the dominant northwest structural trend of the bedrock in the region.

The Calaveras Fault separates the lowlands of the Dublin Valley from the hill areas to the west. The Pleasanton fault zone is located approximately 450 feet west of the project site. Other active faults in the vicinity of the project site include the San Andreas, Hayward, and Greenville faults, which are all considered active faults. The project site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone.

The project site straddles a north-south oriented drainage and extends onto the valley floor south of the drainage. Elevations range from 580 feet above sea level at the highest points in the drainage, down to approximately 370 feet above sea level on the valley floor. Published geologic data identify Pliocene to early Pleistocene Livermore Gravel (Qtlg) deposits along the hillslopes flanking the drainage in the northern half of the project site. The bottom of the drainage is mapped as Holocene alluvium (Qa), which extends onto the valley floor in the southern half of the project site.

Soils in the drainage in the northern half of the project site are mapped as Linne clay loam, which typically consists of clay loam extending to bedrock at 36 to 40 inches below surface. Soils on the valley floor in the southern half of the project site include Rincon clay loam, typically consisting of clay loam, sandy clay, and stratified sandy to clay loam horizons extending at least 60 inches below surface, and Diablo clay that typically features clay and silty clay extending at least 60 inches below surface.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to earthquake ground shaking, alteration of landforms, expansive soils, landslide and slope stability, and erosion and sedimentation. With the exception of the primary effects associated with seismic ground shaking, which was determined to be significant and unavoidable, all other impacts related to geology and soils would be reduced to less than significant with implementation of the mitigation measure identified in the Eastern Dublin EIR. The following mitigation measures would apply to the proposed project:

> **MM 3.6/1.0** The primary effects of ground shaking to structures and infrastructures can be reduced to a generally acceptable level below failure/loss of life by using modern seismic design for resistance to lateral forces in construction. Building in accordance

with Uniform Building Code and applicable County and City code requirements should reduce the potential for structural failure, major structural damage, and loss of life. However, some structural damage may occur, and it is possible that some residences/structures and infrastructures will not be safe for occupation/use after a large earthquake.

MM 3.6/2.0 In relatively flat areas which can be developed with minimal grading (the southern portion of the Project site and along Tassajara and Cottonwood Creeks):

- Locate improvements off (setback from) unstable and potentially unstable landforms such as landslides, colluvium filled swales, creek banks, and steep hill slopes.
- Remove, stabilize or reconstruct potentially unstable landforms, or
- Employ modern design, including appropriate foundation design and applicable codes and policies, in the construction of improvements that must be located on potentially unstable landforms or in areas underlain by alluvium with shallow groundwater levels which could be locally susceptible to liquefaction.

MM 3.6/4.0 Engineered retention structures and surface and subsurface drainage improvement should be uses as appropriate to improve the stability of sidehill fills and potentially unstable materials, particularly colluvium not entirely removed by grading.

MM 3.6/5.0 Seismically induced fill settlement can be substantially reduced if fills are properly designed with keyways and subsurface drainage, and are adequately compacted (i.e., minimum 90 percent relative compaction as defined by the American Society for Testing and Materials (ASTM) test method D1557).

MM 3.6/6.0 Design roads, structural foundations, and underground utilities to accommodate estimated settlement without failure, especially across transitions between fills and cuts. Potentially unstable stock pond embankments should be removed in development areas, unless they are reconstructed to current earthquake design standards.

MM 3.6/7.0 Final design of improvements in the Project site should be made in conjunction with a design-level geotechnical investigations and the reports should be submitted to the City of review prior to issuing any permits. These investigations should incorporate stability analysis of both natural slopes that could impact planned improvements, and planned engineered (cut and fill) slopes, assuming saturated conditions and earthquake shaking. Significant slopes should achieve a minimum factor of safety against failure of 1.5 for static conditions (where 1.0 is failure) and 1.2 under design pseudo-static earthquake loading. A displacement analysis should be performed for critical slopes to confirm the effectiveness of mitigation measures.

MM 3.6/14.0 The potential impact of expansive soils and rock with respect to Project improvements can be significantly reduced, or in many cases prevented by the recognition and characterization of site-specific conditions, and the formulation of appropriate design-level geotechnical investigation conducted for each specific proposed project.

MM 3.6/15.0 The potential for shrink and swell of expansive soils and rock can be reduced by controlling moisture and by treatment through measures listed below. Subsurface drainage alone is not generally effective against the effects of regional wet/drought cycles. Required measures for a specific project should be based on the recommendation of the project geotechnical consultant and approved by the City and include:

- Moisture conditioning prior to construction;
- Construction of surface and subsurface drainage to control infiltration after construction;
- Lime treatment, which can be used to produce non-expansive fill.

MM 3.6/16.0 The potential effects of expansive soil can be reduced by appropriate foundation and pavement design, including those design elements listed below.

- Adjustable foundation systems are not generally effective against the effects of regional wet/drought cycles and are considered undesirable because the systems require periodic maintenance, and their use should be discouraged. Appropriate design criteria should be developed by the project geotechnical consultant and approved by the City:
- Founding structural foundations below the zone of seasonal moisture change;
- Use of structurally supported floors; and
- Removal and replacement with non-expansive fill beneath structure slabs and asphaltic concrete.

MM 3.6/27.0 The potential impacts of short-term construction-related erosion and sedimentation can be reduced by timing grading activities to avoid the rainy season as much as possible, and by implementing one or more of the following interim control measures, which are designed to prevent concentration of runoff, control runoff velocity, and trap silt. Required measures for a specific project will be determined by the City and be a requirement of the grading permit.

- Water bars;
- Mulch-and-net blankets on exposed slopes;
- Straw bale dikes;
- Temporary culverts and swales;
- Sediment traps; and/or
- Silt fences.

MM 3.6/28.0 The potential impacts of long-term erosion and sedimentation can be reduced by the appropriate design, construction, and continued maintenance of surface and subsurface drainage of one or more of the following long-term control measures.

- Required measures for a specific project should be based on the recommendations of the project geotechnical consultants and approved by the City.
- Construction of sediment catch basins at strategic locations to prevent off site sedimentation from existing and/or potential on-site sources;
- Design and construction of storm sewer systems that incorporate the cumulative effects of project buildout
- Creek bank stabilization and repair of existing gullies;
- Revegetation and continued maintenance of graded slopes;
- Construction of drainage ditches or cut and fill slopes and/or natural slopes above developed areas;
- Closed downspout collection systems for individual structures;
- Design of cut and fill slopes to minimize, as much as possible, natural low velocity sheet flow runoff; and
- Periodic homeowner/landowner maintenance.

2002 SEIR

Geology and soils were addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR determined that although the Fallon Village Project proposed a similar type and density of development analyzed in the Eastern Dublin EIR and 2002 SEIR, due to proposed changes in grading policies and an increase in the proposed urbanized area, new impacts related to geology and soils could occur. Potentially significant impacts related to soil hazards/landslides and increased development were identified. Supplemental mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following supplemental mitigation measures are applicable to the proposed project:

> **SM GEO-1 (potential soil hazards due to alteration in the extent of Project grading).** Prior to construction, design level geotechnical report(s) and corrective grading plan(s) depicting the locations and depths of landslide repairs, keyways and subsurface drains is required. The corrective grading plans shall identify appropriate mitigation for graded slopes. In order to stabilize slopes where unstable geologic materials extend at beyond proposed development area, geotechnical corrective grading may extend beyond the limits of improvements and into open space areas. Grading in open space areas shall be limited to excavations that remove unstable soils and landslide debris and backfilling excavations with compacted, drained engineer fills. To provide stable construction slopes, the back slopes of excavated areas may extend up slope and beyond the limits of mapped slides. The corrective measures used will be typical and configured to conform at natural slope contours with materials and compaction at the approval of a geotechnical engineer. This may vary from original grade within repair envelope due to geotechnical and slope drainage considerations.

Project Impacts and Mitigation Measures

(a) Seismic hazards

Potential impacts related to seismic hazards are described below.

Fault Rupture. The project site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone. Therefore, the project would have no impact related to fault rupture.

Ground Shaking. The project site and the entire San Francisco Bay Area are located in a seismically active region subject to strong seismic ground shaking. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground-shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity (MMI) scale is the most commonly used scale to measure the subjective effects of earthquake intensity. It uses values ranging from I to XII.

Mapping has been compiled by the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) for the likely shaking intensities in the Bay Area that would have a 10 percent chance of occurring in any 50-year period. A large earthquake (magnitude 6.7 or greater) on one of the major active faults in the region would generate severe (MMI 8) ground shaking at the project site.

The most significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements. The risk of ground shaking impacts is reduced through adherence to the design and materials standards set forth in building codes. The City of Dublin has adopted the 2019 CBC (Title 24, Part 2 of the California Code of Regulations), which provides for stringent construction requirements on projects in areas of high seismic risk. The design and construction for the proposed project would be required to conform with, or exceed, current best standards for earthquake resistant construction in accordance with the most recent CBC adopted by the City and with the generally accepted standards of geotechnical practice for seismic design in Northern California, consistent with Mitigation Measure 3.6/1.0, identified in the Eastern Dublin EIR. In addition, implementation of Mitigation Measure 3.6/7.0, identified in the Eastern Dublin EIR and SM GEO-1, identified in the Fallon Village SEIR, which require the preparation and implementation of design level geotechnical report(s) and corrective grading plan(s), would ensure this impact would be reduced to a less than significant level.

Liquefaction. Liquefaction is the transformation of loose, fine-grained sediment to a fluid-like state similar to quicksand. This phenomenon occurs due to strong seismic activity and lessens the soil's ability to support a structural foundation. The primary factors affecting the possibility of liquefaction in soil are: (1) intensity and duration of earthquake shaking; (2) soil type and relative density; (3) overburden pressures; and (4) depth to groundwater. Soil most susceptible to liquefaction is clean, loose, fine-grained sands and non-plastic silts that are saturated.

The California Geological Survey (CGS) has mapped Seismic Hazard Zones that delineate areas susceptible to liquefaction and/or landslides that require proposed new developments in these areas to conduct additional investigation to determine the extent and magnitude of potential ground failure. According to mapping by CGS, the project site is located in an area mapped as a liquefaction hazard zone. As noted above, Mitigation Measure 3.6/1.0 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. In addition, implementation of Mitigation Measure 3.6/7.0, identified in the Eastern Dublin EIR and SM GEO-1, identified in the Fallon Village SEIR, which require the preparation and implementation of design level geotechnical report(s) and corrective grading plan(s), would ensure this impact would be reduced to a less than significant level.

Landslide. As described in the Fallon Village SEIR, the Eastern Dublin area contains documented landslides ranging from active to dormant and include debris slides and flows, mud flows and slump rotational slides. The project site is also mapped by the CGS as a landslide zone. Implementation of Mitigation Measure 3.6/7.0, identified in the Eastern Dublin EIR and SM GEO-1, identified in the Fallon Village SEIR, which require the preparation and implementation of design level geotechnical report(s) and corrective grading plan(s), would ensure impacts related to landslides would be reduced to a less than significant level.

(b) Erosion/topsoil loss

The potential for soil erosion exists during the period of earthwork activities and between the time when earthwork is completed, and new vegetation is established or hardscape is installed. Exposed soils could be entrained in stormwater runoff and transported off the project site. Construction specifications require the preparation of a Stormwater Pollution and Prevention Plan (SWPPP) prior to any ground disturbance activities as required by the National Pollutant Discharge Elimination System (NPDES) General Permit (GP) for Construction (Order 2009-009-DWQ). The SWPPP would provide the details of the erosion control measures to be applied on the project site during the construction period, including Best Management Practices (BMPs) for erosion control that are recognized by the RWQCB. Additional details regarding the SWPPP are provided in Section 9, Hydrology and Water Quality. In addition, the proposed project would be required to comply with Mitigation Measure 3.6/27.0 and Mitigation Measure 3.6/28.0 identified in the Eastern Dublin EIR, to reduce short- and long-term erosion and sedimentation associated with project construction and operation.

(c-d) Soil stability

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume. Soils underlying the project site are primarily composed of Linne clay loam (3 to 15 percent slopes and 15 to 30 percent slopes), Rincon clay loam (0 to 3 percent slopes and 3 to 7 percent slopes), and Diablo clay (very deep, 3 to 15 percent slopes), according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey. All of these soil types are classified as moderately to highly expansive.

The proposed project would be designed and constructed consistent with the most current earthquake resistance standards for Seismic Zone 4 in the CBC, which includes specifications for site preparation, such as compaction requirements for foundations. Therefore, the project site is not anticipated to become unstable as a result of the proposed project, or potentially result in on- or off-site landslides, liquefaction, lateral spreading or settlement. In addition, implementation of Mitigation Measures (MM 3.6/4.0, MM 3.6/5.0, MM 3.6/6.0, MM 3.6/7.0, MM 3.6/14.0, MM 3.6/15.0, MM 3.6/16.0) identified in the Eastern Dublin EIR and described above would reduce potential impacts associated with unstable soils to a less-than-significant level.

(e) Soil capability to support wastewater disposal, including septic

The proposed project would connect to the existing wastewater conveyance system. On-site treatment and disposal of wastewater is not proposed for the project; therefore, the proposed project would have no impacts associated with soils incapable of supporting alternative wastewater disposal systems.

(f) Paleontological/unique geological resources

No paleontological resources or unique geologic features are known to exist within the project site and ground disturbance for the proposed project is not expected to extend deep enough to affect native soils or to impact scientifically important paleontological resources. If such resources are encountered during ground-disturbing activities, implementation of Mitigation Measure 3.9/5.0 as identified in the Eastern Dublin EIR would reduce any potential impacts to paleontological resources to a less-than-significant level.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified geology and soils impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to geology and soils beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

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Greenhouse Gas Emissions

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
7.	**GREENHOUSE GAS EMISSIONS. Would the project:**			
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X
b)	Conflict with applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X

Previous CEQA Documents

Since certification of the Eastern Dublin EIR, 2002 SEIR, and Fallon Village SEIR, the issue of the contribution of greenhouse gasses to climate change has become a more prominent issue of concern as evidenced by passage of Assembly Bill 32 in 2006 and Senate Bill 32 in 2016.

Because the EDSP EIRs have been certified, the determination of whether greenhouse gasses and climate change need to be analyzed for this project is governed by the law on supplemental or subsequent EIRs (Public Resources Code section 21166 and CEQA Guidelines, Sections 15162 and 15163). Greenhouse gas and climate change is not required to be analyzed under those standards unless it constitutes “new information of substantial importance, which was not known and could not have been known at the time the EDSP EIRs were certified as complete” (CEQA Guidelines Sec. 15162 (a) (3)).

Greenhouse gas and climate change impacts were not analyzed in the EDSP EIRs; however, these impacts are not new information that was not known or could not have been known at the time these previous EIRs were certified. The issue of climate change and greenhouse gasses was widely known prior to the certification of these EIRs. The United Nations Framework Convention on Climate Change was established in 1992. The regulation of greenhouse gas emissions to reduce climate change impacts was extensively debated and analyzed throughout the early 1990s. The studies and analyses of this issue resulted in the adoption of the Kyoto Protocol in 1997.

Conclusion

Therefore, the impact of greenhouse gases on climate change was known at the time of the certification of the EDSP EIRs. Under CEQA standards, it is not new information that requires analysis in a supplemental EIR or Negative Declaration. No supplemental environmental analysis of the project's impacts on this issue is required under CEQA.

Project Impacts and Mitigation Measures

(a-b) Generate greenhouse gas (GHG) emissions or conflict with GHG plans or regulations

As discussed above, no additional environmental analysis is required under CEQA Section 21166 and CEQA Guidelines section 15162.

Source(s)

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Hazards and Hazardous Materials

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
8.	**HAZARDS AND HAZARDOUS MATERIALS. Would the project:**			
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X
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?			X
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?			X
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?			X
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?			X
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X

Environmental Setting

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural residential development, including several houses, a barn and several sheds, located in the southern portion of the property and a house located in the northwestern portion of the property. The farm complex in the southern portion of the property includes several structures, including the barn, shed and house that were constructed circa 1958. A second house in this area was constructed circa 1965.

According to the Phase I Environmental Site Assessment prepared for the East Dublin Properties, several storage tanks were observed on the project site, associated with the residence and the former use of the site as Branaugh Excavating. In addition, unlabeled 55-gallon drums were observed on the property located within the Golden State Landscaping Company's storage and maintenance yard. Numerous potentially hazardous materials and petroleum-based product containers were observed across the property. The project site contains four existing septic systems and several wells. In addition, due to the age of the existing structures on the project site, the Phase I Environmental Site Assessment determined that it is conceivable that asbestos- containing materials (ACMs) and/or lead-containing materials (e.g., lead-based paint [LBP]) may be present within the structures.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR did not include a discussion of hazards and hazardous materials as an identified environmental topic area; however, the Eastern Dublin EIR did discuss the potential for hazardous materials releases as part of the analysis of solid waste disposal and fire protection. Mitigation measures identified for solid waste disposal are included in Section 18, Utilities and Service Systems. The Eastern Dublin EIR did identify potentially significant impacts related to wildfire and fire hazards. Mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following mitigation measures would apply to the proposed project:

MM 3.5/9.0 Incorporate DRFA recommendations on project design related to access, water pressure, fire safety and prevention into the requirements for development approval. Required that the following DRFA design standards are incorporated where appropriate:

- Use of non-combustible roof materials in all new construction.
- Available capacity of 1,000 gallons per minute (gpm) at 20 pounds per square inch (PSI) fire flow from project fire hydrants on public water mains. For groupings of one-family and small two-family dwellings not exceeding two

stories in height, the fire flow requirements are a minimum of 1,000 gpm. Fire flow requirements for all other buildings will be calculated based on building size, type of construction, and location.

- A buffer zone along the backs of homes which are contiguous with the wildland are. This buffer zone is to be landscaped with irrigated (wet banding) or equivalent fire-resistive vegetation.
- Compliance with DRFA minimum road widths, maximum street slopes, parking recommendations, and secondary access road requirements.
- Require residential structures outside the DRFA's established response time and zone to include fire alarm systems and sprinklers.

2002 SEIR

Hazards and hazardous materials were addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR determined that because the Fallon Village Project proposed several land uses changes, including converting the former "Future Study Area" land use designation to non-residential land uses, new impacts to related to hazards and hazardous materials could occur. Potentially significant impacts were identified including the potential for hazards from release of hazardous materials into the atmosphere from demolition of existing buildings and remediation of potentially contaminated sites. Supplemental mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following supplemental mitigation measures are applicable to the proposed project:

SM-HAZ-1. Prior to the demolition of any structures identified in the Environmental Site Assessments as potentially containing ACM's or lead-based paints, Project developer(s) shall undertake comprehensive asbestos and LBP surveys of those structures and implement appropriate ACM and LBP handling and disposal methods based on those surveys. As recommended in the ENGEO 2005 report, an environmental professional shall be present during demolition and pre-grading activities to inspect for potential environmental contaminants.

SM HAZ-2 (potential for soil/groundwater contamination and exposure hazards from existing hazardous materials). As identified in the Environmental Site Assessments for each property, all observed hazardous or potentially hazardous materials and potential containers of those materials shall be removed from the properties by licensed waste contractors prior to building demolition. If no building demolition is required, this removal shall be completed prior to any grading activities on an individual site. The contents of potential hazardous material containers shall be identified and disposed of accordingly, including specific methods to preclude airborne release of materials. All dumped scrap and miscellaneous material and equipment shall be removed from the site prior to any on-site development activities. If recommended in the ESA (i.e., Mandeville, Anderson, and Fallon Enterprises properties), an environmental professional shall view the property during demolition and pre-grading activities to ensure compliance with this measure.

SM-HAZ-3a (potential for soil/groundwater contamination from subsurface contamination). A Phase II ESA shall be conducted for the former gas station site north and west of Croak Road to obtain information with regard to operation, demolition, and removal of the former gasoline service station in order to better assess the likelihood of this use having a detrimental impact to soils and water quality at the EBJ Partners site and adjacent sites. This Assessment shall be completed and approved by the Alameda County Fire Department prior to any demolition or site grading, whichever is first. Additionally, a limited subsurface investigation shall be conducted for the EBJ parcel and adjacent areas of the Anderson and Chen/Tseng properties to better assess whether impacts to soil and shallow groundwater have resulted from the former gas station.

SM-HAZ 3b (potential for soil/groundwater contamination from subsurface contamination). All identified potentially contaminated areas on the Jordan Ranch site shall be remediated as identified in the Phase I ESA. In addition, as identified in the Phase II ESA, the Jordan Ranch owner shall inform the Alameda County Environmental Health Services Department (ACEHSD) of an unauthorized release of fuel hydrocarbons as diesel and gasoline in the vicinity of the removed underground fuel tank at the site. The property shall be subject to further subsurface investigations to evaluate the lateral and horizontal extent of the contamination, and to evaluate whether ground water has been affected, and shall be remediated as directed by the ACEHSD. Further site assessment, including soil and groundwater sampling and testing, shall be conducted to evaluate the horizontal and lateral extent of impact to underlying soils and groundwater. A limited Phase II ESA, including soil and groundwater sampling, shall be conducted to evaluate the potential impact on underlying soils and groundwater within the area of the diesel storage drums, weed killer, and other storage containers in Barn 2, as well as in the vicinity of the stored fuel containers and farm equipment in Barn 1. During removal of hazardous material contaminant sources at the Jordan Ranch site, a qualified environmental assessor shall be present to observe the removal and conditions exposed during that removal. After the removal of these sources from the site, and any excavation to remove contaminated soil, additional soil sampling and laboratory testing shall be conducted to confirm that the contaminated materials have been removed. If potentially hazardous substances are identified, remediation plan(s) shall be prepared by a qualified consulting and approved by an appropriate oversight agency. A worker safety plan shall be included in all remediation plans.

SM-HAZ 3c (potential for soil/groundwater contamination from subsurface contamination). A Phase II ESA shall be conducted for the portion of the Fallon Enterprises property where the buried household garbage dump is located. The assessment shall include soil sampling and testing to evaluate the potential impact to underlying soils. The assessment shall be completed and approved by the Alameda County Fire Department prior to site grading operations. If potentially hazardous substances are identified in the Phase II ESA, remediation plan(s) shall be prepared by a qualified consulting and approved by an appropriate oversight agency. A worker safety plan shall be included in all remediation plans.

SM-HAZ 3d (potential for soil/groundwater contamination from subsurface contamination). A Phase II ESA shall be conducted for the portion of the Anderson property used by Pleasanton Trucking and Materials. That assessment shall include soil sampling and groundwater testing to evaluate the potential impact to underlying soils. If potentially hazardous substances are identified in the Phase II ESA, remediation plan(s) shall be prepared by a qualified consulting and approved by an appropriate oversight agency. A worker safety plan shall be included in all remediation plans.

SM-HAZ 3e (potential for soil/groundwater contamination from subsurface contamination). A Phase II ESA shall be conducted for the portion of the Branaugh properties used by Branaugh Excavating, Branaugh Transportation, and the Golden State/Executive Landscaping Companies. That assessment shall include soil sampling and groundwater testing to evaluate the potential impact to underlying soils. If potentially hazardous substances are identified in the Phase II ESA, remediation plan(s) shall be prepared by a qualified consulting and approved by an appropriate oversight agency. A worker safety plan shall be included in all remediation plans.

SM-HAZ 3f (potential for soil/groundwater contamination from subsurface contamination). Upon development of each site, all existing wells shall be abandoned under permit from Zone 7 Water Agency and in accordance with all applicable regulations.

SM-HAZ 3g (potential for soil/groundwater contamination from subsurface contamination). When, or prior to, the existing structures are demolished, all existing septic systems and associated leach fields shall be pumped out and removed under permit from the Alameda County Health Department.

Project Impacts and Mitigation Measures

(a) Exposure to hazardous materials, upset/accident, near school, hazardous materials list

The proposed project would result in the construction of residential and industrial uses. Residential uses typically do not involve transport, use, or disposal of significant quantities of hazardous materials. However, the proposed industrial park could include manufacturing, processing, assembly, fabrication, research and development, printing, warehouse and distribution, and wholesale and heavy commercial uses, or other uses permitted under the City's IP designation that may involve the use, handling, and storage of commercially available hazardous materials associated with building maintenance, on-site vehicle use, and landscaping. These materials would likely include fuels, paints, flammable liquids, pesticides, and herbicides. However, hazardous materials stored and used at the site would be required to be managed in accordance with applicable local, State, and federal hazardous materials regulations that would reduce risks associated with leakage, explosions, fires, or the escape of harmful gases. The proposed project would generate quantities of hazardous materials similar in nature, type, and volume to the uses anticipated to be used as part of other foreseeable residential and industrial development projects anticipated in the EDSP EIRs.

(b) Upset/accident

The Fallon Village SEIR identified potentially significant impacts related to the potential for an accidental release of hazardous materials associated with historic uses on the project site, including potential ACM and lead-based paint within the existing site structures, existing septic systems and wells, and existing hazardous materials containers (e.g., storage tanks, drums) present on the project site. However, the Fallon Village SEIR determined that implementation of Supplemental Mitigation Measures SM-HAZ-1, SM-HAZ-2, SM-HAZ-3e, SM-HAZ-3f, and SM-HAZ-3g would reduce this impact to a less-than-significant level through pre-construction environmental investigations for hazardous materials, appropriate removal of hazardous materials containers and septic systems, appropriate abandonment of existing wells, and implementation of appropriate ACM and LBP handling and disposal methods. Conditions on the project site have not substantially changed since the certification of the Fallon Village SEIR.

During construction, hazardous materials such as fuel, lubricants, paint, sealants, and adhesives would be transported and used at the project site. Management of these materials at the project site would be subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Compliance with the Construction General Permit would require preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) designed to reduce the risk of spills or leaks from reaching the environment. The SWPPP would also include a Spill Response Plan to address minor spills of hazardous materials. Compliance with SWPPP requirements would ensure that potential significant hazards associated with routine transport, use, or disposal of hazardous materials during and after construction would be less than significant.

(c) Near school

The nearest schools to the project site are Cottonwood Creek K-8 School, located approximately 0.75 mile to the northwest, and Jose Maria Amador Elementary School, located approximately 1.1 mile to the northwest. No schools are located within 0.25 mile of the project site. As described in Section 8.b, the proposed project would be required to implement Supplemental Mitigation Measures SM-HAZ-1, SM-HAZ-2, SM-HAZ-3e, SM-HAZ-3f, and SM-HAZ-3g, which require pre-construction environmental investigations for hazardous materials, appropriate removal of hazardous materials containers and septic systems, appropriate abandonment of existing wells, and implementation of appropriate ACM and LBP handling and disposal methods.

(d) Hazardous materials list

Government Code Section 65962.5 states that the California Department of Toxic Substances shall compile and maintain annually a list of hazardous waste facilities subject to corrective action as part of the Health and Safety Code. This list is commonly referred to as the Cortese List. The project site is not located on the Regional Water Quality Control Board's Leaking Underground Tank Cleanup Site (LUST) or any other Cleanup Program Sites (formerly known as spills, leaks, investigations, and cleanups or SLIC). These two components comprise the State Cortese List of known hazardous materials sites compiled pursuant to Government Code Section 65962.5.

(e) Proximity to a public airport

The Livermore Municipal Airport, a public utility airport operated by the City of Livermore, is located approximately 0.3-mile south of I-580, just south and east of the project site. The entire project site is located within the Airport Influence Area (AIA) and the southern portion of the site, designated for industrial park use is located within the Airport Protection Area (APA). The site is located within Safety Zone 6, as designated in the Livermore Municipal ALUCP. New residential land use designations, or the intensification of existing residential land uses, are prohibited within the APA. Nonresidential land uses may be allowed within the APA provided they are consistent with the criteria set forth in the ALUCP. Per Table 3-2, Safety Compatibility Criteria in the ALUCP, manufacturing, research and development and industrial uses are permitted in Safety Zone 6.

The project site is also located within the City's Airport Overlay Zoning District, which is coterminous with the AIA, as established by the Livermore Municipal Airport ALCUP. All permitted and conditionally permitted uses set forth in a PD Zoning District that was adopted and in effect prior to August 2012 are considered Existing Land Uses consistent with the ALUCP and do not require review by the ALUC, unless changes to the existing land use results in an increase of non-conformity with ALUCP policies or the change would increase the intensity or density of use.

As outlined in the project description, the project proposes a 0.40 floor area ratio (FAR) for the IP portion of the project site, which is an increase from the maximum 0.35 FAR allowed in the EDSP and Fallon Village Stage 1 PD and an increase from the maximum 0.28 FAR evaluated under the EDSP EIRs. Per the General Plan, the 0.40 FAR is limited to warehousing uses. All other uses are limited to the maximum FAR of 0.35.

Therefore, the proposed project would not be an incompatible land use, would not add structures of a height such that it would create a hazard or obstruction, and would not result in the addition of a characteristic that would create a hazard to air navigation.

(f) Impair implementation of an emergency response plan or emergency evacuation plan

The Tri-Valley Local Hazard Mitigation Plan was developed in compliance with State requirements and also meets the requirements of the Federal Emergency Management Agency (FEMA) as the City's local hazard mitigation plan. The Tri-Valley Local Hazard Mitigation Plan provides a uniform hazard mitigation strategy for the Tri-Valley area, addressing a range of hazards including, but not limited to, earthquakes, floods and wildland fire. The City of Dublin also has an adopted Comprehensive Emergency Management Plan and a Local Hazard Mitigation Plan to assess hazards and mitigate risks prior to a disaster event.

The proposed project would result in the subdivision of the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. The proposed project would be designed to provide adequate access to the site for fire/police/emergency medical service personnel in the event of an emergency at the project site. In the event of an emergency on the site, employees and residents could exit the site via Croak Road via the proposed Central Parkway Extension and the future Dublin Boulevard Extension. Once off the project site, employees and residents could access I-580 to exit the City and region. The proposed project would not interfere with an adopted emergency response plan or emergency evacuation plan. Because the proposed project would not substantially alter or block the adjacent roadways, the proposed project would not be expected to impair the function of nearby emergency evacuation routes.

(g) Expose people or structures to wildland fires

A wildland fire is a fire occurring in a suburban or rural area which contains uncultivated land, timber, range, brush, or grasslands. Wildland fires are primarily a concern in areas where there is a mix of developed and undeveloped lands. The project site is not identified as an area of moderate, high, or very high fire hazard severity for the Local Responsibility Area. It is identified as an area of moderate fire hazard severity for the State Responsibility Area, as mapped by the California Department of Forestry and Fire Protection (CAL FIRE). The proposed project would be constructed in accordance with the requirements of the CBC, California Fire Code, and the City's Wildfire Management Plan. In addition, consistent with the City's entitlement process and Mitigation Measure 3.5/9.0 in the Eastern Dublin EIR, project plans would be reviewed by the Alameda County Fire Department to ensure that required fire protection elements are incorporated into final building plans, including provision of adequate water supply and pressure, and use of appropriate landscape and building materials.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified hazards and hazardous materials impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to hazards and hazardous materials beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Dublin, City of. 2022. City of Dublin Municipal Code. Chapter 8.35 Airport Overlay Zoning District.

ENGEO, 2005. Phase One Environmental Site Assessment, East Dublin Properties, Dublin, California. May 27.

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Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

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Hydrology and Water Quality

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
9.	**HYDROLOGY AND WATER QUALITY. Would the project:**			
a)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			X
b)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X
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:			X
	(i). Result in substantial erosion or siltation on- or off-site;			X
	(ii). Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;			X
	(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			X
	(iv). Impede or redirect flood flows?			X
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X

Environmental Setting

The project site is located within the Alameda Creek watershed which drains to the San Francisco Bay. The 660-square-mile Alameda Creek watershed is the largest watershed in the Bay Area, extending from Mount Hamilton north to Mount Diablo, east to the Altamont Hills and west to San Francisco Bay. The project site is located within the jurisdiction of Zone 7 of the Alameda County Flood Control and Water Conservation District (Zone 7). The northern portion of the site is hilly and transitions to relatively flat areas immediately adjacent to the I-580 freeway.

The project site is located within the San Francisco Bay Hydrologic Region. The San Francisco Bay RWQCB Basin Plan identifies the Project as being within the Livermore Valley groundwater basin (Basin ID 2-10). As defined in DWR Bulletin 118 Update 2003 (California's Groundwater), the Livermore Valley Groundwater Basin (DWR Basin 2-10) extends from the Pleasanton Ridge east to the Altamont Hills and from the Livermore Uplands north to the Tassajara Uplands. The Geotechnical Update (ENGEO, 2004) prepared for the EDPO Project indicates that groundwater depths range from 14 to 40 feet. The Water Quality Report prepared for the Eastern Dublin Extension Project confirms that groundwater levels are 20 to 25 feet below grade with higher groundwater levels (10 feet below grade) occurring in the area northwest of the existing I-580/Fallon Road interchange. Shallower groundwater may be present along major drainages, in colluvium-filled swales, and associated with existing stock ponds.

As described in Section 4, Biological Resources, a single ephemeral drainage exists near the center of the project site and runs parallel to the fence that bounds the property to the west. This segment of ephemeral drainage is rock-lined and is fed by a culvert. This segment of ephemeral stream is approximately 100 feet long and 10 feet wide and is connected at the downstream end by a culvert which conveys flows under a road to a seasonal wetland at its downstream end.

Based on the Flood Insurance Rate Map (FIRM) published by the Federal Emergency Management Agency (FEMA) [06001C0329G, dated August 3, 2009], the project site is located within a 500-year flood plain.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to the overdraft of potential flooding, reduced groundwater recharge, and non-point sources of pollution. Mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following mitigation measures would apply to the proposed project:

MM 3.5/44.0 Require drainage facilities that will minimize any increased potential or erosion or flooding.

MM 3.5/45.0 Require channel improvements consisting of natural creek bottoms and side slopes with natural vegetation where possible to meet Policy 9.7 above.

MM 3.5/46.0 <u>Storm Drainage Master Plan.</u> Require a Master Drainage Plan be prepared for each development application prior to development approval. The plan shall include:

- Hydrologic studies of entire related upstream watersheds.
- Phase approach and system modeling.
- Documentation of existing conditions.
- Design-level analysis of the impacts of proposed development of the existing creek channels and watershed areas.
- Detailed analysis of effects of development on water quality of surface runoff.
- Detailed drainage design plans for each phase of the proposed project.
- Design features to minimize runoff flows within existing creeks/channels in order to alleviate potential erosion impacts and maintain riparian vegetation.

MM 3.5/47.0 <u>Flood Control.</u> Require development in the Planning Area to provide facilities to alleviate potential downstream flooding due to project development. These facilities shall include:

- Retention/detention facilities as appropriate to control peak runoff discharge rates.
- Energy dissipators at discharge locations to prevent channel erosion, as per Zone 7 guidelines. Energy dissipators should be designed to minimize adverse effects on biological resources and the visual environment; in particular, widespread use of riprap should be avoided.

MM 3.5/49.0 Plan facilities and select management practices in the Eastern Dublin Specific Plan EIR area that protect and enhance water quality.

MM 3.5/50.0 Zone 7 supports ongoing groundwater recharge program from the Central Basin.

MM 3.5/51.0 Develop community-based programs to educate local residents and businesses on methods to reduce non-point sources of pollution. Coordinate such programs with current Alameda County programs. Such programs include:

- Increased availability of liquid recycling centers (i.e., oil, greases, etc.) to reduce potential for dumping into storm drains.
- Programs that educate the public that catch basins and storm drains flow to creeks, to potable groundwater basins, and to the San Francisco Bay, including a potential program to paint labels at each catch basin and storm drain to alert people to these facts.

2002 SEIR

Hydrology and water quality were addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR identified two potentially significant impacts associated with an increase in impervious surfaces, resulting in increased stormwater runoff, which may not comply with the most recent surface water quality standards and hydromodification standards and, as a result, could add pollutants to nearby bodies of water. Supplemental mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following supplemental mitigation measures are applicable to the proposed project:

> **SM- SD-1 (changed surface water quality standards).** The Stage 1 Development Plan shall require that the water quality source control and hydrologic design recommendations of the report prepared by ENGEO, Inc. (February 28, 2005) be implemented for all individual development projects within the Project area.
>
> **SM- SD-2 (changed surface water quality hydromodification standards).** Development within the Project area shall comply with the hydromodification provisions of the Alameda County Clean Water Program as approved by the RWQCB and administered by the City of Dublin. If no Alameda County Clean Water Program permit has been adopted at the time individual development proposals are approved by the City the applicant may be required to submit hydrology and hydrologic analyses to identify specific increases in storm water runoff into downstream receiving waters. Such reports will be reviewed by both the City of Dublin and Zone 7 Water Agency. Development projects will also be required to pay the then-current Zone 7 Special Drainage Area fee (SDA7-1) in effect at the time of development.

Project Impacts and Mitigation Measures

(a) Violate water quality or waste discharge requirements or degrade surface or groundwater quality

Construction activities associated with the proposed project would cause disturbance of soil during excavation work, which could adversely impact water quality. Contaminants from construction vehicles and equipment and sediment from soil erosion could increase the pollutant load in runoff being transported to receiving water during development. Although surface runoff from the site would likely decrease with the proposed project (due to proposed stormwater treatment measures), runoff from the proposed landscaped areas may contain residual pesticides and nutrients (associated with landscaping) and sediment and trace metals (associated with atmospheric deposition) during operation of the project. Implementation of mitigation measures Mitigation Measure 3.6/27.0 and Mitigation Measure 3.6/28.0, as described in Section 6, Geology and Soils, would ensure that potential water quality impacts associated with project construction are reduced to a less-than-significant level. The project would be required to comply with these mitigation measures.

In addition, because the project would result in the disturbance of greater than one acre of soil, project implementation is required to comply with the Construction General Permit, which requires preparation of a SWPPP and implementation of BMPs to reduce the discharge of construction-related stormwater pollutants. A SWPPP must include a detailed description of controls to reduce pollutants and outline maintenance and inspection procedures. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing and maintaining construction exits and perimeter controls to avoid tracking sediment off-site onto adjacent roadways. A SWPPP also defines proper building material staging and storage areas, paint and concrete washout areas, describes proper equipment/vehicle fueling and maintenance practices, measures to control equipment/vehicle washing and allowable non-stormwater discharges, and includes a spill prevention and response plan. Compliance with the requirements of the Construction General Permit and implementation of mitigation measures Mitigation Measure 3.6/27.0 and Mitigation Measure 3.6/28.0 ensure that the proposed project would result in less-than-significant impacts to water quality during construction.

As the site is currently largely undeveloped, the proposed project would increase the total amount of impervious surface on the project site. The increase in impervious surface could result in increased stormwater runoff (both flow rate and volume) from the project site relative to pre-project conditions, which may result in hydromodification impacts (i.e., increased potential for erosion of creek beds and banks, silt pollution generation, or other adverse impacts on beneficial uses due to increased erosive force). Hydromodification is the alteration of the natural flow of water through a landscape, and often takes the form of creek channel erosion. Hydromodification is one of the leading sources of impairment in streams, lakes, and estuaries.

The proposed project is subject to the conditions of the Municipal Regional Permit (MRP) (Order No. R2-2022-0018 NPDES Permit No. CAS612008). The C.3 Stormwater Technical Guidance updated in February 2021 as per the Alameda County Clean Water Program, outlines low impact development (LID) provisions that the MRP permit holders can use during planning of development activities to manage and reduce occurrences of stormwater runoff pollutant discharges. These low impact development methods aim to preserve existing natural landscapes to minimize imperviousness and water quality impacts.

The proposed project would be considered a "regulated project" under the MRP. Provision C.3 of the MRP requires new development and redevelopment projects that would replace more than 5,000 square feet of existing impervious surfaces to include post-construction stormwater control in project designs, including measures for site design, source control, runoff reduction, stormwater treatment, and baseline hydromodification management. Under the C.3 requirements, the preparation and submittal of a Stormwater Control Plan (SCP) would be required for the project site. The purpose of a SCP is to detail the design elements and implementation measures necessary to meet the post-construction stormwater control requirements of the MRP. In particular, SCPs must include LID design measures, which reduce water quality impacts by preserving and recreating natural landscape features, minimizing imperviousness, and using stormwater as a resource, rather than a waste product. The proposed project would also be required to prepare a Stormwater Facility Operation and Maintenance Plan to ensure that stormwater control measures are inspected, maintained, and funded for the life of the project. Compliance with the C.3 requirements of the MRP would ensure that operation-period impacts to water quality would be less than significant.

As outlined in the project description, the proposed project would include approximately 43,151 square feet of bioretention space on the project site that would be used for stormwater quality control. The proposed project would include multiple bioretention basins and storm drains throughout the project site, which would connect to downstream hydromodification facilities prior to discharging to existing/proposed storm drain pipes. Hydromodification vaults would be included on-site to provide flow duration controls for the project.

In addition, Mitigation Measure 3.5/46.0, identified in the Eastern Dublin EIR, which requires preparation of a storm drainage plan for the proposed project, and Mitigation Measure SM-SD-2, identified in the Fallon Village SEIR, which requires compliance with Alameda County C.3 requirements, would ensure that potential impacts associated with stormwater runoff would be reduced to a less-than-significant level.

(b) Substantially decrease or interfere with groundwater supplies

Although the proposed project would result in a net increase in impervious surface coverage compared to the existing condition, the proposed project would include the use of LID, including multiple bioretention basins and storm drains throughout the site that would retain and clean stormwater on-site before discharging it into the municipal stormwater system, consistent with Provision C.3 of the MRP.

The proposed project would connect to the existing water lines within the vicinity of the project site and would not require the use of groundwater. Due to the depth of groundwater and the shallow excavations required for project construction, dewatering is not anticipated during construction activities.

(c) Substantially alter existing drainage patterns re: erosion/siltation, re: flooding, or degrade water quality

The proposed project would create new landscaped areas and impermeable pavement surfaces, which would alter the existing drainage pattern of the project site. However, as discussed above, the proposed project would be required to comply with the C.3 requirements of the MRP, standard City development requirements related to stormwater, and mitigation measures identified in the Eastern Dublin EIR and Fallon Village SEIR, including Mitigation Measure 3.5/47.0, which requires preparation of a flood control plan for the proposed project.

As noted in Section 8.b and 9.a, the proposed project would be required to prepare a SWPPP as required by the Construction General Permit and consistent with Mitigation Measure 3.6/27.0 and Mitigation Measure 3.6/28.0, identified in the Eastern Dublin EIR, to reduce short- and long-term erosion and sedimentation associated with project construction and operation.

Required compliance with applicable regulations, implementation of City policies, and the mitigation measures identified in the EDSP EIRs, would reduce potential impacts of the project related to changes in drainage patterns to a less-than-significant level.

(d) Flood hazard, seiche, or tsunami

As described above, the project site is not located within a flood hazard area mapped by FEMA, or a mapped tsunami inundation area for Alameda County, and no seismically induced seiche waves have ever been documented in the San Francisco Bay area. Additionally, the proposed project would implement various design features to ensure contaminants would be contained.

(e) Water Quality

As noted above, the proposed project would implement various design features to ensure the proposed project would have a less-than-significant impact related to water quality, including multiple bioretention basins and storm drains throughout the site that would retain and clean stormwater on-site before discharging it into the municipal stormwater system, consistent with Provision C.3 of the MRP. Therefore, the proposed project would not interfere with groundwater recharge in the vicinity of the project site.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified hydrology and water quality impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to hydrology and water quality resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

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Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Land Use and Planning

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
10. LAND USE AND PLANNING. Would the project:			
a) Physically divide an established community?			X
b) Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X

Environmental Setting

The project site consists primarily of undeveloped grazing ranchland and open space, but also includes some rural residential development in the northwest and southern portion. Existing structures on the project site include several houses, a barn and several sheds, located in the southern portion of the property and a house located in the northwestern portion of the property.

The project site has General Plan land use designations of Medium Density Residential (9.8 acres) and Industrial Park (30.29 acres). The Medium Density Residential designation allows attached residential units and typically includes detached, zero-lot line, duplex, townhouse, and garden apartment development at a density of 6.1 to 14.0 units per gross residential acre.

The Industrial Park designation allows a wide variety of minimum-impact, light industrial uses. Uses allowed within this designation include, but are not limited to, the following: manufacturing, processing, assembly, fabrication, research and development, printing, warehouse and distribution, and wholesale and heavy commercial uses provided the activities do not have significant external effects in the form of noise, dust, glare, or odor. Uses requiring outdoor storage and service yards are permitted in this designation as long as they do not have adverse effects on surrounding uses. A maximum FAR of 0.35 and an employee density of 590 square feet per employee are allowed within the Industrial Park designation.

The project site is zoned Planned Development (PD) Ordinance No. 32-05. The intent of the PD zoning district is to create a more desirable use of the land, a more coherent and coordinated development, and a better physical environment than would otherwise be possible under a single zoning district or combination of zoning districts. A PD district is established through an adopted Development Plan, which establishes regulations for the use, development, improvement, and maintenance of the property within the PD district and consists of two stages. The project site is governed by the Stage 1 Development Plan adopted as part of the Fallon Village Project.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified less than significant impacts related to the substantial alteration to existing land use, on-site project land use conflicts, conversion of non-urban lands, potential conflicts with land uses to the south, east and north. A potentially significant impact was identified related to potential conflicts with land uses to the west, which was determined to be less than significant with implementation of Mitigation Measure 3.1/1.0, which requires the City to coordinate with the Army regarding future development proposals in the vicinity of the U.S. Army's Parks Reserve Forces Training Area (Camp Parks RFTA). This mitigation measure does not apply to the proposed project.

2002 SEIR

Land use and planning was addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR determined that the expansion of the EDSP planning boundary and the designation of land uses resulting from the Fallon Village project would be consistent with the City's General Plan. No supplemental impacts related to land use and planning were identified.

Project Impacts and Mitigation Measures

(a) Physically divide an established community

The physical division of an established community typically refers to the construction of a feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The proposed project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. Primary access into the residential neighborhood would be via the proposed extension of Central Parkway to the north, within the proposed East Ranch (Croak property) development. Primary access to the IP parcels would be provided by the future Dublin Boulevard extension, which is being planned and implemented by the City of Dublin. The proposed project would not result in the realignment or closure of any existing roads. Therefore, the proposed project would not result in the physical division of an established community or adversely affect the continuity of land uses in the vicinity.

(b) Conflict with land use plan, policy, or regulation

The proposed project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. The proposed project would be consistent with the Medium Density Residential land use designation in that number and type of residential units proposed is consistent with the density allowed under the City of Dublin General Plan, the EDSP, and subsequent planning entitlements. In addition, the proposed residential development would be compatible with the mix and intensity of uses located to the north of the project site, which generally consist of residential and public uses associated with the East Ranch development approved in December 2021.

As outlined in the project description, the project proposes a 0.40 floor area ratio (FAR) for the IP portion of the project site, which is an increase from the maximum 0.35FAR allowed in the Fallon Village Stage 1 PD approval and an increase from the maximum 0.28 FAR evaluated under the EDSP EIRs. The EDSP provides discretion to the City Council to approve a higher FAR if the proposed uses meet one or more of the following criteria:

- Unique project characteristics which result in reduced impacts relative to other uses in the same area (e.g., lower traffic generation);
- Unique project building requirements (e.g., warehouse uses that have large land coverage requirements but low employment densities); or
- Extraordinary benefits to the City.

As part of the project entitlements and consistent with the EDSP, the City may grant a Planned Development Rezone to allow for the increased FAR. The proposed project would not conflict with any applicable land use plans, policies, or regulations.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified land use and planning impacts, nor result in new significant impacts.

There are no applicable regulatory requirements or mitigation measures identified in the EDSP EIRs that are applicable to land use and planning and there would be no new or substantially more severe significant impacts to land use and planning beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Mineral Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
11.	**MINERAL RESOURCES. 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?			X
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?			X

Environmental Setting

Minerals are any naturally occurring chemical element or compound, or groups of elements and compounds, formed from inorganic processes and organic substances including, but not limited to, coal, peat and oil-bearing rock, but excluding geothermal resources, natural gas and petroleum. Rock, sand, gravel and earth are also considered minerals by the Department of Conservation when extracted by surface mining operations.

Neither the State Geologist nor the California Department of Mines and Geology (CDMG) have classified any areas in the City as containing mineral deposits that are either of Statewide significance or the significance of which requires further evaluation.

Previous CEQA Documents

None of the EDSP EIRs indicate that significant mineral resource deposits exist on the project site. Therefore, no impacts related to mineral resources were identified.

Project Impacts and Mitigation Measures

(a-b) Loss of known or identified mineral resource

The project site does not have any mineral extraction areas so there would be no new or substantially more severe impacts to mineral resources. The proposed project would not result in the loss of available of a known mineral resource that would be of value of the region and residents of the state or the loss of availability of any known locally important mineral resource recovery site.

Conclusion

Because the City does not have any mineral areas, there would be no impact, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Noise

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
12.	**NOISE. 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?			X
b)	Generation of excessive ground borne vibration or ground borne noise levels?			X
c)	For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X

Environmental Setting

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 10-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 that better represent human sensitivity 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.

Vibration refers to ground-borne noise and perceptible motion. Ground-borne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem where the motion may be discernible, but there is less adverse reaction without the effects associated with the shaking of a building. 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, otherwise referred to as ground-borne noise. Typically, sources that have the potential to generate ground-borne noise are likely to produce airborne noise impacts that mask the radiated ground-borne noise. The rumbling noise is caused by the vibrating walls, floors, and ceilings radiating sound waves. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by 10 dB or less. This is an order of magnitude below the damage threshold for normal buildings.

Typical sources of ground-borne vibration are construction activities (e.g., blasting, pile driving, and operating heavy-duty earthmoving equipment) and occasional traffic on rough roads. Problems with ground-borne vibration and noise from these sources are usually localized to areas within approximately 100 feet of the vibration source, although there are examples of ground-borne vibration causing interference out to distances greater than 200 feet. 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 ground-borne vibration from street traffic will not exceed the impact criteria; however, construction of the project could result in ground-borne vibration that could be perceptible and annoying.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified that impacts related to the exposure of existing and proposed development to airport noise would be less than significant. The Eastern Dublin EIR also found that impacts related to exposure of proposed housing to future roadway noise, exposure of existing and proposed residences to construction noise, and noise conflicts due to the adjacency of diverse land uses permitted by plan policies supporting mixed-use development would be less than significant with implementation of mitigation measures identified in the Eastern Dublin EIR. In addition, the Eastern Dublin EIR identified that impacts associated with exposure of existing residences to future roadway noise and exposure of proposed residential development to noise from future military training activities at Camp Parks RFTA and the County jail would be significant and unavoidable. The following mitigation measures would apply to the proposed project:

> **MM 3.10/1.0** Require that an acoustical study be submitted with all residential development projects located within the future CNEL 60 contour. The goal of the acoustical study is to show how the interior noise level will be controlled to a CNEL of 45

dB as required by Title 24, Pat II. The Title 24 goal of CNEL 45 should be applied to single-family housing.

MM 3.10/2.0 Require that development projects provide for noise barriers or berms near existing residences to control noise in outdoor use spaces. One possibility is the construction of solid fences around outdoor use areas. The noise control for existing residences should be evaluated on a case-by-case basis.

MM 3.10/3.0 Require an acoustical study prior to future development in the Tassajara Foothill Residential, Tassajara Village Center, County Center and Hacienda Gateway sub-area to determine if future noise impact from Parks RFT A or the County jail will be within acceptable limits. The goal of the study will be to identify all potential noise-generating operations and determine if future noise levels will exceed the acceptable levels as defined by the City and Army.

MM 3.10/4.0 Developers shall submit to the City a Construction Noise Management Program that identifies measures to be taken to minimize impacts on existing planning area residents. The program will include a schedule for grading and other major noise-generating activities that will limit these activities to the shortest possible number of days. Hours of construction activities shall be limited in keeping with Dublin ordinances. The Program for construction vehicle access to the site shall minimize construction truck traffic through residential areas. If construction traffic must travel through residential areas, then a mitigation plan should be developed. The Program may include barriers, berms or restrictions on hours.

MM 3.10/5.0 In order to minimize the impact of construction noise, all operations should comply with local noise standards relating to construction activities. When construction occurs near residential areas, then it should be limited to normal daytime hours to minimize the impact. Stationary equipment should be adequately muffled and located as far away from sensitive receptors as possible.

MM 3.10/6.0 Noise management plans shall be prepared and reviewed as part of development application for all mixed-use projects in which residential units would be combined with commercial, office, or other urban non-residential uses. The objective of the noise management plan would be to provide a high-quality acoustic environment for residents and nonresidential tenants/ owners by taking steps to minimize or avoid potential noise problems. The plan would be prepared by a qualified acoustical consultant. The plan would take into account the concerns of residents, nonresidential tenants/ owners, and maintenance personnel. The plan should be prepared at an early stage of the design process. Ideally, the acoustical consultant should provide input to the architect at a preliminary site plan stage, to make maximum use of detailed site planning to avoid noise conflicts.

2002 SEIR

A review of potential impacts related to the exposure of proposed and existing housing to noise levels in excess of standards established in the General Plan, exposure of future commercial, office and industrial uses to noise levels in excess of standards established in the General Plan, and exposure of people to or generation of excessive ground borne vibration or ground borne noise levels was conducted as part of the 2002 SEIR. The 2002 SEIR determined that no additional noise impacts would occur beyond those identified at the time the Eastern Dublin EIR was certified. However, the 2002 SEIR identified the following supplemental mitigation measures that would be applicable to the proposed project:

SM-NOISE-1 Require a noise insulation plan for general commercial (including any proposed office-type uses) and industrial land uses to be submitted for all such development projects located within the future CNEL 70 dBA contour. The plan shall show how interior noise levels would be controlled to acceptable levels. The acceptable level will depend on the type of use as set forth in the noise insulation plan. Interior noise levels could be controlled adequately by using sound-rated windows in windows closest to the streets and the freeway.

SM-NOISE-2 Except for local deliveries, restrict heavy truck traffic to designated arterial roadways and truck routes within the Project area and limit the hours of local deliveries to daytime hours as established by the City.

Fallon Village SEIR

No additional impacts were identified in the Fallon Village SEIR. However, the Fallon Village SEIR identified the following supplemental mitigation measures that would be applicable to the proposed project:

SM-NOISE-1 (aircraft flyovers). All occupants of the residential dwellings within the proposed Project shall receive written notification at the time of sale, rental or lease of the potential for aircraft overflights of the Fallon Village Project area. Written notices shall be approved by the Dublin Community Development Director.

SM-NOISE-2 (future roadway noise affecting proposed residential development). An acoustical study must be prepared for the project. The study shall show how the project will meet an indoor goal of 45 dBA CNEL. In addition, the study must show how noise in outdoor areas will meet the level of a CNEL of 60 dBA (CNEL of 65 dBA at City's discretion). Based on preliminary site development information it is likely that the project can meet the indoor goal with regular double-glazed windows (no special sound rating). A noise barrier may be required if backyards or other primary outdoor use spaces are located adjacent to either Croak Road or Upper Loop Road.

SM-NOISE-3 (compatibility of school and neighborhood park with future roadway noise). The design of the elementary school and neighborhood park shall consider noise reduction measures to comply with City exterior noise exposure limits including but not limited to appropriate siting of improvements, use of noise barriers and similar noise reduction techniques as may be needed.

SM-NOISE-4 (noise from Upper Loop Road affecting existing residences). Noise from Upper Loop Road is expected to generate a CNEL in excess of 60 dBA. The existing homes along the existing alignment of Fallon Road are currently exposed to an L_{dn} of about 56 to 59 dBA. It is unlikely but possible that the noise from Upper Loop Road would cause noise levels to increase by more than 6 dBA at these existing homes. However, an evaluation of noise from Upper Loop Road on existing dwellings shall be made and if it is found that the road would increase noise by more than 6 dBA in backyards of those existing homes, then appropriate noise mitigation measures (i.e., roadway alignment or noise barrier) shall be included in the new roadway design.

The City of Dublin adopted a Statement of Overriding Considerations for the significant unavoidable impacts described above.

Project Impacts and Mitigation Measures

(a) Generate noise exceeding standards

The short-term construction and long-term noise impacts associated with the proposed project are described below.

Short-Term Construction Noise Impacts. Project construction would result in short-term noise impacts on the nearby sensitive 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. The level and types of noise impacts that would occur during construction are described below.

Table F lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 feet between the equipment and a noise receptor, obtained from the Federal Highway Administration (FHWA) Roadway Construction Noise Model. Construction-related short-term noise levels would be higher than existing ambient noise levels currently in the project area but would no longer occur once construction of the project is completed.

Two types of short-term noise impacts could occur during construction of the proposed project. The first type involves construction crew commutes and the transport of construction equipment and materials to the site, which would incrementally raise noise levels on roadways leading to the project site. Two main categories of trips would be generated by construction activities: (1) worker commute trips; and (2) haul/delivery truck trips. Heavy equipment would not be hauled to/from the project site daily; it would be hauled in at the beginning of construction and hauled out upon completion of construction. Construction trips would occur throughout the day, but because the hauling trucks are not expected to pass sensitive uses, there would be no impacts to sensitive uses.

The second type of short-term noise impact is related to noise generated during site preparation and the construction of the proposed project. The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months. Construction would be undertaken in discrete steps, each of which would have its own mix of equipment, and consequently its own noise characteristics. These various sequential phases would change the character of the noise generated on the project site. Therefore, the noise levels would 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 F lists the maximum noise levels from the Highway Construction Noise Handbook recommended for noise impact assessments for the loudest anticipated construction that would be used for the project based on a distance of 50 feet between the equipment and a noise receptor. Typical operating cycles for these types of construction equipment may involve one to two minutes of full power operation followed by three to four minutes at lower power settings.

Table F: Typical Maximum Construction Equipment Noise Levels (Lmax)

Type of Equipment	Acoustical Usage Factor	Suggested Maximum Sound Levels for Analysis (dBA L_{max} at 50 ft)
Air Compressor	40	80
Backhoe	40	80
Crane	16	85
Dozers	40	85
Excavator	40	85
Forklift	20	85
Generator	50	80
Grader	40	85
Loader	40	80
Paver	50	85
Roller	20	85
Scraper	40	85
Skid Steer Loader	40	80
Tractor	40	84
Trencher	50	82
Water Truck	40	84

Source: *Highway Construction Noise Handbook* (FHWA 2006).
dBA = A-weighted decibel
FHWA = Federal Highway Administration
ft = foot/feet
HP = horsepower
L_{max} = maximum noise level

Each piece of construction equipment operates as an individual point source. Utilizing the following equation, a composite noise level can be calculated when multiple sources of noise operate simultaneously:

$$Leq\ (composite) = 10 * \log_{10}\left(\sum_{1}^{n} 10^{\frac{Ln}{10}}\right)$$

Table G shows the composite noise levels of the two loudest pieces of equipment for each construction phase, at a distance of 50 feet from the construction area.

Once composite noise levels are calculated, reference noise levels can then be adjusted for distance using the following equation:

$$Leq\ (at\ distance\ X) = Leq\ (at\ 50\ feet) - 20 * \log_{10}\left(\frac{X}{50}\right)$$

In general, this equation shows that doubling the distance would decrease noise levels by 6 dBA while halving the distance would increase noise levels by 6 dBA.

Table G: Equipment Noise by Construction Phase

Construction Phase	Loudest Equipment	Composite Noise Level at (dBA L_{eq} at 50 ft)
Demolition	Excavator	88
	Dozer	
Grading	Excavator	88
	Grader	
Building Construction	Crane	88
	Forklift	
Paving	Paver	88
	Roller	
Architectural Coating	Air Compressor	80

Sources: Compiled by LSA Associates, Inc. (2021). *Construction Noise Handbook* (FHWA 2006).
dBA = A-weighted decibel
FHWA = Federal Highway Administration
ft = foot/feet
L_{max} = maximum noise level

According to the construction schedule, the phases of construction include: (1) demolition; (2) grading; (3) building construction; (4) paving; and (5) architectural coating. To provide a conservative estimate, the noise levels were calculated from the edge of the project site, whereas the construction activities would cover the entire site and often be further from sensitive receptors. Based on the typical construction equipment noise levels shown in Table G, noise levels associated with these pieces of construction equipment operating simultaneously would be approximately 88 dBA L_{eq} at 50 feet.

The closest sensitive receptors to the project site include the residence located approximately 710 feet east of the project site along Collier Canyon Road, resulting in short-term noise levels of approximately 65 81 dBA L_{eq}.

Construction equipment would operate at various locations throughout project site and construction activities at any one receptor location would occur for a limited duration. While construction-related short-term noise levels have the potential to be higher than existing ambient noise levels in the project area, the noise impacts would no longer occur once project construction is completed.

As compared to the EDSP EIRs, the proposed project would generate similar noise levels during construction and would implement the previously required mitigation measures, Mitigation Measures 3.10/4.0 and 3.10/5.0, to reduce construction related impacts to a less-than-significant level. With implementation of these mitigation measures, the proposed project would not result in any new or more severe impacts compared to those identified in the EDSP EIRs.

Long-Term Off-Site Traffic Noise Impacts. The EDSP EIRs identified the sources of major noise affecting the EDSP area to be vehicular traffic stemming from I-580. The proposed project is estimated to generate an average daily traffic (ADT) volume of 2,630. The EDSP EIRs identified a potentially significant impact for future roadway noise as a result of the build out of the EDSP, which includes the proposed project. Implementation of mitigation measures within the EDSP EIRs reduces this impact to an insignificant level.

Long-Term Off-Site Operation-Related Noise Impacts. Noise impacts associated with the long-term operation of the project must comply with the noise standards specified in the City's Municipal Code, which sets a 50 dBA L_{eq} standard for residential land uses. Stationary noise generated by the proposed project include heating, ventilation, and air conditioning (HVAC) equipment, parking lot activities, and truck delivery and truck unloading activities.

Parking Lot and Loading Activities. Of the on-site stationary noise sources during operation of the project, noise generated by delivery truck activity would generate the highest maximum noise levels. Typical parking lot activities, such as people conversing or doors slamming, would generate noise levels of approximately 60 dBA to 70 dBA L_{max} at 50 feet, while delivery truck loading and unloading activities would result in maximum noise levels generate a noise level of 75 dBA L_{max} at 50 feet based on measurements previously conducted by LSA.

The proposed industrial park uses could include loading activities, which could generate potential noise sources that could affect noise-sensitive receptors in the project site vicinity. However, as discussed above, the closest off-site sensitive receptors to the project site includes the residence located approximately 710 feet east of the project site along Collier Canyon Road. At this distance, loading and unloading activities would only result in maximum noise levels generate a noise level of 52 dBA L_{max}. Peak noise levels from loading and unloading would be intermittent and when averaged over one hour, these sources would not exceed the City's 50 dBA L_{eq} standard for residential land uses.

Mechanical Equipment. In addition, adjacent off-site land uses would be potentially exposed to stationary-source noise impacts from HVAC equipment proposed with the project. The project is expected to have HVAC units serving each building of the project site. The HVAC equipment could operate 24 hours per day. One HVAC unit would generate a noise level of 72 dBA L_{eq} at 3.3 feet, based on manufacturer testing of typical equipment for such uses. However, based on the distance of 710 feet, the noise level associated with the operation of the proposed HVAC equipment would be well below the City's 50 dBA L_{eq} exterior noise standard for mechanical equipment. Therefore, the project would not 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 any other applicable standards.

Land Use Compatibility. The EDSP EIRs evaluated the noise compatibility of future development and found that depending on the location of new land uses that may be constructed, future noise levels within some portions of the Project Area could be incompatible with such uses. Therefore, the EDSP EIRs identified Mitigation Measures 3.10/1.0, 3.10/3.0, 3.10/6.0 and Supplemental Measures SM-NOISE-1, SM-NOISE-2 (future roadway noise affecting proposed residential development), SM-NOISE-3 (compatibility of school and neighborhood park with future roadway noise), and SM-NOISE-4 (noise from Upper Loop Road affecting existing residences) to reduce future roadway noise and exposure of proposed residential development to noise.

The City sets forth normally acceptable noise level standards for land use compatibility and interior noise exposure of new development. The normally acceptable exterior noise level for residential land uses is up to 60 dBA CNEL. Noise levels of 61 to 70 dBA CNEL are considered conditionally acceptable when a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design. Noise levels between 71 and 75 dBA CNEL are considered normally acceptable and noise levels over 75 dBA CNEL are considered clearly unacceptable. The normally acceptable interior noise level for residential land uses is 45 dBA CNEL. For industrial land uses, the normally acceptable exterior noise level for residential land uses is up to 70 dBA CNEL. Noise levels of 71 to 75 dBA CNEL are considered conditionally acceptable and noise levels over 75 dBA CNEL are considered normally unacceptable.

The noise environment at the project site is dominated by vehicle traffic noise on I-580. Based on Figure 9-2 of the City of Dublin General Plan, traffic noise levels on the project site are between 60 and 70 dB CNEL. Based on the City's noise and land use compatibility standards, this noise level is considered conditionally acceptable for residential land uses and normally acceptable for industrial land uses. Therefore, the proposed project would be required to comply with Mitigation Measures Mitigation Measures 3.10/1.0, 3.10/6.0, Supplemental Measure SM-NOISE-1, and Supplemental Measure SM-NOISE-2 (future roadway noise affecting proposed residential development).

Mitigation Measure 3.10/1.0 requires an acoustical study be submitted with all residential development projects located within the CNEL 60 contours. Mitigation Measure 3.10/6.0 requires preparation of noise management plans as part of development application for all mixed-use projects in which residential units would be combined with commercial, office, or other urban non-residential uses. Supplemental Measure SM-NOISE-1 requires a noise insulation plan for general commercial and industrial land uses to be submitted for all such development projects located within the CNEL 70 dBA contour. Supplemental Measure SM-NOISE-2 (future roadway noise affecting proposed residential development) requires an acoustical study be prepared to show how residential development will meet indoor noise levels of 45 dBA CNEL and outdoor noise levels of 60 dBA CNEL. Mitigation Measure 3.10/3.0, Supplemental Measure SM-NOISE-3 (compatibility of school and neighborhood park with future roadway noise), and Supplemental Measure SM-NOISE-4 (noise from Upper Loop Road affecting existing residences) would not be applicable to the proposed project based on the project site location and proposed land uses.

With implementation of Mitigation Measures 3.10/1.0, 3.10/6.0, Supplemental Measure SM-NOISE-1, and Supplemental Measure SM-NOISE-2 (future roadway noise affecting proposed residential development), the proposed project would achieve an acceptable interior and exterior noise level in accordance with the land use compatibility guidelines of the Noise Element of the City's General Plan.

(b) Generate excessive ground borne vibration or ground borne noise

Construction of the proposed project could result in the generation of groundborne vibration. This construction vibration impact analysis assesses the potential for building damages using vibration levels in peak particle velocity (in/sec PPV). The criteria for environmental impacts resulting from ground-borne vibration are based on the maximum levels for a single event. The guidelines within the Federal Transit Administration (FTA) Manual have been used to determine vibration impacts (refer to Table H, below).

Table H: Construction Vibration Damage Criteria

Building Category	**PPV (in/sec)**
Reinforced concrete, steel, or timber (no plaster)	0.50
Engineered concrete and masonry (no plaster)	0.30
Non-engineered timber and masonry buildings	0.20
Buildings extremely susceptible to vibration damage	0.12

Source: *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018), Table 12-3.
FTA = Federal Transit Administration PPV = peak particle velocity
in/sec = inches per second

The FTA Manual guidelines show that a vibration level of up to 0.2 in/sec PPV is considered safe for non-engineered timber and masonry buildings and would not result in any construction vibration damage. Therefore, in order to be conservative, the 0.2 in/sec PPV threshold has been used when evaluating vibration impacts at the nearest structures to the site.

Table I shows the PPV values at 25 feet from a construction vibration source. Bulldozers and other heavy-tracked construction equipment (except for vibratory rollers) generate approximately 0.089 in/sec PPV of groundborne vibration when measured at 25 feet.

Table I: Vibration Source Amplitudes for Construction Equipment

Equipment	Reference PPV (in/sec) at 25 feet
Vibratory Roller	0.210
Hoe Ram	0.089
Large Bulldozer	**0.089**
Caisson Drilling	0.089
Loaded Trucks	0.076
Jackhammer	0.035
Small Bulldozer	0.003

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

Construction vibration, similar to vibration from other sources, would not have any significant effects on outdoor activities (e.g., those outside of residential buildings in the project vicinity). While vibration from construction activity was not assessed in the EDSP EIRs, the proposed project is expected to include the use of heavy equipment similar to a large bulldozer. The distance to the nearest buildings for vibration impact analysis is measured between the nearest off-site buildings and the project disturbance areas because vibration impacts occur normally within the buildings. The formula for vibration transmission is provided below.

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

The closest structure to the project site includes the residence located approximately 710 feet east of the project site along Collier Canyon Road. At this distance, the closest structure would experience vibration levels of approximately 0.001 in/sec PPV with the use of heavy equipment at the property line. Based on this analysis, vibration levels would not exceed any of the established guidelines considered for damage potential. In addition, short-term construction impacts related to ground-borne vibration or ground-borne noise would be minimal and temporary in nature and would cease upon construction.

Once operational, increased traffic on I-580 and project area roadways also could increase groundborne vibration caused by the passage of heavy trucks or equipment along nearby streets. As such, implementation of Supplemental Measure NOISE-2 was identified to reduce groundborne vibration from increased levels of heavy traffic to less than significant. With implementation of Measure SM-NOISE-2, the proposed project result in less-than-significant operational vibration impacts.

(c) Excessive noise level near an airport

The project site is located approximately 0.5-mile northwest of the Livermore Municipal Airport. Aircraft noise is occasionally audible at the project site; however, no portion of the project site lies within the 60 dBA CNEL noise contours of this airport nor does any portion of the project site lie within two miles of any other airfield or heliport. Therefore, the proposed project would not result in the exposure of people residing or working in the project area to excessive noise levels.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified noise impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to noise beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Dublin, City of. 2020. Municipal Code. December.

Federal Highway Administration (FHWA). 2006. Highway Construction Noise Handbook. Roadway Construction Noise Model, FHWA-HEP-06-015. DOT-VNTSC-FHWA-06-02. NTIS No. PB2006-109012. August

Federal Transit Administration (FTA). 2018. Office of Planning and Environment. Transit Noise and Vibration Impact Assessment. FTA Report No. 0123. September.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Population and Housing

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
13.	**POPULATION AND HOUSING. 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)?			X
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			X

Environmental Setting

According to the City of Dublin General Plan, in 2010, Dublin's total population was estimated at 46,036 and represented 17 percent of the 269,437 residents in the Tri-Valley area. Data from the 2020 United States Census indicates that Dublin's total population has grown to 72,589 and 24,426 housing units.

The project site consists of approximately 32 acres of undeveloped grazing ranchland and open space and 8 acres of developed rural residential development, consisting of three residential units, a barn, several sheds and outdoor storage areas used as part of a landscape contractor business located in the southern portion of the property.

Previous CEQA Documents

Eastern Dublin EIR

Section 3.2 in the Eastern Dublin EIR provides the demographics, housing and employment context for the EDSP. The Eastern Dublin EIR provided a program-level analysis of the development potential envisioned for the EDSP Area, including the increased development potential in the City, the Tri-valley area, and the entire San Francisco Bay Area. The Eastern Dublin EIR specifically evaluated new development potential in the EDSP Area of up to 17,970 residential units and approximately 12 million square feet of non-residential space, including approximately 5 million square feet of commercial, 4 million square feet of office, and 2 million square feet of industrial park. No impacts related to population or displacement of existing housing were identified. Growth-inducing impacts associated with implementation of the EDSP were evaluated in Section 5.2 of the Eastern Dublin EIR. Growth-inducing impacts were identified for utilities and community services.

2002 SEIR

The 2002 SEIR identified no supplemental impacts resulting from the EDPO project because population growth associated with the EDPO would not be beyond that anticipated or planned for in the City of Dublin General Plan and the EDSP.

Fallon Village SEIR

No additional impacts or mitigation were identified in the Fallon Village SEIR.

Project Impacts and Mitigation Measures

(a) Population growth

The site is identified in the General Plan and the EDSP for residential and industrial development and the proposed density and intensity of development is consistent with the General Plan Land Use designation. The extension of infrastructure onto the project site, including roadways and utilities that would only serve the proposed development, would not contribute to or cause additional growth to occur outside of the City boundaries or elsewhere within the vicinity of the project site, as the project site is surrounded by other properties that have been designated for development in the City's General Plan, EDSP and subsequent planning documents.

The proposed project would generate housing-related population growth by developing up to 97 residential dwelling units at the project site, which is consistent with the number of residential units considered and approved as part of the EDSP EIRs. According to the U.S. Census date, between 2016 and 2020, the City had an average of 2.99 persons per household. Based upon an average of 2.99 persons per household, and with up to 97 proposed residential units, the proposed project would increase the City's population by approximately 290 residents. Based on population estimates prepared for Plan Bay Area 2050,[10] this increase represents about 0.51 percent of the City's total estimated 2015 population (56,165). The estimated population generated by the project (290 residents) would represent approximately 0.35 percent of the City's projected 2040 population (83,595). The population growth anticipated between 2010 and 2040 is expected to be 36,915; population associated with the project would represent 0.78 percent of the anticipated growth. The amount of residential development proposed as part of the current project is consistent with the population growth anticipated in the City's General Plan, the Eastern Dublin Specific Plan, and the Fallon Village project approvals. Therefore, the proposed project would not induce substantial unplanned population growth.

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10 Association of Bay Area Governments and Metropolitan Transportation Commission. 2018. Plan Bay Area Projections 2040. May.

In addition, the proposed project would result in development of 527,773 square feet of IP uses, which is an increase of 155,771 square feet from that considered and approved as part of the EDSP EIRs. Per the City's General Plan, the allowed employee density within the IP land use designation is 590 square feet per employee. Therefore, the proposed project could provide employment opportunities for up to 894 employees at the project site or 264 additional employees than previously approved. According to the United States Census Bureau, approximately 90 percent of Dublin residents worked outside of the City, while 10 percent of Dublin residents both live and work within the City limits. Using this estimate, approximately 26 additional employees generated by the proposed project would require housing within the City or would move to the City solely for reasons of employment. These 26 employees could be accommodated by the residential development proposed as part of the project, other residential development nearby (e.g., East Ranch, Righetti project), or residential development being constructed elsewhere in the City.

The project site is designated as IP, which is intended to provide for a wide variety of minimum-impact, light industrial uses. Because it is anticipated that uses within the IP designation would provide employment, the proposed project would not induce substantial unplanned population growth in the area.

The proposed project would not induce substantial unanticipated population growth in the City, and the population increase would fall within the increase identified in the City's General Plan, including the Housing Element, the EDSP, and the Fallon Village Project approvals.

(b) Housing and resident displacement

The project site contains four existing residences and various agricultural out-buildings. The EDSP EIRs determined that due to the limited number of current residents, development of the project site would not displace substantial number of existing housing units or people; therefore, no impact was identified.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified population and housing impacts, nor result in new significant impacts.

There are no applicable regulatory requirements or mitigation measures identified in the EDSP EIRs that are applicable to population and housing and there would be no new or substantially more severe significant impacts to population and housing beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Association of Bay Area Governments and Metropolitan Transportation Commission. 2018. Plan Bay Area Projections 2040. May.

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

U.S. Census Bureau. 2020. QuickFacts, Dublin city website: https://www.census.gov/quickfacts/fact/table/dublincitycalifornia/PST040221 (accessed July 21, 2022).

U.S. Census Bureau. 2021. Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (2002-2019). Washington, DC: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program, accessed on June 20, 2022, at https://onthemap.ces.census.gov. LEHD Origin-Destination Employment Statistics Version 7.5

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Public Services

ENVIRONMENTAL IMPACTS **Issues**		**New Significant Impact**	**Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs**	**Equal or Less Severe Impact than Identified in the EDSP EIRs**
14.	**PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical 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:**			
a)	Fire protection?			X
b)	Police protection?			X
c)	Schools?			X
d)	Parks?			X
e)	Other public facilities?			X

Environmental Setting

The proposed project is located within the City of Dublin and is served by the following existing public services.

Fire Protection

Fire suppression, emergency medical and rescue services, and other life safety services are provided to the project area and site by the Alameda County Fire Department (ACFD). There are three fire stations in Dublin, with the closest to the project site being Fire Station No. 18 at 4800 Fallon Road, approximately 4.4 miles northwest. Back up service to the Project area would be provided by Fire Station 17, located at 6200 Madigan Road in Dublin.

Police Protection

The Alameda County Sherriff's Office provides contracted police protection to the project area and project site. The Dublin Police Services headquarters are located at 6361 Clark Avenue, west of the project site.

Schools

The project site is served by the Dublin Unified School District, which operates seven elementary, two middle, one K-8, one comprehensive high school, and one continuation high school, within the City of Dublin. The closest schools to the project site include Fallon Middle School, Jose Maria Amador Elementary School, and Cottonwood Creek K-8 School.

Parks

The City's Public Works Department oversees the maintenance of parks and recreational facilities throughout the City.

Library Services

The Dublin Library is operated by Alameda County Library, with additional funding from the City of Dublin. The Dublin Public Library is located at 200 Civic Plaza, southwest of the project site.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to increased demand for police and fire protection services, fire response to outlying areas, exposure to wildlands hazards, increased demand for schools and school overcrowding, increased demand for parks and impacts on existing park and trail facilities. Mitigation measures were identified to reduce potential impacts to a less-than-significant level. The following mitigation measures would be applicable to the proposed project:

> **MM 3.4 / l .0 (Policy 8-4).** Provide additional personnel and facilities and revise "beats" as needed in order to establish and maintain City standards for police protection service in Eastern Dublin.
>
> **MM 3.4/2.0 (Action Program 8D).** Coordinate with the City Police Department regarding the timing of annexation and proposed development, so that the Department can adequately plan for the necessary expansion of services to the area.
>
> **MM 3.4/3.0 (Action Program 8E).** Incorporate into the requirements of project approval Police Department recommendations on project design that affect traffic safety and crime prevention.
>
> **MM 3.4/5.0 Police Review of Proposed Projects.** As a part of the development approval process in Eastern Dublin, the City shall require the Police Department to review and respond to the planned development with respect to:
>
> - Project design layout relating to visibility, security and safety.
> - Project circulation system and access issues.
> - Project implications for emergency response times.

Prior to final approval of non-residential development and improvement plans, the City Police Department shall review the proposed use, layout, design, and other project features for police surveillance/ access, security devices, such as alarms and lighting, visibility, and any other police issues or concerns.

MM 3.4/7.0 (Program 8F). Establish appropriate funding mechanisms (e.g., Mello Roos District, developer financing with reimbursement agreements, etc.) to cover up-front costs of capital improvements (i.e., fire stations and related facilities and equipment).

MM 3.4/9.0 (Program 8H). Incorporate DRFA recommendations on project design relating to access, water pressure, fire safety and prevention into the requirements for development approval. Require that the following DRF A design standards are incorporated where appropriate:

- Use of non-combustible roof materials in all new construction.
- Available capacity of 1,000 GPM at 20 PSI fire flow from project fire hydrants on public water mains. For groupings of one-family and small two-family dwellings not exceeding two stories in height, the fire flow requirements are a minimum of 1,000 GPM. Fire flow requirements for all other buildings will be calculated based on building size, type of construction, and location.
- A buffer zone along the backs of homes, which are contiguous with the wildland area. This buffer zone is to be landscaped with irrigated (wet banding) or equivalent fire-resistive vegetation.
- Automatic fire alarm systems and sprinklers in all nonresidential structures for human use.
- Compliance with DRF A minimum road widths, maximum street slopes, parking recommendations, and secondary access road requirements.
- Require residential structures outside the DRFA's established response time and zone to include fire alarm systems and sprinklers.

MM 3.4/17.0 (Policy 8-3). Ensure that new development in Eastern Dublin, including both residential and non-residential development, fully mitigates the impact of such growth on school facilities.

MM 3.4/29.0 (Policy 4-29). Ensure, as part of the approval process, that each new development provide its fair share of planned open space, parklands and trail corridors.

> **MM 3.4/31.0 (Action Program 4N).** Calculate and assess in-lieu park fees based on the City's parkland dedication ordinance. Credit toward parkland dedication requirements will only be given for level or gently sloping areas suitable for active recreation use.

2002 SEIR

The 2002 SEIR did not identify any potentially significant supplemental impacts associated with fire and police protection, schools, parks, and other public facilities.

Fallon Village SEIR

The Fallon Village SEIR did not identify any potentially significant supplemental impacts related to public services.

Project Impacts and Mitigation Measures

(a) Fire protection

The Fallon Village SEIR determined that the additional residential development proposed as part of the Fallon Village project was assumed as part of the Eastern Dublin EIR and that the amount of additional non-residential development could be accommodated with existing fire personnel and facilities. The proposed project would include development of up to 97 residential units and approximately 527,773 square feet of industrial use on the project site, resulting in approximately 155,771 square feet of industrial use and 264 additional employees than were analyzed in the EDSP EIRs. Development of this additional square footage of non-residential use could incrementally increase demand for fire protection services. However, the proposed project is required to adhere to the CBC, the California Fire Code and City of Dublin codes, ordinance and regulations to minimize fire hazards, including fire prevention and suppression measures; fire hydrants and sprinkler systems; emergency access; and other similar requirements. ACFD would continue to provide services to the project site and would not require additional firefighters to serve the proposed project. The demand for fire protection services resulting from the proposed project would not require the construction of new or alteration of existing fire protection facilities to maintain an adequate level of fire protection service. No physical impacts associated with the provision of fire protection services would occur.

(b) Police protection

The Fallon Village SEIR determined that the addition of 1,081,725 square feet of non-residential land within the Project area would result in an increased number of calls for service to the Dublin Police Department, primarily related to traffic violations and burglary/ theft. However, the addition of the non-residential square footage, in and of itself, would not cause the need to construct new or expanded Police buildings or other facilities that would result in a supplemental impact. Therefore, no supplemental impacts were identified.

The proposed project would include development of up to 97 residential units and approximately 527,773 square feet of industrial use on the project site, resulting in approximately 155,771 square feet of industrial use and 264 additional employees than were analyzed in the EDSP EIRs. The increased demand for police protection services resulting from the proposed project would not be substantial compared to the level of service identified in the prior environmental review and would not require the construction of new or alteration of existing police protection facilities to maintain an adequate level of police protection service. No physical impacts associated with the provision of police protection services would occur.

(c) Schools

The Fallon Village SEIR determined that the number of students expected to be generated by dwelling units from the Fallon Village Project is below the number of students based on student generation rates used in the Eastern Dublin EIR analysis; therefore, no supplemental impacts related to student generation, or the number of students were identified. In addition, the Fallon Village SEIR determined that adequate facilities have been planned in the Eastern Dublin area to accommodate students anticipated to be generated by the Fallon Village Project.

The number of residential units proposed as part of the current project are consistent with those assumed in the EDSP EIRs. Appropriate developer impact fees, as required by State law, would be assessed and paid by the project applicant to offset any impact to school facilities, consistent with Mitigation Measure 3.4/17.0 identified in the Eastern Dublin EIR.

(d) Parks

The Fallon Village SEIR determined that the number, location and size of proposed parks would be sufficient to meet City of Dublin standards and would be consistent with the City of Dublin Parks and Recreation Master Plan. Further, developers within the Fallon Village Project area would be required to pay Public Facility Fees to the City of Dublin for individual developments that do not meet City park dedication standards, consistent with Mitigation Measure 3.4/31.0 in the Eastern Dublin EIR. As described above, the number of residential units proposed as part of the current project area consistent with those assumed in the EDSP EIRs. The increase in non-residential use resulting from the proposed project would not generate significant demand for additional parks or recreation facilities. Therefore, the proposed project would not contribute to a substantial increase in the population necessitating either construction of new or alteration of existing park facilities to maintain an adequate level of service. No physical impacts associated with the provision of park services would occur.

(e) Other public facilities

Residents served by the proposed project would likely patronize public facilities such as local library branches operated by the Alameda County Library. However, as described above these residents are within the population assumptions evaluated and approved as part of the EDSP

EIRs; therefore, the proposed project is not anticipated to increase the number of library patrons utilizing public facilities.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified public services impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to public services beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Recreation

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
15.	**RECREATION. Would the project:**			
a)	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?			X
b)	Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X

Environmental Setting

The City of Dublin has a variety of recreational facilities including neighborhood parks, community parks, community facilities, a senior center, open space areas and a series of trail networks. According to the City of Dublin Parks and Recreation Master Plan, the City of Dublin currently has 18 parks, five deeded park sites, and six school parks and City-owned open space areas that account for nearly 233 acres of dedicated open space and developed park land. In addition, the City has over 59 acres of undeveloped parkland that has either been offered for dedication by landowners or acquired by the City. In addition, the East Bay Regional Park District (EBRPD) operates the Dublin Hills Regional Park, a large open space park with regional trail connections. The Iron Horse Trail runs along the Union Pacific/Southern Pacific Railroad right-of-way, connecting Dublin, the Dublin/Pleasanton BART station and the City of Pleasanton.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to increased demand for park facilities, fiscal impacts associated with the provision of new park and recreation facilities and impacts on the regional trail system and open space connections. Mitigation measures were identified to reduce potential impacts to a less than significant level. The following mitigation measures would be applicable to the proposed project:

> **MM 3.4/29.0 (Policy 4-29).** Ensure, as part of the approval process, that each new development provide its fair share of planned open space, parklands and trail corridors.

MM 3.4/31.0 (Action Program 4N). Calculate and assess in-lieu park fees based on the City's parkland dedication ordinance. Credit toward parkland dedication requirements will only be given for level or gently sloping areas suitable for active recreation use.

2002 SEIR

Impacts to existing recreation facilities were addressed in the Initial Study for the 2002 SEIR. No potentially significant impacts or mitigation measures were identified.

Fallon Village SEIR

The Fallon Village SEIR evaluated the adequacy of parkland proposed as part of the Fallon Village Project relative to the City's requirements. The Fallon Village SEIR determined that the location and sizes of community and neighborhood parkland proposed as part of the Fallon Village Project was consistent with the current City of Dublin Parks and Recreation Master Plan so there would be no significant supplemental impacts with regard to provision of City parks.

Project Impacts and Mitigation Measures

(a) Increase the use of existing recreation facilities causing deterioration

As discussed in Section 14.d, implementation of the proposed project, which would provide up to 97 residential units consistent with the level of residential development evaluated in the EDSP EIRs. Therefore, the proposed project would not substantially increase the demand for park and recreation facilities. Similarly, the proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.

(b) Propose, require new facilities that cause physical effect

The proposed project would not include construction of recreational facilities nor is it required to construct or expand recreational facilities.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified recreation impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to recreation impacts beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 1985. City of Dublin General Plan. February 11. (Amended November 21, 2017).

Dublin, City of. 2015. City of Dublin Parks and Recreation Master Plan.

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Transportation

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
16.	**TRANSPORTATION/TRAFFIC. Would the project:**			
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X
b)	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			X
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X
d)	Result in inadequate emergency access?			X

Environmental Setting

The following section describes the existing conditions of the study area, including roadway, transit, bicycle, and pedestrian networks. The information provided below is summarized from the Transportation Impact Review provided in Appendix G.

Roadway Network

The roadway network surrounding the project site is described in the following section.

Freeways

Interstate 580 (I-580) is a generally east-west freeway that runs south of the project site. I-580 connects the San Francisco Bay Area to the west and the City of Livermore to the east. The posted speed limit in the vicinity of the project is 65 miles per hour (mph). Express lanes are present in both directions and are in effect Monday through Friday from 5:00 a.m. to 8:00 p.m.

Arterials/Collectors/Local Roadways

Dublin Boulevard is a six-lane divided east-west roadway that extends west of the project site. Dublin Boulevard is classified in the City's General Plan[11] as an arterial between its western limits and Tassajara Road and classified as a collector between Tassajara Road and Fallon Road (as well as the proposed extension to North Canyons Parkway). On-street parking is not permitted along this roadway and the posted speed limit is 45 mph in the vicinity of the project. Dublin Boulevard is proposed to be extended connecting from its current terminus at Fallon Road to North Canyons Parkway in Livermore.

Central Parkway is a two-lane divided east-west roadway that extends west from Croak Road west of the project to Sterling. The roadway generally runs through residential land uses and provides access to Cottonwood Creek K-8 School near the project. Central Parkway is classified as an arterial between Tassajara Road and Fallon Road and as a collector for its remaining extent. On-street parking is permitted east of Sunset View Drive near the project and in other segments abutting residential land uses. The posted speed limit is 25 mph in vicinity of the project. Central Parkway would be extended with the project to provide a connection to the transportation network for the residential portion.

Croak Road is a north-south roadway that is currently not accessible to the public near the project site. Croak Road connects to Fallon Road near I-580, Central Parkway at its eastern terminus, and Terracina Drive. The roadway is classified as a local residential roadway between Central Parkway and Positano Parkway. Once the Dublin Boulevard extension is constructed, Croak Road will connect Dublin Boulevard and Central Parkway.

Fallon Road/El Charro Road is a north-south divided roadway that widens from four lanes south of Central Parkway to six lanes to the north; south of I-580, Fallon Road becomes El Charro Road within the City of Pleasanton. Fallon Road is classified as an arterial roadway near the project site. The roadway primarily serves residential land uses within the City of Dublin, with some retail located near I-580. On-street parking is not permitted along this roadway. The posted speed limit is 45 mph in the vicinity of the project.

Stoneridge Drive/Jack London Boulevard is an east-west roadway located south of I-580; the roadway is Stoneridge Drive within the City of Pleasanton and Jack London Boulevard within the City of Livermore. Stoneridge Drive/Jack London Boulevard is classified as an arterial between Foothill Road and its eastern limits. On-street parking is not permitted along this roadway. Class II bicycle lanes are present along much of its length. The posted speed limit is 40 mph in the City of Pleasanton (Stoneridge Drive) and increases to 45 mph in the City of Livermore (Jack London

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11 The City of Dublin General Plan. *Chapter 5: Land Use and Circulation – Circulation and Scenic Highways Element*. Amended 2022. https://www.dublin.ca.gov/DocumentCenter/View/7799/Chapter-5-May-2020?bidId=

Boulevard). Stoneridge Drive is a 4 to 6-lane roadway; Jack London Boulevard varies from 2 to 6 lanes.

Tassajara Road is a major north-south roadway in Dublin that connects to Fallon Road/Camino Tassajara to the north and the City of San Ramon and Contra Costa County to the south. Tassajara Road is classified as an arterial roadway within the City of Dublin; south of I-580 within the City of Pleasanton, the roadway becomes Santa Rita Road. The roadway varies from two lanes to five lanes and is divided along its southern portion, between Stoneridge Drive and Dublin Ranch Drive. On-street parking is not permitted along this roadway. The posted speed limit is 35 mph within the study area. Class II bicycle lanes are present, except for on the overpass over I-580.

Hacienda Drive is a north-south roadway that provides access to office, residential, and retail land uses such as Hacienda Crossings and Persimmon Place. Hacienda Drive is classified as an arterial and ranges from 3 lanes to 6 lanes. On-street parking is not permitted. The posted speed limit is 35 mph within the study area.

North Canyons Parkway is an east-west arterial roadway that will connect to the planned Dublin Boulevard extension at its present western terminus at Doolan Road. The roadway merges with Portola Avenue at Collier Canyon Road. It is a four-lane, divided road with a posted speed limit of 40 mph near the study area. On-street parking is generally prohibited and a bicycle lane is present on both sides of the road. North Canyons Parkway provides access to commercial and office land uses east of the project site, including several hotels and a Costco Wholesale warehouse.

Airway Boulevard is a north-south roadway in Livermore that provides access to I-580 and the Livermore Municipal Airport and connects to North Canyons Parkway at its northern terminus. It is classified as an arterial roadway and is a divided six-lane road north of Kitty Hawk Rd/I-580 EB off-ramp. The posted speed limit is 45 mph. Class II bicycle lanes are present, except for on the overpass over I-580.

Transit Facilities

The project area is served by Tri-Valley Wheels, which provides fixed-route bus service operated by the Livermore Amador Valley Transit Authority (LAVTA) to Dublin, Livermore, Pleasanton, and neighboring communities. Wheels also offers a Dial-A-Ride Paratransit service to eligible patrons in Dublin, available wherever fixed-route service is operating. Three routes directly serve the area surrounding the project – Route 2, Route 30R (Rapid), and Route 501 (School Route). Currently, Route 30R follows Dublin Boulevard to Fallon Road, where it detours to I-580 before connecting to North Canyons Parkway. With the extension of Dublin Boulevard, this route is likely to use the extension and directly serve the non-residential portions of the project which have access via Dublin Boulevard.

The area is also served by Bay Area Rapid Transit (BART), with the nearest station being Dublin/Pleasanton which is located approximately four miles west of the site. Table J provides details about the bus service that serves the project area.

Table J. Existing Transit Facilities

Route	Route Type	Major Destinations	Day	Times	Frequency
2	Fixed Route	E. Dublin/Pleasanton BART, Dublin Ranch, Emerald Glen Park, Fallon Middle School	Weekdays	One AM and one PM trip to serve Fallon Middle School (effective August 2021)	2 per day
30R	Rapid Route	Lawrence Livermore National Laboratory, East Ave., Livermore Transit Center, Portola Park and Ride, Las Positas College, N. Canyons, Dublin Blvd, E. Dublin BART, Dublin Civic Center, W. Dublin BART	Weekdays	5:00 AM to 11:00 PM	Every 30 minutes
			Weekends	5:00 AM to 11:00 PM	Hourly
501 (A, B, and C)	School Route	Positano, Fallon Road, Silvera Ranch, Tassajara Road, Central Pwky, Dublin HS	Weekdays	One AM and one PM trip for each route	2 per day

Source: wheelsbus.com

Bicycle and Pedestrian Facilities

Existing bicycle facilities in the vicinity of the project site include:

- Fallon Road has Class II facilities that begin north of Dublin Boulevard
- Dublin Boulevard generally has Class II facilities west of Fallon Road but are sometimes Class III facilities near major intersections such as the eastbound approach to the intersection of Dublin Boulevard and Fallon Road.
- Central Parkway generally has Class II facilities east and west of Fallon Road. However, there is a Class III facility on Central Parkway eastbound between Fallon Road and Sunset View Drive.
- Stoneridge Drive/Jack London Boulevard has Class II facilities east and west of El Charro Road.
- Airway Boulevard has Class II bicycle facilities south of the I-580 interchange but there are no facilities between I-580 and N. Canyons Parkway.

- N. Canyons Parkway has Class II facilities east of Airway Boulevard

Proposed improvements to the bicycle network in the vicinity of the project site primarily include:

- Class I shared use-pathways on the Dublin Boulevard extension and Croak Road
- Class II bicycle lanes on Dublin Boulevard extension, Croak Road, and Fallon Road between Dublin Boulevard and the I-580 eastbound ramp terminal intersection.
- Class III facilities are proposed along an unconstructed roadway along the north side of I-580 east of Fallon Road.

Sidewalks are generally provided along both sides of the road in the vicinity of the project except at the following locations:

- Fallon Road has discontinuous sidewalks on one side of the road or another between Stoneridge Drive/Jack London Boulevard and Fallon Gateway. North of Fallon Gateway, sidewalks are only provided on the west side of the road until Central Parkway.
- Airway Boulevard does not contain sidewalks along the west side of the road. Similarly, no sidewalk exists along the south side of N. Canyons Parkway between Doolan Road and Airway Boulevard.

Sidewalks are also proposed on both sides of the Dublin Boulevard extension and Croak Road reconstruction when they are built out.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potentially significant impacts related to increased traffic associated with implementation of the Eastern Dublin Specific Plan, including impacts to freeway, intersection, and roadway operations, transit service extensions, and potential safety hazards for pedestrians and bicycles at street crossings. Mitigation measures were identified to reduce most transportation impacts to a less than significant level. These mitigation measures require construction of new roadways, widening of existing roadways, and improvements to local freeway facilities to accommodate increased vehicle traffic associated with proposed development in Eastern Dublin.

Several traffic impacts were determined to be significant and unavoidable, even with implementation of mitigation. These impacts include impacts to I-580 between Tassajara Road and Airway Boulevard (Impact 3.3/B), cumulative freeway impacts (Impact 3.3E), impacts to the Santa Rita Road/I-580 eastbound ramps (Impact 3.3/I) and cumulative impacts to Tassajara Road (Impact 3.3/N). Applicable mitigation measures from the Eastern Dublin EIR include:

MM 3.3/2.0 (Policy 5-21). Require all non-residential projects with 50 or more employees within the Eastern Dublin General Plan Amendment and Specific Plan area to participate in a Transportation Systems Management (TSM) program. A TSM program would include strategies to reduce the use of single-occupant vehicles such as on-site distribution of transit information and passes, provision of shuttle services to and from BART stations, participation in regional ridesharing services, preferential parking for vanpools and carpools, and flexible or staggered work hours.

MM 3.3/2.1 The Project shall contribute a proportionate amount to regional transportation mitigation programs as determined by the current study by the Tri-Valley Transportation Council. Regional mitigation measures may include implementation of enhanced rail and feeder bus transit services, construction or upgrading of alternative road corridors to relieve demand on the I-580 and l-680 freeways.

MM 3.3/3.0 The Project shall contribute to the construction of auxiliary lanes on l-580 between Tassajara Road and Airway Boulevard. The auxiliary lanes would provide LOSE operations between Tassajara Road and Fallon Road, and LOS D operations between Fallon Road and Airway Boulevard.

MM 3.3/4.0 The Project should contribute a proportionate share to planned improvements at the l-580 /I-680 interchange and the associated mitigation on adjacent local streets. The improvements would provide additional capacity on I-680 north of I-580 and would provide LOS D operations.

MM 3.3/5.0 Local jurisdictions shall require that future developments participate in regional transportation mitigation programs as determined by the current study by the Tri-Valley Transportation Council.

MM 3.3/6.0 The City of Dublin shall coordinate construction of additional lanes on all approaches at the intersection. The required lanes on the northbound approach on Dougherty Road include two left-turn lanes, three through lanes (one more than existing) and one right-turn lane (one more than existing). The required lanes on the southbound approach on Dougherty Road include two left-turn lanes (one more than existing), three through lanes (one more than existing) and one right-turn lane. The required lanes on the eastbound approach on Dublin Boulevard include one left-turn lane, three through-lanes (one more than existing) and one right-turn lane. The required lanes on the westbound approach on Dublin Boulevard include two left-turn lanes, three through-lanes and one right-turn lane. The Project shall contribute a proportionate share of the improvement costs. The improvements would provide LOS D operations.

MM 3.3/7.0 The City of Dublin shall coordinate with the City of Pleasanton and Ca/trans to restripe the I-580 eastbound off-ramp to provide two left-turn lanes and one right-turn lanes (existing lanes are one left-turn lane and two right-turn lanes). The Project shall contribute a proportionate share of the improvement costs. The improvements would provide LOS C operations.

MM 3.3/8.0 The City of Dublin shall coordinate with Ca/trans to widen the l-580 westbound off-ramp to provide two left-turn lanes and two right-turn lanes, and to modify the northbound approach to provide three through lanes. The Project shall contribute a proportionate share of the improvement costs. The improvements would provide LOS B operations.

MM 3.3/9.0 The City of Dublin shall coordinate with the City of Pleasanton and Caltrans to widen the l-580 eastbound off-ramp to provide two left-turn lanes and two right-turn lanes. These improvements would provide LOS E operations. Further improvement to the level of service could be provided by prohibiting left turns from southbound Santa Rita Road to eastbound Pimlico Drive during peak periods. This left-turn prohibition would require out-of-direction travel for drivers wishing to access Pimlico Drive but would provide level of service D operations. The Project shall be required to contribute a proportionate share of the improvement costs.

MM 3.3/ 10.0 The City of Dublin shall coordinate with the City of Livermore to modify the intersection to provide three through-lanes and a right-turn lane eastbound, and two left-turn lanes and two through-lanes westbound. The Project shall contribute proportionate share of the improvement costs. The improvements would provide LOS operations.

MM 3.3/ 11.0 The City of Dublin shall coordinate with the City of Livermore and Caltrans to widen the Airway Boulevard overcrossing of l-580 by 12 feet to provide adequate storage for northbound left-turns and widen of the off-ramp to provide one left and one left-right lane. The Project shall contribute a proportionate amount toward the cost of these improvements. The improvements would provide LOS D operations.

MM 3.3/ 12.0 The City of Dublin shall coordinate with Ca/trans to ensure that modifications to the l-580 interchange at Fallon Road/El Charro Road include provisions for unimpeded truck movements to and from El Charro Road. The Project shall contribute a proportionate share of improvement costs.

MM 3.3/ 15.2 The Project shall contribute a proportionate amount to the capital and operating costs of transit service extensions.

MM 3.3/ 16.1 Locate pedestrian and bicycle paths so that their crossings of major arterial streets coincide with signalized street intersections, providing a signalized pedestrian and bicycle crossing of the major street.

2002 SEIR

The 2002 SEIR identified potentially significant impacts for several intersections within and outside of the EDPO project area, as well as roadway segments in the project area. Mitigation measures were identified to reduce intersection and roadway impacts to a less-than-significant level. In addition, the 2002 SEIR identified cumulative impacts to the Dougherty Road/Dublin Boulevard intersection, the Hacienda Drive/Dublin Boulevard intersection, and the Fallon Road/Dublin Boulevard intersection. Mitigation Measures SM-Traffic-6, SM-Traffic-7, and SM-Traffic-8 were identified to reduce these cumulative impacts; however, the 2002 SEIR determined that these impacts would remain significant and unavoidable.

SM-TRAFFIC-1: Project developers shall contribute a pro-rata share to the widening of the I-580 eastbound off-ramp approach at Hacienda Drive to add a third eastbound left turn lane.

SM-TRAFFIC-2: Project developers shall contribute a pro-rata share to the widening of the northbound Hacienda Drive overcrossing from 3 lanes to 4 lanes including three through lanes and one auxiliary lane that leads exclusively to the I-580 westbound loop on-ramp. The westbound loop on-ramp shall be modified as necessary to meet Caltrans' standards and design criteria. Project developers also shall contribute to widening the westbound off ramp approach to add a third westbound left-turn lane.

SM- TRAFFIC-3: Project developers shall contribute a pro-rata share to construction which converts the eastbound Santa Rita off-ramp through lane to a shared left turn/through lane. Project developers also shall contribute to a traffic signal upgrade which includes a westbound right-turn overlap from Pimlico Drive.

SM-TRAFFIC-4: The Project developers shall install a traffic signal at the Dublin Boulevard/Street D intersection at the time development occurs in this area utilizing this intersection.

SM-TRAFFIC-5: The Project developers shall install a traffic signal at the Fallon Road/Project Road intersection at the time development occurs in this area utilizing this intersection.

SM-TRAFFIC-6: Project developers shall contribute a pro-rata share to configure the eastbound Dublin Boulevard approach to include 1 left-turn lane, three through lane and two right turn lanes. Project developers shall contribute a pro-rata share to configure the west bound Dublin Boulevard approach to include three left-turn lanes, two through lanes, and one shared through/right-turn lane. Project developers shall contribute a pro-rata share to configure the northbound Dougherty Road approach to include three left-turn lanes, three through lanes and two right-turn lanes. Project developers shall contribute a pro-rata share to configure the southbound Dougherty Road approach to include two left turn lanes, three through lanes, and one shared through/right-turn lane. The I-580 westbound diagonal on-ramp from Dougherty Road shall be widened as necessary to include two single-occupancy vehicle lanes. In addition, the City will monitor the intersection for peak hour volumes on a periodic basis, as described below, and will apply appropriate Project conditions based on the results of such monitoring.

SM-TRAFFIC-7: The Project developers shall construct an additional through lane on northbound Fallon Road (for a total of four through lanes), construct an additional left-turn lane on westbound Dublin Boulevard (for a total of three left-turn lanes) and construct an additional through lane on southbound Fallon Road (for a total of four through lanes). In addition, the City will monitor the intersection for peak hour volumes on a periodic basis, as described below, and will apply appropriate Project conditions based on the results of such monitoring.

SM-TRAFFIC-8: In addition to the above additional lane configurations (in Supplemental Mitigation Traffic 7), the Project developers shall pay studies to assess the feasibility of locating the Fallon Road/Dublin Boulevard intersection farther north to allow for a signalized Project intersection between the I-580 westbound ramps/Fallon Road intersection and the Fallon Road/Dublin Boulevard intersection (the "auxiliary intersection"). This new Project auxiliary intersection should consist of seven northbound Fallon Road lanes (2 left, 4 through, 1 right), seven southbound Fallon Road lanes (2 left turn, 4 through, 1 right turn), and 4 lanes for the new Project street; in the westbound direction three left turn lanes and a shared through/right turn lane; and in the eastbound direction, two right-turn lanes, one through and two left turn lanes. If the studies show that a new Project auxiliary intersection in such location is feasible, the Project developers shall construct such intersection.

SM- TRAFFIC-9: The Project developers shall be responsible for widening Fallon Road between 1-580 and Dublin Road to its ultimate eight lanes and shall be responsible for widening Fallon Road between Dublin Boulevard and Central Parkway to its ultimate six lane width. The Project developers shall be responsible for widening Fallon Road between Central Parkway and Project Road to four lanes. The Project developers also shall be responsible for widening the Fallon Road overcrossing (between the eastbound and westbound 1-580 ramps) from four lanes to six lanes.

SM-TRAFFIC-10: The Project developers shall be responsible for widening Central Parkway between Tassajara Road and Fallon Road from two lanes to four lanes.

Fallon Village SEIR

The Fallon Village SEIR determined that buildout of the Fallon Village Project area would result in potential impacts to local roadways, impacts to nearby freeways and impacts to transit services. Supplemental impacts were identified for the Dublin Boulevard/Dougherty Road intersection, the Santa Rita Road/1-580 EB Ramps intersection, the westbound left turn movement from Central Parkway onto southbound Hacienda Drive. Supplemental Mitigation Measures SM-TRA-1, SM-TRA-2, and SM-TRA-3 were identified to reduce intersection impacts associated with the Fallon Village Project; however, the Fallon Village SEIR determined that even with mitigation, the impact to the Dublin Boulevard/Dougherty Road intersection would remain significant and unavoidable.

The Fallon Village SEIR identified cumulative impacts to freeway segments on I-580 and I-680 in the project area and determined that even with implementation of mitigation measures identified in the Eastern Dublin EIR and other improvements proposed by the City of Dublin, impacts to nearby freeways would remain significant and unavoidable. In addition, the Fallon Village SEIR determined that traffic generated by the proposed project on I-580 and I-680 would exceed the Alameda County Congestion Management Agency monitoring standards for volumes along these freeways; this impact would also remain significant and unavoidable. The following supplemental mitigation measures are applicable to the proposed project:

SM-TRA-1 (Project contribution to impact to Dublin/Dougherty intersection). Project developers shall have the following obligations:

a) Advance to the City applicable monies for acquisition of right-of-way and construction of the planned improvements at Dougherty Road/Dublin Boulevard. The amount of money advanced to the City shall be based on the developer's fair share of the deficit (spread over those projects which are required to make up the deficit) between funds available to the City from Category 2 Eastern Dublin Traffic Impact Fee funds and the estimated cost of acquiring the right-of-way and constructing the improvements. The City should provide credit for Category 2 Eastern Dublin Traffic Impact Fees to the developer for any advance of monies made for the improvements planned for the Dougherty Road/Dublin Boulevard intersection.

b) Pay a pro-rata share of the cost to construct the planned improvements at Dougherty Road/Dublin Boulevard through payment of the Eastern Dublin Traffic Impact Fee. The City of Dublin will implement these improvements.

SM-TRA-2 (Project contribution to impact to Santa Rita Road/I-580 eastbound ramps). Project developers shall contribute a pro-rata share of the cost to widen the I-580 eastbound off-ramp approach at Santa Rita Road to include a third eastbound left turn lane.

SM-TRA-3 (Project contribution to impact at Central Parkway and Hacienda Drive). Project developers shall contribute a pro-rata share of the cost to modify the westbound approach on Central Parkway at Hacienda Drive to include two left turn lanes, one through and one right turn lane.

Project Impacts and Mitigation Measures

(a) Conflict with applicable transportation plans standards, including bicycle and pedestrian facilities

Potential conflicts with applicable transportation plans standards, including bicycle and pedestrian facilities are described below.

Trip Generation

The Institute of Transportation Engineers (ITE) *Trip Generation Manual* 11th Edition was used to estimate the number of trips the proposed project would generate. As described in the Branaugh Property Trip Generation Comparison Technical Memorandum (provided in Appendix G), the proposed project including 69 single family dwelling units, 28 multifamily dwelling units and about 528,000 square feet of industrial uses (based on a 0.40 FAR) would generate approximately 2,636 trips per day, as shown in Table K.

Table K. Estimated Trip Generation for the Branaugh Property Based on 2022 Proposed Project

	ITE Code	Amount	Unit	Daily Rate[1]	Daily Trip Generation
Single Family Detached	210	69	DU	9.44	652
Multifamily	220	28	DU	7.32	205
Industrial	130	527.773	KSF	3.37	1,779
				Total	**2,636**

Source: Kittelson & Associates, Inc. 2022
[1]Daily Rate from ITE Trip Generation Manual 11th Edition
DU = Dwelling Unit
KSF = Thousand Square Feet

The traffic study for the Fallon Village SEIR used the ITE *Trip Generation Manual* 7th Edition to estimate trip generation for Fallon Village. The four land use categories used and the associated daily trip generation rate from the ITE Trip Generation Manual 7th Edition include:

- Single Family Residential (ITE Code 210 with a daily rate of 9.57 trips per dwelling unit)
- Multifamily Residential (ITE Code 220 with a daily rate of 6.72 trips per dwelling unit)

- Retail (ITE Code 820 with a daily rate of 42.94 trips per thousand square feet)
- Office/Service (ITE Code 710 with a daily rate of 11.01 trips per thousand square feet)

In the Fallon Village SEIR, the residential component of the Branaugh property was listed as medium density residential (6.1 to 14 dwelling units per acre), which is most similar to the multifamily residential land use from the ITE Trip Generation Manual 7th Edition. For the non-residential portion of the property, 136,000 square feet was assumed to be retail and 236,000 square feet was assumed to be office. Based on these land uses, the estimated daily trip generation for the Branaugh property in the Fallon Village SEIR was 9,091 daily vehicle trips.

Table L. Estimated Trip Generation for the Branaugh Property Based on Fallon Village SEIR

	ITE Code	Amount	Unit	Daily Rate[1]	Daily Trip Generation
Multi-family Residential	220	97	DU	6.72	652
Retail	820	136	KSF	42.94	5,840
Office	710	236	KSF	11.01	2,599
				Total	**9,091**

Source: Kittelson & Associates, Inc. 2022
[1]Daily Rate from ITE Trip Generation Manual 7th Edition
DU = Dwelling Unit
KSF = Thousand Square Feet

As shown in Tables K and L, the proposed project would generate 6,455 fewer daily vehicle trips compared to the assumptions from the Fallon Village SEIR. Therefore, no new transportation impacts not previously disclosed would be anticipated based on daily trip generation of the Branaugh property.

Transit, Bicycle and Pedestrian Impacts

The proposed project is not anticipated to result in new or substantially more severe significant impacts to transit service, bicyclists and bicycle facilities or pedestrians and pedestrian facilities.

The proposed project is not anticipated to interfere with any plans or policies for transit usage in the area such as the Dublin Boulevard Extension project, which will have bus pull outs, bus pads, and passenger pads along the roadway. The project would not construct any off-site improvements; therefore, the proposed project would not interfere with the construction of transit amenities proposed as part of the Dublin Boulevard Extension or affect plans for transit service in the area.

New bicycle facilities are proposed on the future Dublin Boulevard extension and Croak Road, which would serve the project site and the proposed project does not include any off-site improvements that would affect the construction of these facilities.

Both Central Parkway and Dublin Boulevard are proposed to be extended to provide access to the project site. These facilities have planned sidewalks on both sides of the road and the proposed project does not include any off-site improvements that would affect installation of these facilities.

(b) Conflict with CEQA Section 15064.3 (b)

The topic of the project's contribution to vehicle miles traveled (VMT) was not analyzed in the EDSP EIRs. This impact is not required to be analyzed unless it constitutes new information of substantial importance that was not known and could not have been known at the time the previous environmental documents were certified as complete (Public Resources Code Section 21166 and CEQA Guidelines Section 15162 and 15163). VMT was known at the time of the certification of these EDSP EIRs and could have been analyzed. A change in regulations for impact analysis under CEQA is not a trigger for further environmental review under supplemental review standards. The impact of increased traffic was analyzed using other methods (LOS) at the time of certification of the EDSP EIRs. Under CEQA standards, it is not considered new information that requires analysis in a Supplemental EIR or negative declaration.

(c) Substantially increase hazards due to a design feature

Primary access into the residential neighborhood would be via the proposed extension of Central Parkway to the north, within the proposed East Ranch (Croak property) development. Primary access to the IP parcels would be provided by the future Dublin Boulevard extension. There would be no direct vehicular or pedestrian circulation between the residential uses in the northern portion of the project site and the IP uses to the south. Vehicular and pedestrian circulation between the residential and industrial uses would be provided indirectly via Central Expressway, Croak Road and Dublin Boulevard. The design, construction, and maintenance of project site access locations, as well, as internal roadways within the project site would be required to be in compliance with the City's Municipal Code.

(d) Result in inadequate emergency access

The proposed project would not result in inadequate emergency access. Emergency vehicle access to the residential component of the proposed project would be provided via Central Parkway, while the industrial component of the proposed project would be accessed via the proposed Dublin Boulevard Extension project that will connect Dublin Boulevard from Fallon Road to North Canyons Parkway in Livermore. The design, construction, and maintenance of project site access locations would be in compliance with the City's Municipal Code and would be required to meet all emergency access standards. In addition, through Site Development Review, emergency services would review proposed plans to ensure that emergency vehicle access and circulation is adequate.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified transportation impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to transportation beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Kittelson & Associates. 2022. Branaugh Property Trip Generation Comparison Technical Memorandum. December 15.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Tribal Cultural Resources

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
17. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			X
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			X

Environmental Setting

As described in Section 5, Cultural Resources, three previous cultural resource studies overlapped the current project site, and another seven were conducted within a half-mile radius. No archaeological resources are recorded within the project boundaries or within a half-mile of the project site.

A request was submitted to the NAHC to search the Sacred Lands File (SLF) for Native American cultural resources that may be impacted by the proposed project. The NAHC maintains the SLF database and is the official State repository of Native American sacred-site location records in California. Cody Campagne, NAHC Cultural Resources Analyst, responded to the SLF search request on February 4, 2022, stating that the results were negative and that there were no known Native American cultural resources in the project site. He noted, however, that "the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area."

Previous CEQA Documents

The topic of the project's potential impacts to tribal cultural resources was not specifically analyzed in the EDSP EIRs. Since certification of the EDSP EIRs, the topic of Tribal Cultural Resources has been added as a new category in the CEQA checklist. However, the Eastern Dublin EIR, 2002 SEIR and Fallon Village SEIR, analyzed prehistoric and historic resources and included mitigation measures related to historical and archaeological resources. These measures are listed in the cultural resources section of this Initial Study Checklist.

Because the Eastern Dublin EIR, 2002 SEIR, and Fallon Village SEIR have been certified, the determination of whether tribal cultural resources need to be analyzed for this proposed project is governed by the law on supplemental or subsequent EIRs (Public Resources Code section 21166 and CEQA Guidelines, Sections 15162 and 15163). Tribal cultural resources are not required to be analyzed under those standards unless it constitutes "new information of substantial importance, which was not known and could not have been known at the time the previous EIR was certified as complete" (CEQA Guidelines Sec. 15162 (a) (3)).

Project Impacts and Mitigation Measures

(a) Listed or eligible for listing in the California Register of Historical Resources

As described in Section 5, Cultural Resources, the project site does contain a historic-period farm complex (the Collier Ranch) consisting of four buildings over 50 years old. These buildings were evaluated for significance as a historical resource. However, these resources were determined to be not eligible, either individually or as a group, for inclusion on the CRHR or the NRHP. Although these existing buildings will be demolished as part of the proposed project, these buildings do not qualify as historical resources for the purposes of CEQA.

(b) Significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1

No archaeological resources were identified on the project site as part of the cultural resources study. Therefore, the City, in its role as lead agency, has determined that the project site is not a resource significant to a California Native American tribe. Development proposed as part of the current project would be consistent with the development previously analyzed in the EDSP EIRs. As described in Section 5, Cultural Resources, implementation of Mitigation Measure 3.9/5.0 as identified in the Eastern Dublin EIR would reduce any potential impacts to archaeological and/or Native American resources to a less-than-significant level.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified tribal cultural, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to tribal cultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

LSA, 2021. Historical Resource Evaluation of the Branaugh Property at 1881 Collier Canyon Road, Dublin, Alameda County, California (LSA Project No.: DUB2101.02). November.

LSA, 2022. Cultural Resource Study for the Branaugh Property Stage 2 Planned Development Project, Dublin, Alameda County, California (LSA Project No. DUB2101.02, Phase 2). February.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Utilities and Service Systems

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
18. UTILITIES AND SERVICE SYSTEMS. Would the project:			
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?			X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X
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 projected demand in addition to the provider's existing commitments?			X
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?			X
e) Comply with federal, state, and local statutes and regulations related to solid waste?			X

Environmental Setting

As outlined in the Project Description, the project site is currently served by overhead electric and communication lines and by sanitary sewer septic systems and on-site well water. Existing and proposed utility connections are discussed below.

Water

The Dublin San Ramon Services District (DSRSD) provides water service at the project site. DSRSD is responsible for providing both potable and recycled water to the City of Dublin, and the Dougherty Valley area of the City of San Ramon in Contra Costa County. DSRSD's water service area also includes Camp Parks, the Federal Correctional Institution (FCI), and Alameda County's Santa Rita Jail. Zone 7 supplies treated potable water to DSRSD. Treated potable water enters DSRSD's distribution system from five metered turnouts from the Zone 7 transmission system.

To reduce the demand for potable water, DSRSD promotes water recycling and is a member of the WaterReuse Association. In 1995, DSRSD and EBMUD, through a joint powers agreement, formed the DSRSD-EBMUD Recycled Water Authority (DERWA). DERWA serves as a wholesaler to deliver recycled water to DSRSD and EBMUD, who in turn deliver the recycled water to their respective service areas. DERWA's San Ramon Valley Recycled Water Project (SRVRWP) provides a backbone distribution system that delivers recycled water to both DSRSD and EBMUD distribution systems. DSRSD's recycled water treatment facilities deliver recycled water to the SRVRWP. Recycled water is produced at DSRSD's wastewater treatment plant at the Recycled Water Treatment Facility (RWTF). The RWTF produces recycled water that meets the California Title 22 requirements for unrestricted reuse.

Wastewater

Wastewater collection and treatment services are also provided by DSRSD for the City of Dublin, City of Pleasanton, Camp Parks, FCI, Santa Rita Jail, and the southern portion of San Ramon. DSRSD owns and operates a wastewater treatment plant in Pleasanton that has a capacity of 17 million gallons per day (MGD). The existing wastewater service area encompasses approximately 13,340 acres, or 20.85 square miles. Within the wastewater service area there are currently 207 miles of gravity mains, one permanent lift station, and one temporary lift station. The permanent lift station has 26 feet of force main.

Stormwater

Drainage and flood control in the Eastern Dublin area is the responsibility of the City of Dublin and Zone 7. Zone 7 is responsible for master planning, overseeing construction coordination and maintaining major storm drain channels and culverts in Eastern Dublin. The City has jurisdiction and maintenance responsibility for local storm drains that discharge to the Zone 7 flood control system. Runoff from the project area drains mostly via overland flow, which eventually collects just north and east of the Fallon Road/I-580 Interchange where it then flows, via a double box culvert west under Fallon Road.

Electricity

The East Bay Community Energy provides electricity to Dublin over PG&E's distribution system. PG&E provides natural gas service to the San Francisco Bay region and serves the project site.

Solid Waste

The City of Dublin has a Collection Services Agreement with a private solid waste collection company for residential and commercial garbage collection. The City also has comprehensive recycling and organics collection programs. All single-family residences are provided with three stream collection containers (landfill, recycle, organics) and most commercial and multi-family residences subscribe to three-stream collection service. Beginning January 1, 2022, all service accounts (with a few exceptions) will be required to subscribe to three-stream collection services due to State legislation (SB 1383).

Solid waste generated within the City is deposited at the Altamont Landfill which has a total estimated permitted capacity of 62 million cubic yards. The Altamont Landfill is approximately 26 percent full and is estimated to reach capacity in January 2029.

Previous CEQA Documents

Eastern Dublin EIR

The Eastern Dublin EIR identified potential significant impacts related to lack of a wastewater collection system, extension of a sewer trunk line with capacity to serve new developments, limited treatment plant capacity and wastewater disposal capacity, increased energy use for wastewater treatment and wastewater disposal, potential failure of the export disposal system, pump station noise and odors, storage basin odors and potential failure, recycled water system operations, recycled water storage failure, loss of recycled water system pressure, and secondary impacts from recycled water system operation. Mitigation measures were identified to reduce most wastewater impacts to a less than significant level. Impacts associated with increased energy use for wastewater treatment and disposal were determined to be significant and unavoidable, even with implementation of mitigation. The following mitigation measures would apply to the proposed project:

> **MM 3.5/1.0 (Program 9P). Connection to Public Sewers.** Require that all development in the Specific Plan area be connected to public sewers. Exceptions to this requirement, in particular septic tank systems, will only be allowed upon receipt of written approval from the Alameda County Environmental Health Department and DSRSD.
>
> **MM 3.5/4.0 (Program 9M). DSRSD Service.** Require a "will-serve" letter from DSRSD prior to permit approval for grading.
>
> **MM 3.5/5.0 (Program 9N). DSRSD Standards.** Require that design and construction of all wastewater systems be in accordance with DSRSD standards.

The Eastern Dublin EIR also identified potential significant impacts related to overdraft of local groundwater resources, increased demand for water, additional treatment plant capacity, lack of a water distribution system, inducement of substantial growth, increase in energy usage through operation of the water distribution system, potential water storage reservoir failure, potential loss of system pressure, and potential pump station noise. Mitigation measures were identified to reduce most water impacts to a less than significant level. Impacts associated with increased energy use for water distribution and population growth were determined to be significant and unavoidable, even with implementation of mitigation. The following mitigation measures would apply to the proposed project:

> **MM 3.5/25.0** Encourage all developments in the Specific Plan and Project to connect to the DSRSD water system.

> **MM3.5/26.0 (Program 9A). Water Conservation.** Require the following as conditions of project approval in eastern Dublin:

- Use of water-conserving devices such as low-flow shower heads, faucets, and toilets.
- Support implementation of the DSRSD Water Use Reduction Plan where appropriate.
- Water efficient irrigation systems within public rights-of-way, median islands, public parks, recreation areas and golf course areas (see Program 9B on Water Recycling).
- Drought resistant plant palettes within public rights-of-way, median islands, public parks, recreation areas and golf course areas.

> **MM3.5/27.0 (Program 9B). Water Recycling.** Require the following as conditions of project approval in eastern Dublin:

- Implementation of DSRSD and Zone 7 findings and recommendations on uses of recycled water to augment existing water supplies.
- Work with DSRSD to explore use of recycled water in eastern Dublin through potential construction of a recycled water distribution system. Construction of such a recycled water system will require approval of the use of recycled water for landscape irrigation by DSRSD, Zone 7 and the San Francisco Bay Regional Water Quality Control Board.

> **MM 3.5/37.0 (Program 9E). DSRSD Standards.** Require that design and construction of all water system facility improvements be in accordance with DSRSD standards.

> **MM 3.5/38.0 (Program 9G). DSRSD Service.** Require a "will-serve" letter from DSRSD prior to grading permit approval.

Potentially significant impacts related to storm drainage identified in the Eastern Dublin EIR are described in Section 9.0, Hydrology and Water Quality.

2002 SEIR

The 2002 SEIR did not identify any potentially significant supplemental impacts associated with water supply, wastewater treatment, stormwater drainage, or other utilities/service systems. The 2002 SEIR found that the mitigation measures in place from the Eastern Dublin EIR were adequate and that no new mitigation measures were necessary.

Fallon Village SEIR

The Fallon Village SIER identified no additional impacts related to water supply, wastewater collection, wastewater treatment capacity, wastewater disposal systems. Two impacts were identified relative to stormwater drainage, including the potential for stormwater runoff to add potential pollutants to nearby water bodies and would fail to comply with current hydromodification standards and surface water quality standards. Mitigation measures were identified to reduce these impacts to a less than significant level.

> **SM- SD-1 (changed surface water quality standards).** The Stage 1 Development Plan shall require that the water quality source control and hydrologic design recommendations of the report prepared by ENGEO, Inc. (February 28, 2005) be implemented for all individual development projects within the Project area.

> **SM- SD-2 (changed surface water quality hydromodification standards).** Development within the Project area shall comply with the hydromodification provisions of the Alameda County Clean Water Program as approved by the RWQCB and administered by the City of Dublin. If no Alameda County Clean Water Program permit has been adopted at the time individual development proposals are approved by the City the applicant may be required to submit hydrology and hydrologic analyses to identify specific increases in storm water runoff into downstream receiving waters. Such reports will be reviewed by both the City of Dublin and Zone 7 Water Agency. Development projects will also be required to pay the then-current Zone 7 Special Drainage Area fee (SDA7-1) in effect at the time of development.

Project Impacts and Mitigation Measures

(a) Require relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas or telecommunications facilities

The proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunication facilities beyond that which was already anticipated in the EDSP EIRs.

As outlined in the Project Description, new sanitary sewer lines and water lines would be installed within the project site and would connect to proposed sanitary sewer mains, potable water and recycled water mains within the future Dublin Boulevard Extension and the future

Central Parkway Extension to the northwest (within East Ranch). The proposed project would also include connections to proposed electricity and natural gas lines within the future Dublin Boulevard Extension and future Central Parkway Extension (within East Ranch).

The project site is currently largely undeveloped and covered in non-native grassland and, therefore, contains minimal impervious surfaces. Upon construction of the proposed project, approximately 60 percent of the project site would be covered with impervious surfaces, and the remaining 40 percent would be covered by pervious surfaces, consisting of the landscaped areas. The proposed project would include approximately 43,151 square feet of bioretention space on the project site that would be used for stormwater quality control. The proposed project would include multiple bioretention basins and storm drains throughout the project site, which would connect to downstream hydromodification facilities prior to discharging to existing/proposed stormdrain pipes. Hydromodification vaults would be included on-site to provide flow duration controls for the project. Proposed storm drainage facilities would conform to the Alameda County C.3 Stormwater Technical guidelines and requirements. Runoff from the proposed project would drain to future Dublin Boulevard Extension and Collier Canyon Road and ultimately to the G3 box culvert along Fallon Road.

On-site utility infrastructure necessary to serve the proposed project—including water, sanitary sewer, drainage, water quality treatment, and dry utilities (e.g., electricity, natural gas, cable)—would be installed within the project site and would connect to the proposed utility lines within adjacent roadways, which have already been planned and addressed in the EDSP EIRs.

(b) Sufficient water supply

The Fallon Village SEIR determined that the Fallon Village Project was accounted for in the DSRSD's Final Water Service Analysis for Eastern Dublin as well as the 2005 Urban Water Management Plan (UWMP), and therefore there would be sufficient water supply with existing entitlements. Since the adoption of the Fallon Village SEIR, the DSRSD has updated the UWMP (in 2020), which accounts for build out of the Eastern Dublin Area, including the project site. The 2020 UWMP determined that there would be adequate water supplies to meet demand through 2040 with existing entitlements. Additionally, consistent with the DSRSD District Code, the project applicant would be required obtain a certificate of capacity rights from DSRSD, prior to issuance of a building permit. The certificate of capacity rights, which is part of the entitlement review process, ensures the DSRSD can adequately serve the proposed project.

Currently, DSRSD's primary water supply source is purchased potable water from Zone 7, augmented by recycled water produced at DSRSD's RWTF. DSRSD also has a groundwater pumping quota (GPQ) from the local groundwater basin, pumped on its behalf by Zone 7, the local groundwater basin manager. Imported water from the State Water Project, which is owned and operated by the Department of Water Resources, is by far Zone 7's largest water source, providing approximately 90 percent of the treated water supplied to its customers on an annual average basis. The proposed project would be served by these systems. DSRSD anticipates the same water supply mix to be available through 2040. With the projects and programs implemented by DSRSD and Zone 7, water supplies are projected to meet demands.

The proposed project would be consistent with the type and intensity of development assumed for the project site in the City's General Plan, including the EDSP and accounted for in the UWMP. As stated in the UWMP, DSRSD can meet its water demand under multiple dry years with diversified supply and conservation measures.

(c) Sufficient wastewater capacity

The Fallon Village SEIR determined that potential development associated with the Fallon Village Project, including the proposed project, would be within the assumptions included in DSRSD's 2005 Wastewater Collection System Master Plan Update. Since the adoption of the Fallon Village SEIR, the DSRSD has updated the Wastewater Collection System Master Plan (in 2017), which accounts for build out of the project site. The proposed project would be consistent with the type and intensity of development assumed for the project site in the City's General Plan and accounted for in DSRSD's Wastewater Collection System Master Plan.

(d-e) Adequate landfill and compliance

Solid waste generated at the project site would be collected by Amador Valley Industries (AVI) and transferred to Altamont Landfill. The 2002 SEIR evaluated the capacity of solid waste service providers and disposal facilities to handle solid waste generated by proposed development in the East Dublin area. The 2002 SEIR determined that the Altamont Landfill had over 25 years of capacity. According to Cal Recycle, Altamont Landfill (01-AA-0009), currently has a maximum permitted capacity of 11,150 tons per day and a remaining capacity of 65,400,000 tons. The landfill continues to have sufficient capacity to accommodate level of residential and industrial development proposed as part of the project. Disposal of solid waste would be required to comply with all federal state, and local statutes and regulations associated with solid waste. This would include providing receptacles for green waste, recyclables, and garbage.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified utilities and service system impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to utilities and service systems beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

CalRecycle, 2019. Facility/Site Summary Details: Altamont Landfill and Resource Recovery (01-AA-0009). Website: www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/7?siteID=7 (accessed August 23, 2021).

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

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Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

West Yost. 2016. 2015 Urban Water Management Plan. June. Available online at: www.dsrsd.com/about-us/library/plans-studies (accessed June 12, 2022).

West Yost. 2019. 2017 Wastewater Collection System Master Plan. December. Available online at: www.dsrsd.com/about-us/library/plans-studies (accessed June 12, 2022).

West Yost. 2021. 2020 Urban Water Management Plan. June. Available online at: www.dsrsd.com/about-us/library/plans-studies (accessed June 12, 2022).

Wildfire

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
18.	**WILDFIRE. 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?			X
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?			X
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?			X
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?			X

Environmental Setting

As described in Section 8, Hazards and Hazardous Materials, the project site is not identified as an area of moderate, high, or very high fire hazard severity for the Local Responsibility Area. It is identified as an area of moderate fire hazard severity for the State Responsibility Area, as mapped by the California Department of Forestry and Fire Protection (CAL FIRE).

Previous CEQA Documents

The EDSP EIRs did not specifically analyze impacts for wildfires as it was not a separate topic for analysis when the Eastern Dublin EIR, 2002 SEIR and Fallon Village SEIR were completed. Public services impacts and mitigation measures, some of which relate to the provision of fire services pertain to wildfires, were identified and are discussed in the public services section.

Project Impacts and Mitigation Measures

(a) Impair an emergency response plan

As described above, the project site is located within a moderate hazard severity zone as identified by CALFIRE. The proposed project would be designed to provide adequate access to the site for fire/police/emergency medical service personnel in the event of an emergency at the project site. In the event of an emergency on the site, employees and residents could exit the site via Croak Road via the proposed Central Parkway Extension and the future Dublin Boulevard Extension. Once off the project site, employees and residents could access I-580 to exit the City and region. The proposed project would not substantially impair an adopted emergency response plan or emergency evacuation plan.

(b) Exposure to wildfire

As described in Section 6, Geology and Soils, elevations on the project site range from approximately 370 feet to approximately 580 feet above sea level. The topography of the project site ranges from relatively flat in the southern portion near I-580, to gently rolling hills to the northeast. A slope is proposed between the residential and industrial portion of the site to provide a buffer between the uses. Prevailing winds are typically from the west between February and November and from the north from November to February in the City.

Consistent with City requirements, a Geologic Hazard and Abatement District (GHAD) would be established. The GHAD would own and maintain improvements and landscape within the wildfire management area, located within the proposed residential lots adjacent to undeveloped open space. These areas would include fire safe plants and materials. Seasonal mowing and trimming maintenance would be performed by the GHAD. GHAD would also maintain the slope area and fire access road.

The proposed project would not include any design features that could increase the potential for a wildfire. The proposed project would not exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

(c) Require installation or maintenance of infrastructure

As discussed above, the project site is located outside of a VHFHS zone as identified by CALFIRE. All proposed project components including infrastructure, would be located within the boundaries of the project site and impacts associated with the development of the proposed project within the project site have been analyzed herein. Additionally, through Site Development Review, emergency services would review proposed plans to ensure that emergency vehicle access and circulation is adequate.

(d) Exposure to flooding or landslides

As described in Section 6, Geology and Soils, the topography of the project site ranges from relatively flat in the southern portion near I-580, to gently rolling hills to the northeast. A slope is proposed between the residential and industrial portion of the site to provide a buffer between the uses. As part of the proposed project, the project site would be graded to flatten the site, where necessary, to allow for intended future users. Further, as discussed in Section 9, Hydrology and Water Quality, the project would be required to implement erosion control measures during and post-construction. Following project construction, proposed on-site bioretention basins would limit the release of stormwater from the site; therefore, the project site would not expose people to flooding or landslides as a result of runoff, post-fire slope instability or drainage changes.

Conclusion

The project does not propose substantial changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in the EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified wildfire impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in the EDSP EIRs there would be no new or substantially more severe significant impacts to wildfires beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Source(s)

CAL FIRE. 2020. California Fire Hazard Severity Zone Viewer. Website: egis.fire.ca.gov/FHSZ/ (accessed June 20, 2022).

Dublin, City of. 2017. City of Dublin General Plan, Adopted February 11, 1985 (Amended as of November 21, 2017).

Dublin, City of. 2002. Final Revised Supplemental Environmental Impact Report, State Clearinghouse No. 2001052114, East Dublin Properties Stage 1 Development Plan and Annexation. March.

Haag, Jerry. 2005. Fallon Village Project, Final Supplemental Environmental Impact Report, State Clearinghouse No. 2005062010. November.

Wallace Roberts & Todd. 2016. Eastern Dublin Specific Plan. January 7, 1994 (Updated September 20, 2016).

Wallace Roberts & Todd. 1992. Final Environmental Impact Report, State Clearinghouse Number 91103064. Eastern Dublin General Plan Amendment and Specific Plan. December 7.

Mandatory Findings of Significance

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
18. MANDATORY FINDINGS OF SIGNIFICANCE. Does the project:			
a) Have the potential to 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, 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?			X
b) 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 the past projects, the effects of other current projects, and the effects of probable future projects.)			X
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

Significant Impacts

As discussed and analyzed in this document, the proposed project would not degrade the quality of the environment. Additionally, for reasons discussed in the Biological Resources section, the proposed project, with mitigation, would not 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, or reduce the number or restrict the range of a rare or endangered plant or animal. Further, for the reasons discussed in the Cultural Resources section, the proposed project, with mitigation, would not eliminate important examples of California history or prehistory. Therefore, implementation of the proposed project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

Cumulative Impacts

The proposed project has the potential to result in incremental environmental impacts that are part of a series of approvals that were anticipated under the EDSP EIRs. The EDSP EIRs considered the project's cumulatively considerable impacts where effects had the potential to degrade the quality of the environment as a result of build-out of the EDSP. Implementation of the proposed project, with mitigation, would not result in any new cumulative impacts or increase the severity of a previously identified significant cumulative impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

Substantial Adverse Effects on Human Beings

The proposed project would not create adverse environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. The proposed project would allow for residential and industrial development. These uses or activities would not result in any substantial adverse effects on human beings, either directly or indirectly, as discussed throughout this document. Therefore, implementation of the proposed project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

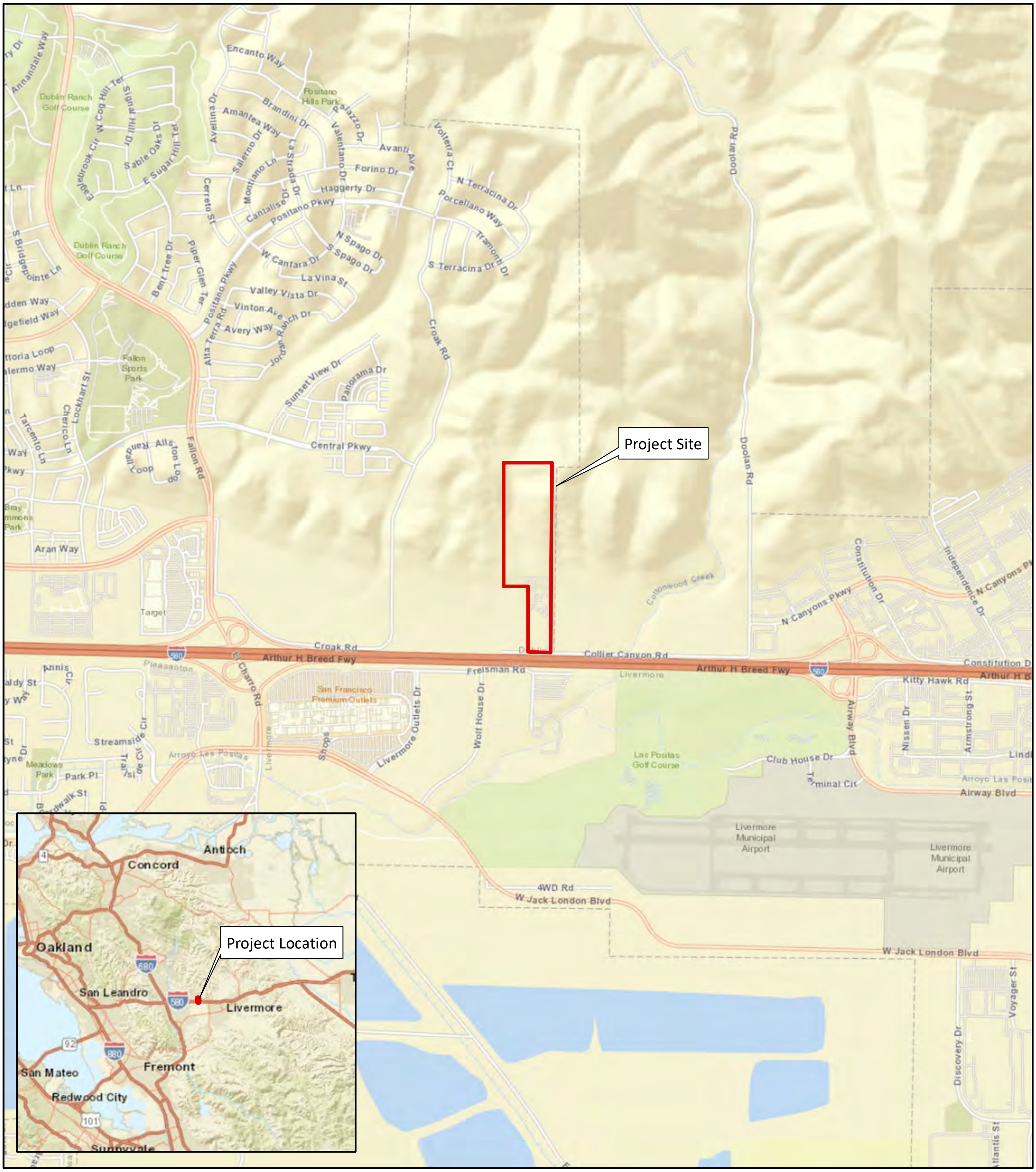


FIGURE 1

0 1000 2000
FEET

SOURCE: ESRI World Street Map (03/20).

Branaugh Property Stage 2 Planned Development

Regional Location

I:\DUB2101.02\Maps\Figure 1_Regional Location.mxd (9/8/2021)

LSA

FIGURE 2

Project Site Boundary

N

0 500 1000

FEET

Branaugh Property Stage 2 Planned Development Project

Aerial Photograph of the Project Site and Surrounding Land Uses

SOURCES: Nearmap, 5/22/2021; LSA, 2021

LSA

FIGURE 3

Project Site Boundary

Parcel Boundaries (approximate)

N

0 500 1000

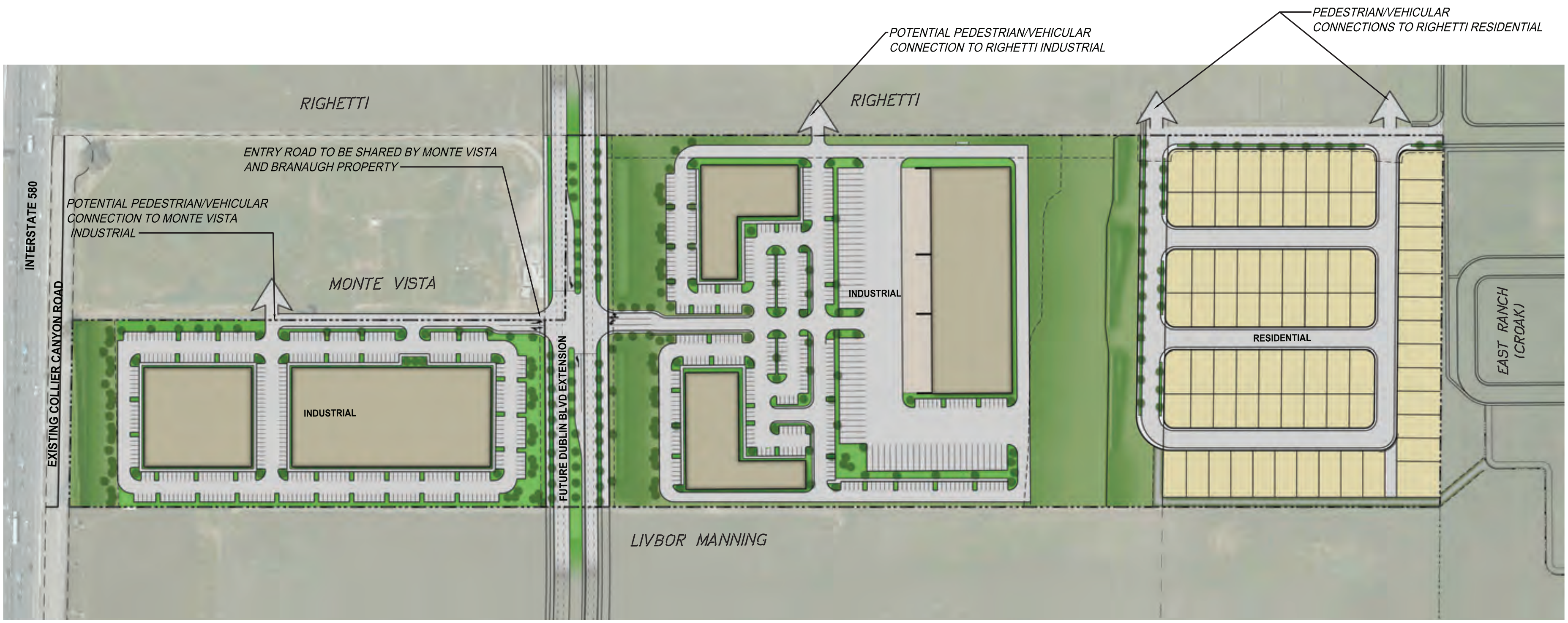
FEET

Branaugh Property Stage 2 Planned Development Project

Proposed Parcel Layout

SOURCES: Nearmap, 5/22/2021; LSA, 2021

P:\DUB2101.02 Branaugh\PRODUCTS\ Graphics\Figure_3.ai (2/4/2022)



LSA

FIGURE 4

N

0 100 200

FEET

SOURCE: MacKay & Somps, 4/26/2022

Branaugh Property Stage 2 Planned Development Project

Overall Site Plan

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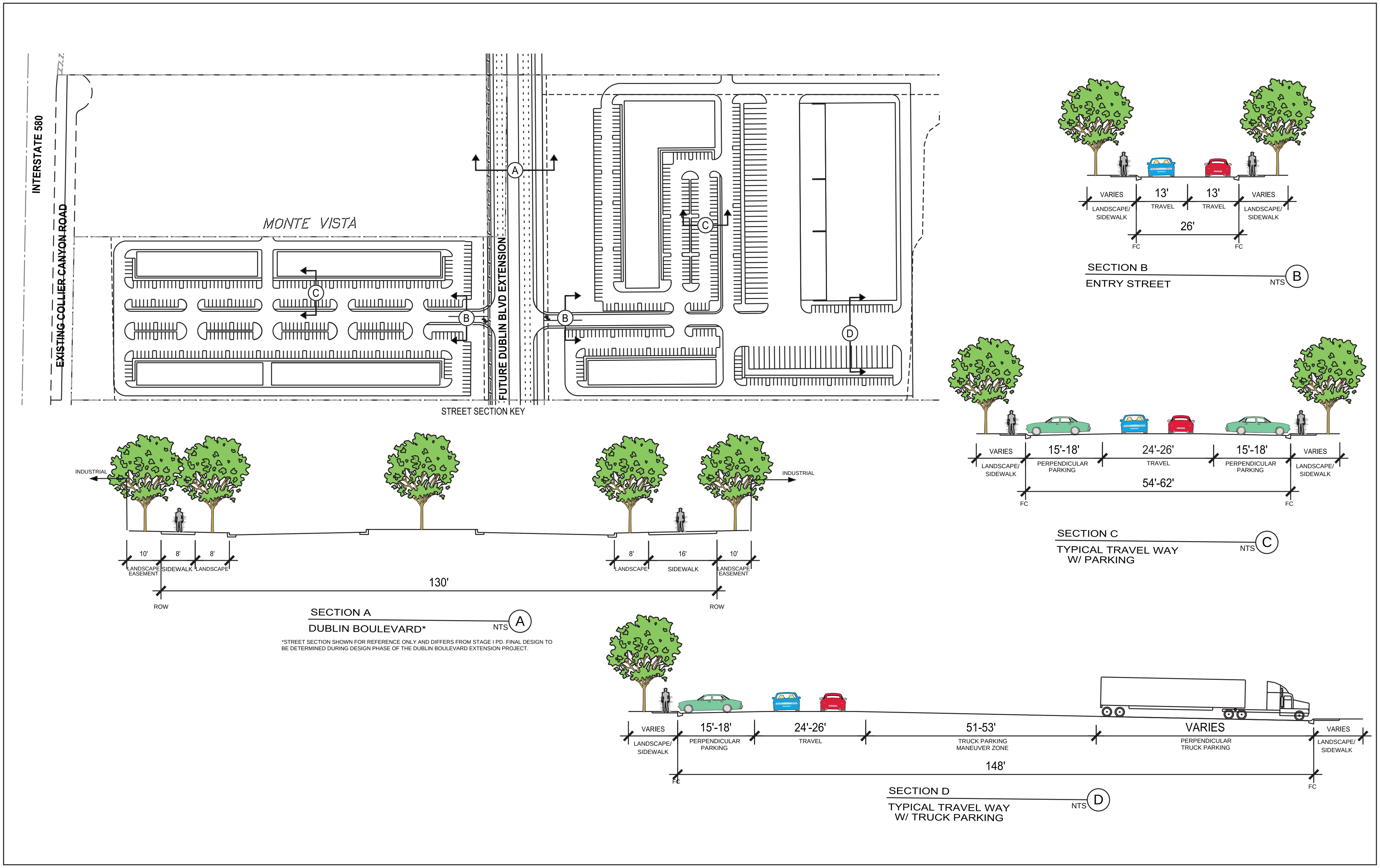
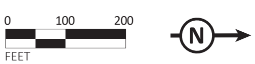


LSA

FIGURE 5



Branaugh Property Stage 2 Planned Development Project

Circulation Plan and Street Sections - Industrial

SOURCE: MacKay & Somps, 7/7/2021

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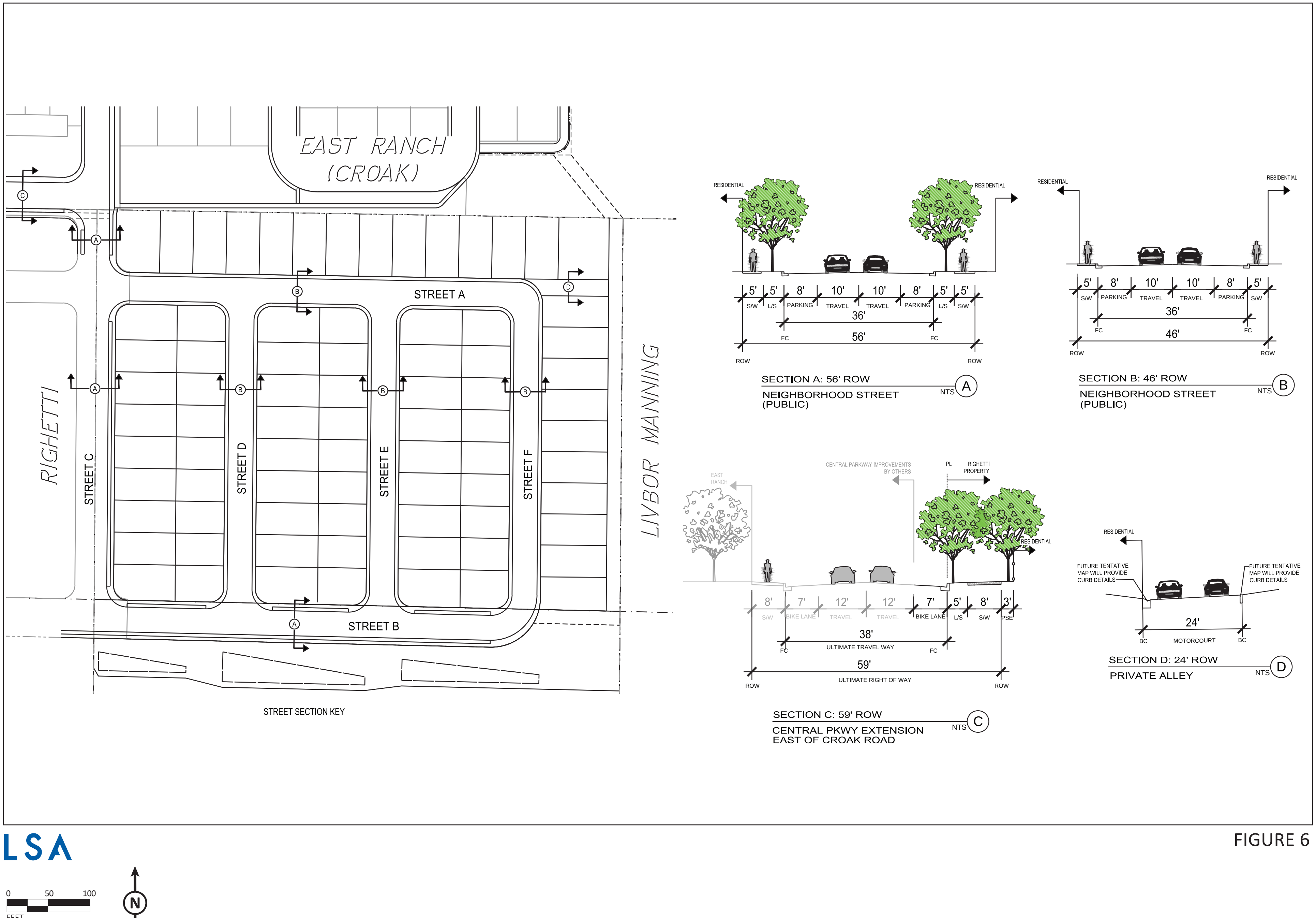

LSA

FIGURE 6

SOURCE: MacKay & Somps, 7/7/2021

Branaugh Property Stage 2 Planned Development Project
Circulation Plan and Street Sections - Residential

Appendix A
CalEEMod Output Sheets

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Branaugh Property Stage 2 Planned Development

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	69.00	Dwelling Unit	9.57	124,200.00	197
Apartments Mid Rise	27.00	Dwelling Unit	0.30	27,000.00	77
Industrial Park	527.77	1000sqft	30.29	527,773.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and Eastern Dublin Specific Plan. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and Eastern Dublin Specific Plan.

Construction Phase - The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months, and is anticipated to be fully improved by 2026.

Grading -

Demolition - The proposed project would demolish the existing onsite buildings.

Vehicle Trips - Based on the Proposed Transportation Analysis Methodology

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

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2

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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	740.00	305.00
tblConstructionPhase	NumDays	50.00	90.00
tblConstructionPhase	NumDays	75.00	260.00
tblConstructionPhase	PhaseEndDate	11/6/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	6/5/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	3/10/2023	1/5/2024
tblConstructionPhase	PhaseEndDate	8/4/2023	1/3/2025
tblConstructionPhase	PhaseEndDate	8/21/2026	3/6/2026
tblConstructionPhase	PhaseStartDate	8/22/2026	12/22/2025
tblConstructionPhase	PhaseStartDate	8/5/2023	1/6/2025
tblConstructionPhase	PhaseStartDate	1/2/2023	9/4/2023
tblConstructionPhase	PhaseStartDate	4/22/2023	1/8/2024
tblConstructionPhase	PhaseStartDate	6/6/2026	12/22/2025
tblLandUse	LotAcreage	22.40	9.57
tblLandUse	LotAcreage	0.71	0.30
tblLandUse	LotAcreage	12.12	30.29
tblVehicleTrips	WD_TR	5.44	7.33
tblVehicleTrips	WD_TR	9.44	9.45

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					
2023	0.0981	0.9170	0.8496	1.7100e-003	9.9000e-003	0.0424	0.0524	2.1200e-003	0.0395	0.0416	0.0000	149.6543	149.6543	0.0406	3.0000e-004	150.7605
2024	0.4254	4.2169	3.6657	8.2400e-003	1.2083	0.1741	1.3824	0.4756	0.1602	0.6358	0.0000	724.8966	724.8966	0.2294	4.2000e-004	730.7576
2025	0.8308	2.2927	3.0208	8.2900e-003	0.7783	0.0762	0.8545	0.1461	0.0716	0.2178	0.0000	759.3021	759.3021	0.0857	0.0405	773.4970
2026	3.3379	0.6321	0.9376	2.1500e-003	0.0770	0.0243	0.1013	0.0208	0.0228	0.0436	0.0000	195.4823	195.4823	0.0303	7.4100e-003	198.4487
Maximum	**3.3379**	**4.2169**	**3.6657**	**8.2900e-003**	**1.2083**	**0.1741**	**1.3824**	**0.4756**	**0.1602**	**0.6358**	**0.0000**	**759.3021**	**759.3021**	**0.2294**	**0.0405**	**773.4970**

2.1 Overall Construction

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					
2023	0.0553	1.3922	1.0634	1.7100e-003	7.4200e-003	0.0389	0.0463	1.7400e-003	0.0389	0.0406	0.0000	149.6542	149.6542	0.0406	3.0000e-004	150.7603
2024	0.2421	6.6701	4.8346	8.2400e-003	0.5551	0.1737	0.7288	0.2170	0.1737	0.3907	0.0000	724.8958	724.8958	0.2294	4.2000e-004	730.7568
2025	0.7921	3.8085	3.2781	8.2900e-003	0.5458	0.1262	0.6720	0.1189	0.1259	0.2448	0.0000	759.3017	759.3017	0.0857	0.0405	773.4966
2026	3.3302	1.1920	1.0440	2.1500e-003	0.0770	0.0400	0.1170	0.0208	0.0400	0.0608	0.0000	195.4822	195.4822	0.0303	7.4100e-003	198.4486
Maximum	**3.3302**	**6.6701**	**4.8346**	**8.2900e-003**	**0.5551**	**0.1737**	**0.7288**	**0.2170**	**0.1737**	**0.3907**	**0.0000**	**759.3017**	**759.3017**	**0.2294**	**0.0405**	**773.4966**

	ROG	NOx	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	**5.81**	**-62.09**	**-20.61**	**0.00**	**42.83**	**-19.46**	**34.57**	**44.40**	**-28.70**	**21.50**	**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)
3	**7-2-2023**	**10-1-2023**	0.2388	0.3405
4	**10-2-2023**	**1-1-2024**	0.7848	1.1193
5	**1-2-2024**	**4-1-2024**	1.1164	1.6617
6	**4-2-2024**	**7-1-2024**	1.1594	1.7266
7	**7-2-2024**	**10-1-2024**	1.1721	1.7456
8	**10-2-2024**	**1-1-2025**	1.1707	1.7459
9	**1-2-2025**	**4-1-2025**	0.6173	0.9648
10	**4-2-2025**	**7-1-2025**	0.6191	0.9700

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

11	**7-2-2025**	**10-1-2025**	0.6260	0.9808
12	**10-2-2025**	**1-1-2026**	1.2256	1.6303
13	**1-2-2026**	**4-1-2026**	3.8658	4.4029
		Highest	3.8658	4.4029

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	3.5242	0.0186	1.3941	1.4300e-003		0.1015	0.1015		0.1015	0.1015	10.0016	3.8329	13.8345	0.0197	5.8000e-004	14.5001
Energy	0.0572	0.5142	0.3925	3.1200e-003		0.0395	0.0395		0.0395	0.0395	0.0000	1,464.4906	1,464.4906	0.1562	0.0280	1,476.7370
Mobile	0.9477	1.0675	9.0456	0.0193	2.2014	0.0140	2.2155	0.5882	0.0131	0.6012	0.0000	1,833.8642	1,833.8642	0.1136	0.0851	1,862.0572
Waste						0.0000	0.0000		0.0000	0.0000	152.1600	0.0000	152.1600	8.9924	0.0000	376.9700
Water						0.0000	0.0000		0.0000	0.0000	40.7042	65.5107	106.2148	4.1913	0.1000	240.7976
Total	**4.5291**	**1.6003**	**10.8322**	**0.0238**	**2.2014**	**0.1551**	**2.3565**	**0.5882**	**0.1541**	**0.7423**	**202.8658**	**3,367.6984**	**3,570.5641**	**13.4731**	**0.2137**	**3,971.0619**

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	3.0559	0.0142	0.7195	8.0000e-005		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	8.1099	8.1099	1.2700e-003	1.3000e-004	8.1796
Energy	0.0572	0.5142	0.3925	3.1200e-003		0.0395	0.0395		0.0395	0.0395	0.0000	1,464.4906	1,464.4906	0.1562	0.0280	1,476.7370
Mobile	0.9477	1.0675	9.0456	0.0193	2.2014	0.0140	2.2155	0.5882	0.0131	0.6012	0.0000	1,833.8642	1,833.8642	0.1136	0.0851	1,862.0572
Waste						0.0000	0.0000		0.0000	0.0000	152.1600	0.0000	152.1600	8.9924	0.0000	376.9700
Water						0.0000	0.0000		0.0000	0.0000	40.7042	65.5107	106.2148	4.1913	0.1000	240.7976
Total	**4.0608**	**1.5959**	**10.1576**	**0.0225**	**2.2014**	**0.0580**	**2.2595**	**0.5882**	**0.0571**	**0.6452**	**192.8642**	**3,371.9754**	**3,564.8395**	**13.4547**	**0.2132**	**3,964.7413**

	ROG	**NOx**	**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	**10.34**	**0.27**	**6.23**	**5.67**	**0.00**	**62.58**	**4.12**	**0.00**	**62.97**	**13.08**	**4.93**	**-0.13**	**0.16**	**0.14**	**0.21**	**0.16**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/4/2023	1/5/2024	5	90	
2	Grading	Grading	1/8/2024	1/3/2025	5	260	
3	Building Construction	Building Construction	1/6/2025	3/6/2026	5	305	

4	Paving	Paving	12/22/2025	3/6/2026	5	55	
5	Architectural Coating	Architectural Coating	12/22/2025	3/6/2026	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 780

Acres of Paving: 0

Residential Indoor: 306,180; Residential Outdoor: 102,060; Non-Residential Indoor: 791,660; Non-Residential Outdoor: 263,887; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	44.00	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	266.00	97.00	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	53.00	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 Demolition - 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					
Fugitive Dust					4.5100e-003	0.0000	4.5100e-003	6.8000e-004	0.0000	6.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0964	0.9131	0.8348	1.6500e-003		0.0424	0.0424		0.0394	0.0394	0.0000	144.4663	144.4663	0.0405	0.0000	145.4778
Total	**0.0964**	**0.9131**	**0.8348**	**1.6500e-003**	**4.5100e-003**	**0.0424**	**0.0469**	**6.8000e-004**	**0.0394**	**0.0401**	**0.0000**	**144.4663**	**144.4663**	**0.0405**	**0.0000**	**145.4778**

3.2 Demolition - 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	4.0000e-005	2.8200e-003	6.6000e-004	1.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.2400	1.2400	4.0000e-005	2.0000e-004	1.2996
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	1.6300e-003	1.1200e-003	0.0141	4.0000e-005	5.0400e-003	3.0000e-005	5.0600e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.9480	3.9480	1.1000e-004	1.1000e-004	3.9832
Total	**1.6700e-003**	**3.9400e-003**	**0.0148**	**5.0000e-005**	**5.3900e-003**	**5.0000e-005**	**5.4300e-003**	**1.4400e-003**	**4.0000e-005**	**1.4800e-003**	**0.0000**	**5.1880**	**5.1880**	**1.5000e-004**	**3.1000e-004**	**5.2827**

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					2.0300e-003	0.0000	2.0300e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0536	1.3882	1.0486	1.6500e-003		0.0388	0.0388		0.0388	0.0388	0.0000	144.4661	144.4661	0.0405	0.0000	145.4776
Total	**0.0536**	**1.3882**	**1.0486**	**1.6500e-003**	**2.0300e-003**	**0.0388**	**0.0409**	**3.1000e-004**	**0.0388**	**0.0391**	**0.0000**	**144.4661**	**144.4661**	**0.0405**	**0.0000**	**145.4776**

3.2 Demolition - 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	4.0000e-005	2.8200e-003	6.6000e-004	1.0000e-005	3.5000e-004	2.0000e-005	3.7000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.2400	1.2400	4.0000e-005	2.0000e-004	1.2996
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	1.6300e-003	1.1200e-003	0.0141	4.0000e-005	5.0400e-003	3.0000e-005	5.0600e-003	1.3400e-003	2.0000e-005	1.3600e-003	0.0000	3.9480	3.9480	1.1000e-004	1.1000e-004	3.9832
Total	**1.6700e-003**	**3.9400e-003**	**0.0148**	**5.0000e-005**	**5.3900e-003**	**5.0000e-005**	**5.4300e-003**	**1.4400e-003**	**4.0000e-005**	**1.4800e-003**	**0.0000**	**5.1880**	**5.1880**	**1.5000e-004**	**3.1000e-004**	**5.2827**

3.2 Demolition - 2024

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					2.7000e-004	0.0000	2.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.6100e-003	0.0522	0.0493	1.0000e-004		2.4000e-003	2.4000e-003		2.2300e-003	2.2300e-003	0.0000	8.4990	8.4990	2.3800e-003	0.0000	8.5585
Total	**5.6100e-003**	**0.0522**	**0.0493**	**1.0000e-004**	**2.7000e-004**	**2.4000e-003**	**2.6700e-003**	**4.0000e-005**	**2.2300e-003**	**2.2700e-003**	**0.0000**	**8.4990**	**8.4990**	**2.3800e-003**	**0.0000**	**8.5585**

3.2 Demolition - 2024

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	1.7000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0718	0.0718	0.0000	1.0000e-005	0.0753
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	7.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2265	0.2265	1.0000e-005	1.0000e-005	0.2284
Total	**9.0000e-005**	**2.3000e-004**	**8.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2983**	**0.2983**	**1.0000e-005**	**2.0000e-005**	**0.3037**

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					1.2000e-004	0.0000	1.2000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1500e-003	0.0817	0.0617	1.0000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	8.4990	8.4990	2.3800e-003	0.0000	8.5585
Total	**3.1500e-003**	**0.0817**	**0.0617**	**1.0000e-004**	**1.2000e-004**	**2.2800e-003**	**2.4000e-003**	**2.0000e-005**	**2.2800e-003**	**2.3000e-003**	**0.0000**	**8.4990**	**8.4990**	**2.3800e-003**	**0.0000**	**8.5585**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2024

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	1.7000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0718	0.0718	0.0000	1.0000e-005	0.0753
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	7.8000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2265	0.2265	1.0000e-005	1.0000e-005	0.2284
Total	**9.0000e-005**	**2.3000e-004**	**8.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2983**	**0.2983**	**1.0000e-005**	**2.0000e-005**	**0.3037**

3.3 Grading - 2024

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					1.1874	0.0000	1.1874	0.4700	0.0000	0.4700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.4135	4.1604	3.5624	7.9800e-003		0.1716	0.1716		0.1579	0.1579	0.0000	700.5759	700.5759	0.2266	0.0000	706.2404
Total	**0.4135**	**4.1604**	**3.5624**	**7.9800e-003**	**1.1874**	**0.1716**	**1.3590**	**0.4700**	**0.1579**	**0.6279**	**0.0000**	**700.5759**	**700.5759**	**0.2266**	**0.0000**	**706.2404**

3.3 Grading - 2024

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	6.1600e-003	4.0200e-003	0.0533	1.7000e-004	0.0203	1.0000e-004	0.0204	5.4000e-003	9.0000e-005	5.4900e-003	0.0000	15.5234	15.5234	4.2000e-004	4.1000e-004	15.6551
Total	**6.1600e-003**	**4.0200e-003**	**0.0533**	**1.7000e-004**	**0.0203**	**1.0000e-004**	**0.0204**	**5.4000e-003**	**9.0000e-005**	**5.4900e-003**	**0.0000**	**15.5234**	**15.5234**	**4.2000e-004**	**4.1000e-004**	**15.6551**

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					0.5343	0.0000	0.5343	0.2115	0.0000	0.2115	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2327	6.5842	4.7189	7.9800e-003		0.1713	0.1713		0.1713	0.1713	0.0000	700.5750	700.5750	0.2266	0.0000	706.2395
Total	**0.2327**	**6.5842**	**4.7189**	**7.9800e-003**	**0.5343**	**0.1713**	**0.7057**	**0.2115**	**0.1713**	**0.3828**	**0.0000**	**700.5750**	**700.5750**	**0.2266**	**0.0000**	**706.2395**

3.3 Grading - 2024

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	6.1600e-003	4.0200e-003	0.0533	1.7000e-004	0.0203	1.0000e-004	0.0204	5.4000e-003	9.0000e-005	5.4900e-003	0.0000	15.5234	15.5234	4.2000e-004	4.1000e-004	15.6551
Total	**6.1600e-003**	**4.0200e-003**	**0.0533**	**1.7000e-004**	**0.0203**	**1.0000e-004**	**0.0204**	**5.4000e-003**	**9.0000e-005**	**5.4900e-003**	**0.0000**	**15.5234**	**15.5234**	**4.2000e-004**	**4.1000e-004**	**15.6551**

3.3 Grading - 2025

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					0.4226	0.0000	0.4226	0.0496	0.0000	0.0496	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3500e-003	0.0419	0.0395	9.0000e-005		1.7000e-003	1.7000e-003		1.5600e-003	1.5600e-003	0.0000	8.1759	8.1759	2.6400e-003	0.0000	8.2420
Total	**4.3500e-003**	**0.0419**	**0.0395**	**9.0000e-005**	**0.4226**	**1.7000e-003**	**0.4243**	**0.0496**	**1.5600e-003**	**0.0512**	**0.0000**	**8.1759**	**8.1759**	**2.6400e-003**	**0.0000**	**8.2420**

3.3 Grading - 2025

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	7.0000e-005	4.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1769	0.1769	0.0000	0.0000	0.1783
Total	**7.0000e-005**	**4.0000e-005**	**5.8000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1769**	**0.1769**	**0.0000**	**0.0000**	**0.1783**

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					0.1902	0.0000	0.1902	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7200e-003	0.0769	0.0551	9.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	8.1759	8.1759	2.6400e-003	0.0000	8.2420
Total	**2.7200e-003**	**0.0769**	**0.0551**	**9.0000e-005**	**0.1902**	**2.0000e-003**	**0.1922**	**0.0223**	**2.0000e-003**	**0.0243**	**0.0000**	**8.1759**	**8.1759**	**2.6400e-003**	**0.0000**	**8.2420**

3.3 Grading - 2025

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	7.0000e-005	4.0000e-005	5.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1769	0.1769	0.0000	0.0000	0.1783
Total	**7.0000e-005**	**4.0000e-005**	**5.8000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1769**	**0.1769**	**0.0000**	**0.0000**	**0.1783**

3.4 Building Construction - 2025

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	0.1764	1.6086	2.0749	3.4800e-003		0.0681	0.0681		0.0640	0.0640	0.0000	299.1761	299.1761	0.0703	0.0000	300.9343
Total	**0.1764**	**1.6086**	**2.0749**	**3.4800e-003**		**0.0681**	**0.0681**		**0.0640**	**0.0640**	**0.0000**	**299.1761**	**299.1761**	**0.0703**	**0.0000**	**300.9343**

3.4 Building Construction - 2025

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	0.0126	0.5545	0.1674	2.4500e-003	0.0821	3.2800e-003	0.0854	0.0238	3.1400e-003	0.0269	0.0000	238.8276	238.8276	4.9800e-003	0.0353	249.4740
Worker	0.0773	0.0484	0.6675	2.1400e-003	0.2711	1.2700e-003	0.2724	0.0721	1.1700e-003	0.0733	0.0000	202.3128	202.3128	5.0400e-003	5.0900e-003	203.9565
Total	**0.0899**	**0.6029**	**0.8349**	**4.5900e-003**	**0.3533**	**4.5500e-003**	**0.3578**	**0.0959**	**4.3100e-003**	**0.1002**	**0.0000**	**441.1405**	**441.1405**	**0.0100**	**0.0404**	**453.4305**

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	0.1394	3.0385	2.3057	3.4800e-003		0.1166	0.1166		0.1166	0.1166	0.0000	299.1757	299.1757	0.0703	0.0000	300.9339
Total	**0.1394**	**3.0385**	**2.3057**	**3.4800e-003**		**0.1166**	**0.1166**		**0.1166**	**0.1166**	**0.0000**	**299.1757**	**299.1757**	**0.0703**	**0.0000**	**300.9339**

3.4 Building Construction - 2025

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	0.0126	0.5545	0.1674	2.4500e-003	0.0821	3.2800e-003	0.0854	0.0238	3.1400e-003	0.0269	0.0000	238.8276	238.8276	4.9800e-003	0.0353	249.4740
Worker	0.0773	0.0484	0.6675	2.1400e-003	0.2711	1.2700e-003	0.2724	0.0721	1.1700e-003	0.0733	0.0000	202.3128	202.3128	5.0400e-003	5.0900e-003	203.9565
Total	**0.0899**	**0.6029**	**0.8349**	**4.5900e-003**	**0.3533**	**4.5500e-003**	**0.3578**	**0.0959**	**4.3100e-003**	**0.1002**	**0.0000**	**441.1405**	**441.1405**	**0.0100**	**0.0404**	**453.4305**

3.4 Building Construction - 2026

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	0.0321	0.2930	0.3780	6.3000e-004		0.0124	0.0124		0.0117	0.0117	0.0000	54.5011	54.5011	0.0128	0.0000	54.8214
Total	**0.0321**	**0.2930**	**0.3780**	**6.3000e-004**		**0.0124**	**0.0124**		**0.0117**	**0.0117**	**0.0000**	**54.5011**	**54.5011**	**0.0128**	**0.0000**	**54.8214**

3.4 Building Construction - 2026

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	2.2500e-003	0.1004	0.0301	4.4000e-004	0.0150	5.9000e-004	0.0156	4.3300e-003	5.7000e-004	4.9000e-003	0.0000	42.7104	42.7104	9.0000e-004	6.3100e-003	44.6135
Worker	0.0133	8.0200e-003	0.1150	3.8000e-004	0.0494	2.2000e-004	0.0496	0.0131	2.0000e-004	0.0133	0.0000	36.0179	36.0179	8.4000e-004	8.8000e-004	36.3002
Total	**0.0156**	**0.1084**	**0.1451**	**8.2000e-004**	**0.0644**	**8.1000e-004**	**0.0652**	**0.0175**	**7.7000e-004**	**0.0182**	**0.0000**	**78.7283**	**78.7283**	**1.7400e-003**	**7.1900e-003**	**80.9136**

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	0.0254	0.5535	0.4200	6.3000e-004		0.0212	0.0212		0.0212	0.0212	0.0000	54.5010	54.5010	0.0128	0.0000	54.8213
Total	**0.0254**	**0.5535**	**0.4200**	**6.3000e-004**		**0.0212**	**0.0212**		**0.0212**	**0.0212**	**0.0000**	**54.5010**	**54.5010**	**0.0128**	**0.0000**	**54.8213**

3.4 Building Construction - 2026

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	2.2500e-003	0.1004	0.0301	4.4000e-004	0.0150	5.9000e-004	0.0156	4.3300e-003	5.7000e-004	4.9000e-003	0.0000	42.7104	42.7104	9.0000e-004	6.3100e-003	44.6135
Worker	0.0133	8.0200e-003	0.1150	3.8000e-004	0.0494	2.2000e-004	0.0496	0.0131	2.0000e-004	0.0133	0.0000	36.0179	36.0179	8.4000e-004	8.8000e-004	36.3002
Total	**0.0156**	**0.1084**	**0.1451**	**8.2000e-004**	**0.0644**	**8.1000e-004**	**0.0652**	**0.0175**	**7.7000e-004**	**0.0182**	**0.0000**	**78.7283**	**78.7283**	**1.7400e-003**	**7.1900e-003**	**80.9136**

3.5 Paving - 2025

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	3.6600e-003	0.0343	0.0583	9.0000e-005		1.6700e-003	1.6700e-003		1.5400e-003	1.5400e-003	0.0000	8.0077	8.0077	2.5900e-003	0.0000	8.0725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6600e-003**	**0.0343**	**0.0583**	**9.0000e-005**		**1.6700e-003**	**1.6700e-003**		**1.5400e-003**	**1.5400e-003**	**0.0000**	**8.0077**	**8.0077**	**2.5900e-003**	**0.0000**	**8.0725**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2025

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	8.0000e-005	1.1700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3538	0.3538	1.0000e-005	1.0000e-005	0.3566
Total	**1.4000e-004**	**8.0000e-005**	**1.1700e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3538**	**0.3538**	**1.0000e-005**	**1.0000e-005**	**0.3566**

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	3.7200e-003	0.0805	0.0692	9.0000e-005		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	8.0077	8.0077	2.5900e-003	0.0000	8.0724
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.7200e-003**	**0.0805**	**0.0692**	**9.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**8.0077**	**8.0077**	**2.5900e-003**	**0.0000**	**8.0724**

3.5 Paving - 2025

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	8.0000e-005	1.1700e-003	0.0000	4.7000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3538	0.3538	1.0000e-005	1.0000e-005	0.3566
Total	**1.4000e-004**	**8.0000e-005**	**1.1700e-003**	**0.0000**	**4.7000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3538**	**0.3538**	**1.0000e-005**	**1.0000e-005**	**0.3566**

3.5 Paving - 2026

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	0.0215	0.2017	0.3426	5.4000e-004		9.8400e-003	9.8400e-003		9.0500e-003	9.0500e-003	0.0000	47.0453	47.0453	0.0152	0.0000	47.4256
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0215**	**0.2017**	**0.3426**	**5.4000e-004**		**9.8400e-003**	**9.8400e-003**		**9.0500e-003**	**9.0500e-003**	**0.0000**	**47.0453**	**47.0453**	**0.0152**	**0.0000**	**47.4256**

3.5 Paving - 2026

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	7.5000e-004	4.5000e-004	6.4900e-003	2.0000e-005	2.7900e-003	1.0000e-005	2.8000e-003	7.4000e-004	1.0000e-005	7.5000e-004	0.0000	2.0311	2.0311	5.0000e-005	5.0000e-005	2.0470
Total	**7.5000e-004**	**4.5000e-004**	**6.4900e-003**	**2.0000e-005**	**2.7900e-003**	**1.0000e-005**	**2.8000e-003**	**7.4000e-004**	**1.0000e-005**	**7.5000e-004**	**0.0000**	**2.0311**	**2.0311**	**5.0000e-005**	**5.0000e-005**	**2.0470**

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	0.0219	0.4727	0.4065	5.4000e-004		0.0157	0.0157		0.0157	0.0157	0.0000	47.0452	47.0452	0.0152	0.0000	47.4256
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0219**	**0.4727**	**0.4065**	**5.4000e-004**		**0.0157**	**0.0157**		**0.0157**	**0.0157**	**0.0000**	**47.0452**	**47.0452**	**0.0152**	**0.0000**	**47.4256**

3.5 Paving - 2026

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	7.5000e-004	4.5000e-004	6.4900e-003	2.0000e-005	2.7900e-003	1.0000e-005	2.8000e-003	7.4000e-004	1.0000e-005	7.5000e-004	0.0000	2.0311	2.0311	5.0000e-005	5.0000e-005	2.0470
Total	**7.5000e-004**	**4.5000e-004**	**6.4900e-003**	**2.0000e-005**	**2.7900e-003**	**1.0000e-005**	**2.8000e-003**	**7.4000e-004**	**1.0000e-005**	**7.5000e-004**	**0.0000**	**2.0311**	**2.0311**	**5.0000e-005**	**5.0000e-005**	**2.0470**

3.6 Architectural Coating - 2025

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	0.5551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8000e-004	4.5800e-003	7.2400e-003	1.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	1.0213	1.0213	6.0000e-005	0.0000	1.0227
Total	**0.5558**	**4.5800e-003**	**7.2400e-003**	**1.0000e-005**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**1.0213**	**1.0213**	**6.0000e-005**	**0.0000**	**1.0227**

3.6 Architectural Coating - 2025

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	4.8000e-004	3.0000e-004	4.1200e-003	1.0000e-005	1.6800e-003	1.0000e-005	1.6800e-003	4.5000e-004	1.0000e-005	4.5000e-004	0.0000	1.2499	1.2499	3.0000e-005	3.0000e-005	1.2601
Total	**4.8000e-004**	**3.0000e-004**	**4.1200e-003**	**1.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.6800e-003**	**4.5000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2499**	**1.2499**	**3.0000e-005**	**3.0000e-005**	**1.2601**

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	0.5551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6000e-004	9.4100e-003	7.3300e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	1.0213	1.0213	6.0000e-005	0.0000	1.0227
Total	**0.5556**	**9.4100e-003**	**7.3300e-003**	**1.0000e-005**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.0213**	**1.0213**	**6.0000e-005**	**0.0000**	**1.0227**

3.6 Architectural Coating - 2025

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	4.8000e-004	3.0000e-004	4.1200e-003	1.0000e-005	1.6800e-003	1.0000e-005	1.6800e-003	4.5000e-004	1.0000e-005	4.5000e-004	0.0000	1.2499	1.2499	3.0000e-005	3.0000e-005	1.2601
Total	**4.8000e-004**	**3.0000e-004**	**4.1200e-003**	**1.0000e-005**	**1.6800e-003**	**1.0000e-005**	**1.6800e-003**	**4.5000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2499**	**1.2499**	**3.0000e-005**	**3.0000e-005**	**1.2601**

3.6 Architectural Coating - 2026

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	3.2613					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0200e-003	0.0269	0.0425	7.0000e-005		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	6.0002	6.0002	3.3000e-004	0.0000	6.0083
Total	**3.2653**	**0.0269**	**0.0425**	**7.0000e-005**		**1.2100e-003**	**1.2100e-003**		**1.2100e-003**	**1.2100e-003**	**0.0000**	**6.0002**	**6.0002**	**3.3000e-004**	**0.0000**	**6.0083**

3.6 Architectural Coating - 2026

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	2.6500e-003	1.6000e-003	0.0229	8.0000e-005	9.8400e-003	4.0000e-005	9.8900e-003	2.6200e-003	4.0000e-005	2.6600e-003	0.0000	7.1765	7.1765	1.7000e-004	1.7000e-004	7.2328
Total	**2.6500e-003**	**1.6000e-003**	**0.0229**	**8.0000e-005**	**9.8400e-003**	**4.0000e-005**	**9.8900e-003**	**2.6200e-003**	**4.0000e-005**	**2.6600e-003**	**0.0000**	**7.1765**	**7.1765**	**1.7000e-004**	**1.7000e-004**	**7.2328**

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	3.2613					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6800e-003	0.0553	0.0431	7.0000e-005		2.2300e-003	2.2300e-003		2.2300e-003	2.2300e-003	0.0000	6.0001	6.0001	3.3000e-004	0.0000	6.0083
Total	**3.2639**	**0.0553**	**0.0431**	**7.0000e-005**		**2.2300e-003**	**2.2300e-003**		**2.2300e-003**	**2.2300e-003**	**0.0000**	**6.0001**	**6.0001**	**3.3000e-004**	**0.0000**	**6.0083**

3.6 Architectural Coating - 2026

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	2.6500e-003	1.6000e-003	0.0229	8.0000e-005	9.8400e-003	4.0000e-005	9.8900e-003	2.6200e-003	4.0000e-005	2.6600e-003	0.0000	7.1765	7.1765	1.7000e-004	1.7000e-004	7.2328
Total	**2.6500e-003**	**1.6000e-003**	**0.0229**	**8.0000e-005**	**9.8400e-003**	**4.0000e-005**	**9.8900e-003**	**2.6200e-003**	**4.0000e-005**	**2.6600e-003**	**0.0000**	**7.1765**	**7.1765**	**1.7000e-004**	**1.7000e-004**	**7.2328**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	0.9477	1.0675	9.0456	0.0193	2.2014	0.0140	2.2155	0.5882	0.0131	0.6012	0.0000	1,833.864 2	1,833.864 2	0.1136	0.0851	1,862.057 2
Unmitigated	0.9477	1.0675	9.0456	0.0193	2.2014	0.0140	2.2155	0.5882	0.0131	0.6012	0.0000	1,833.864 2	1,833.864 2	0.1136	0.0851	1,862.057 2

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	197.91	132.57	110.43	406,672	406,672
Industrial Park	1,778.60	1,340.54	654.44	4,078,051	4,078,051
Single Family Housing	652.05	658.26	589.95	1,487,539	1,487,539
Total	2,628.56	2,131.37	1,354.82	5,972,262	5,972,262

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
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
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
Apartments Mid Rise	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771
Industrial Park	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Single Family Housing	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	898.1050	898.1050	0.1453	0.0176	906.9856
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	898.1050	898.1050	0.1453	0.0176	906.9856
NaturalGas Mitigated	0.0572	0.5142	0.3925	3.1200e-003		0.0395	0.0395		0.0395	0.0395	0.0000	566.3857	566.3857	0.0109	0.0104	569.7514
NaturalGas Unmitigated	0.0572	0.5142	0.3925	3.1200e-003		0.0395	0.0395		0.0395	0.0395	0.0000	566.3857	566.3857	0.0109	0.0104	569.7514

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					
Apartments Mid Rise	226305	1.2200e-003	0.0104	4.4400e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.0765	12.0765	2.3000e-004	2.2000e-004	12.1483
Industrial Park	8.54992e+006	0.0461	0.4191	0.3521	2.5100e-003		0.0319	0.0319		0.0319	0.0319	0.0000	456.2564	456.2564	8.7400e-003	8.3600e-003	458.9677
Single Family Housing	1.83744e+006	9.9100e-003	0.0847	0.0360	5.4000e-004		6.8500e-003	6.8500e-003		6.8500e-003	6.8500e-003	0.0000	98.0527	98.0527	1.8800e-003	1.8000e-003	98.6354
Total		**0.0572**	**0.5142**	**0.3925**	**3.1200e-003**		**0.0395**	**0.0395**		**0.0395**	**0.0395**	**0.0000**	**566.3857**	**566.3857**	**0.0109**	**0.0104**	**569.7514**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	226305	1.2200e-003	0.0104	4.4400e-003	7.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	12.0765	12.0765	2.3000e-004	2.2000e-004	12.1483
Industrial Park	8.54992e+006	0.0461	0.4191	0.3521	2.5100e-003		0.0319	0.0319		0.0319	0.0319	0.0000	456.2564	456.2564	8.7400e-003	8.3600e-003	458.9677
Single Family Housing	1.83744e+006	9.9100e-003	0.0847	0.0360	5.4000e-004		6.8500e-003	6.8500e-003		6.8500e-003	6.8500e-003	0.0000	98.0527	98.0527	1.8800e-003	1.8000e-003	98.6354
Total		**0.0572**	**0.5142**	**0.3925**	**3.1200e-003**		**0.0395**	**0.0395**		**0.0395**	**0.0395**	**0.0000**	**566.3857**	**566.3857**	**0.0109**	**0.0104**	**569.7514**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	104394	9.6589	1.5600e-003	1.9000e-004	9.7544
Industrial Park	9.06186e+006	838.4377	0.1356	0.0164	846.7284
Single Family Housing	540492	50.0084	8.0900e-003	9.8000e-004	50.5029
Total		**898.1050**	**0.1453**	**0.0176**	**906.9856**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	104394	9.6589	1.5600e-003	1.9000e-004	9.7544
Industrial Park	9.06186e+006	838.4377	0.1356	0.0164	846.7284
Single Family Housing	540492	50.0084	8.0900e-003	9.8000e-004	50.5029
Total		**898.1050**	**0.1453**	**0.0176**	**906.9856**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	3.0559	0.0142	0.7195	8.0000e-005		4.4500e-003	4.4500e-003		4.4500e-003	4.4500e-003	0.0000	8.1099	8.1099	1.2700e-003	1.3000e-004	8.1796
Unmitigated	3.5242	0.0186	1.3941	1.4300e-003		0.1015	0.1015		0.1015	0.1015	10.0016	3.8329	13.8345	0.0197	5.8000e-004	14.5001

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	0.3816					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.4690	0.0104	0.6772	1.3900e-003		0.0975	0.0975		0.0975	0.0975	10.0016	2.6591	12.6607	0.0186	5.8000e-004	13.2979
Landscaping	0.0218	8.2500e-003	0.7170	4.0000e-005		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	1.1738	1.1738	1.1400e-003	0.0000	1.2023
Total	**3.5242**	**0.0186**	**1.3941**	**1.4300e-003**		**0.1015**	**0.1015**		**0.1015**	**0.1015**	**10.0016**	**3.8329**	**13.8345**	**0.0197**	**5.8000e-004**	**14.5001**

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	0.3816					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.6517					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.0000e-004	5.9900e-003	2.5500e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	6.9361	6.9361	1.3000e-004	1.3000e-004	6.9773
Landscaping	0.0218	8.2500e-003	0.7170	4.0000e-005		3.9700e-003	3.9700e-003		3.9700e-003	3.9700e-003	0.0000	1.1738	1.1738	1.1400e-003	0.0000	1.2023
Total	**3.0559**	**0.0142**	**0.7195**	**8.0000e-005**		**4.4500e-003**	**4.4500e-003**		**4.4500e-003**	**4.4500e-003**	**0.0000**	**8.1099**	**8.1099**	**1.2700e-003**	**1.3000e-004**	**8.1796**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	106.2148	4.1913	0.1000	240.7976
Unmitigated	106.2148	4.1913	0.1000	240.7976

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.75916 / 1.10903	1.7980	0.0575	1.3800e-003	3.6466
Industrial Park	122.047 / 0	99.8221	3.9868	0.0951	227.8319
Single Family Housing	4.49563 / 2.8342	4.5948	0.1470	3.5200e-003	9.3191
Total		**106.2148**	**4.1913**	**0.1000**	**240.7976**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	1.75916 / 1.10903	1.7980	0.0575	1.3800e-003	3.6466
Industrial Park	122.047 / 0	99.8221	3.9868	0.0951	227.8319
Single Family Housing	4.49563 / 2.8342	4.5948	0.1470	3.5200e-003	9.3191
Total		**106.2148**	**4.1913**	**0.1000**	**240.7976**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	152.1600	8.9924	0.0000	376.9700
Unmitigated	152.1600	8.9924	0.0000	376.9700

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	12.42	2.5212	0.1490	0.0000	6.2460
Industrial Park	654.43	132.8434	7.8508	0.0000	329.1138
Single Family Housing	82.74	16.7955	0.9926	0.0000	41.6101
Total		**152.1600**	**8.9924**	**0.0000**	**376.9700**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	12.42	2.5212	0.1490	0.0000	6.2460
Industrial Park	654.43	132.8434	7.8508	0.0000	329.1138
Single Family Housing	82.74	16.7955	0.9926	0.0000	41.6101
Total		**152.1600**	**8.9924**	**0.0000**	**376.9700**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Branaugh Property Stage 2 Planned Development

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	69.00	Dwelling Unit	9.57	124,200.00	197
Apartments Mid Rise	27.00	Dwelling Unit	0.30	27,000.00	77
Industrial Park	527.77	1000sqft	30.29	527,773.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and Eastern Dublin Specific Plan. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and Eastern Dublin Specific Plan.

Construction Phase - The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months, and is anticipated to be fully improved by 2026.

Grading -

Demolition - The proposed project would demolish the existing onsite buildings.

Vehicle Trips - Based on the Proposed Transportation Analysis Methodology

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
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
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	740.00	305.00
tblConstructionPhase	NumDays	50.00	90.00
tblConstructionPhase	NumDays	75.00	260.00
tblConstructionPhase	PhaseEndDate	11/6/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	6/5/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	3/10/2023	1/5/2024
tblConstructionPhase	PhaseEndDate	8/4/2023	1/3/2025
tblConstructionPhase	PhaseEndDate	8/21/2026	3/6/2026
tblConstructionPhase	PhaseStartDate	8/22/2026	12/22/2025
tblConstructionPhase	PhaseStartDate	8/5/2023	1/6/2025
tblConstructionPhase	PhaseStartDate	1/2/2023	9/4/2023
tblConstructionPhase	PhaseStartDate	4/22/2023	1/8/2024
tblConstructionPhase	PhaseStartDate	6/6/2026	12/22/2025
tblLandUse	LotAcreage	22.40	9.57
tblLandUse	LotAcreage	0.71	0.30
tblLandUse	LotAcreage	12.12	30.29
tblVehicleTrips	WD_TR	5.44	7.33
tblVehicleTrips	WD_TR	9.44	9.45

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					
2023	2.3107	21.5716	20.0175	0.0402	0.2380	0.9987	1.2367	0.0511	0.9291	0.9802	0.0000	3,888.4597	3,888.4597	1.0532	7.6800e-003	3,917.0804
2024	3.2687	32.4047	28.1684	0.0635	9.3679	1.3362	10.7041	3.6973	1.2293	4.9266	0.0000	6,151.9009	6,151.9009	1.9470	7.4400e-003	6,201.5365
2025	142.1232	27.9679	40.7233	0.0940	9.3679	1.1316	10.4995	3.6973	1.0411	4.7384	0.0000	9,401.1056	9,401.1056	1.9462	0.3518	9,541.5235
2026	142.0769	26.6996	40.3171	0.0929	3.4007	1.0347	4.4354	0.9169	0.9678	1.8848	0.0000	9,310.8545	9,310.8545	1.4184	0.3434	9,448.6367
Maximum	**142.1232**	**32.4047**	**40.7233**	**0.0940**	**9.3679**	**1.3362**	**10.7041**	**3.6973**	**1.2293**	**4.9266**	**0.0000**	**9,401.1056**	**9,401.1056**	**1.9470**	**0.3518**	**9,541.5235**

2.1 Overall Construction (Maximum Daily Emission)

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					
2023	1.3033	32.7510	25.0480	0.0402	0.1796	0.9147	1.0943	0.0423	0.9146	0.9569	0.0000	3,888.4597	3,888.4597	1.0532	7.6800e-003	3,917.0804
2024	1.8611	51.2664	37.1682	0.0635	4.3059	1.3341	5.6400	1.6878	1.3340	3.0218	0.0000	6,151.9009	6,151.9009	1.9470	7.4400e-003	6,201.5365
2025	141.7956	51.2636	45.2533	0.0940	4.3059	1.7034	5.6400	1.6878	1.7013	3.0218	0.0000	9,401.1056	9,401.1056	1.9462	0.3518	9,541.5235
2026	141.7493	50.5243	44.8472	0.0929	3.4007	1.7027	5.1034	0.9169	1.7006	2.6176	0.0000	9,310.8545	9,310.8545	1.4184	0.3434	9,448.6367
Maximum	**141.7956**	**51.2664**	**45.2533**	**0.0940**	**4.3059**	**1.7034**	**5.6400**	**1.6878**	**1.7013**	**3.0218**	**0.0000**	**9,401.1056**	**9,401.1056**	**1.9470**	**0.3518**	**9,541.5235**

	ROG	NOx	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	**1.06**	**-71.02**	**-17.87**	**0.00**	**45.51**	**-25.63**	**34.97**	**48.17**	**-35.59**	**23.24**	**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	99.4736	1.7139	115.1169	0.2029		15.2039	15.2039		15.2039	15.2039	1,632.118 2	540.6118	2,172.730 0	2.0618	0.1152	2,258.604 0
Energy	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.004 4	3,421.004 4	0.0656	0.0627	3,441.333 7
Mobile	6.4257	6.0019	55.0687	0.1240	13.9780	0.0858	14.0638	3.7230	0.0799	3.8030		13,014.35 26	13,014.35 26	0.7182	0.5444	13,194.52 27
Total	**106.2129**	**10.5334**	**172.3364**	**0.3439**	**13.9780**	**15.5064**	**29.4844**	**3.7230**	**15.5005**	**19.2236**	**1,632.118 2**	**16,975.96 88**	**18,608.08 70**	**2.8456**	**0.7223**	**18,894.46 04**

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	16.9895	1.1669	8.4239	7.2900e-003		0.1310	0.1310		0.1310	0.1310	0.0000	1,387.035 4	1,387.035 4	0.0403	0.0252	1,395.541 3
Energy	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.004 4	3,421.004 4	0.0656	0.0627	3,441.333 7
Mobile	6.4257	6.0019	55.0687	0.1240	13.9780	0.0858	14.0638	3.7230	0.0799	3.8030		13,014.35 26	13,014.35 26	0.7182	0.5444	13,194.52 27
Total	**23.7288**	**9.9864**	**65.6434**	**0.1484**	**13.9780**	**0.4335**	**14.4115**	**3.7230**	**0.4276**	**4.1507**	**0.0000**	**17,822.39 23**	**17,822.39 23**	**0.8241**	**0.6322**	**18,031.39 77**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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	77.66	5.19	61.91	56.86	0.00	97.20	51.12	0.00	97.24	78.41	100.00	-4.99	4.22	71.04	12.46	4.57

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/4/2023	1/5/2024	5	90	
2	Grading	Grading	1/8/2024	1/3/2025	5	260	
3	Building Construction	Building Construction	1/6/2025	3/6/2026	5	305	
4	Paving	Paving	12/22/2025	3/6/2026	5	55	
5	Architectural Coating	Architectural Coating	12/22/2025	3/6/2026	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 780

Acres of Paving: 0

Residential Indoor: 306,180; Residential Outdoor: 102,060; Non-Residential Indoor: 791,660; Non-Residential Outdoor: 263,887; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
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
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	44.00	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	266.00	97.00	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	53.00	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 Demolition - 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					
Fugitive Dust					0.1062	0.0000	0.1062	0.0161	0.0000	0.0161			0.0000			0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**2.2691**	**21.4844**	**19.6434**	**0.0388**	**0.1062**	**0.9975**	**1.1037**	**0.0161**	**0.9280**	**0.9441**		**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

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	1.0500e-003	0.0639	0.0155	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.1000e-004	2.8600e-003		32.1489	32.1489	1.0600e-003	5.0900e-003	33.6935
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
Worker	0.0406	0.0233	0.3586	1.0700e-003	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		109.3267	109.3267	2.7600e-003	2.5900e-003	110.1686
Total	**0.0416**	**0.0872**	**0.3741**	**1.3600e-003**	**0.1318**	**1.1500e-003**	**0.1329**	**0.0350**	**1.0700e-003**	**0.0361**		**141.4757**	**141.4757**	**3.8200e-003**	**7.6800e-003**	**143.8621**

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0478	0.0000	0.0478	7.2400e-003	0.0000	7.2400e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0478**	**0.9135**	**0.9613**	**7.2400e-003**	**0.9135**	**0.9208**	**0.0000**	**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

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	1.0500e-003	0.0639	0.0155	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.1000e-004	2.8600e-003		32.1489	32.1489	1.0600e-003	5.0900e-003	33.6935
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
Worker	0.0406	0.0233	0.3586	1.0700e-003	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		109.3267	109.3267	2.7600e-003	2.5900e-003	110.1686
Total	**0.0416**	**0.0872**	**0.3741**	**1.3600e-003**	**0.1318**	**1.1500e-003**	**0.1329**	**0.0350**	**1.0700e-003**	**0.0361**		**141.4757**	**141.4757**	**3.8200e-003**	**7.6800e-003**	**143.8621**

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1062	0.0000	0.1062	0.0161	0.0000	0.0161			0.0000			0.0000
Off-Road	2.2437	20.8781	19.7073	0.0388		0.9602	0.9602		0.8922	0.8922		3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**2.2437**	**20.8781**	**19.7073**	**0.0388**	**0.1062**	**0.9602**	**1.0664**	**0.0161**	**0.8922**	**0.9083**		**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

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	1.0400e-003	0.0639	0.0156	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.2000e-004	2.8600e-003		31.6486	31.6486	1.0600e-003	5.0200e-003	33.1698
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
Worker	0.0379	0.0208	0.3342	1.0300e-003	0.1232	5.8000e-004	0.1238	0.0327	5.4000e-004	0.0332		106.6142	106.6142	2.4900e-003	2.4200e-003	107.3970
Total	**0.0389**	**0.0847**	**0.3498**	**1.3200e-003**	**0.1318**	**1.1200e-003**	**0.1329**	**0.0350**	**1.0600e-003**	**0.0361**		**138.2627**	**138.2627**	**3.5500e-003**	**7.4400e-003**	**140.5668**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0478	0.0000	0.0478	7.2400e-003	0.0000	7.2400e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0478**	**0.9135**	**0.9613**	**7.2400e-003**	**0.9135**	**0.9208**	**0.0000**	**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

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	1.0400e-003	0.0639	0.0156	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.2000e-004	2.8600e-003		31.6486	31.6486	1.0600e-003	5.0200e-003	33.1698
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
Worker	0.0379	0.0208	0.3342	1.0300e-003	0.1232	5.8000e-004	0.1238	0.0327	5.4000e-004	0.0332		106.6142	106.6142	2.4900e-003	2.4200e-003	107.3970
Total	**0.0389**	**0.0847**	**0.3498**	**1.3200e-003**	**0.1318**	**1.1200e-003**	**0.1329**	**0.0350**	**1.0600e-003**	**0.0361**		**138.2627**	**138.2627**	**3.5500e-003**	**7.4400e-003**	**140.5668**

3.3 Grading - 2024

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**9.2036**	**1.3354**	**10.5390**	**3.6538**	**1.2286**	**4.8823**		**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

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	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
Worker	0.0505	0.0278	0.4456	1.3800e-003	0.1643	7.8000e-004	0.1651	0.0436	7.1000e-004	0.0443		142.1522	142.1522	3.3200e-003	3.2200e-003	143.1960
Total	**0.0505**	**0.0278**	**0.4456**	**1.3800e-003**	**0.1643**	**7.8000e-004**	**0.1651**	**0.0436**	**7.1000e-004**	**0.0443**		**142.1522**	**142.1522**	**3.3200e-003**	**3.2200e-003**	**143.1960**

3.3 Grading - 2024

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0621		1.3333	1.3333		1.3333	1.3333	0.0000	6,009.748 7	6,009.748 7	1.9437		6,058.340 5
Total	**1.8106**	**51.2386**	**36.7226**	**0.0621**	**4.1416**	**1.3333**	**5.4749**	**1.6442**	**1.3333**	**2.9775**	**0.0000**	**6,009.748 7**	**6,009.748 7**	**1.9437**		**6,058.340 5**

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	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
Worker	0.0505	0.0278	0.4456	1.3800e-003	0.1643	7.8000e-004	0.1651	0.0436	7.1000e-004	0.0443		142.1522	142.1522	3.3200e-003	3.2200e-003	143.1960
Total	**0.0505**	**0.0278**	**0.4456**	**1.3800e-003**	**0.1643**	**7.8000e-004**	**0.1651**	**0.0436**	**7.1000e-004**	**0.0443**		**142.1522**	**142.1522**	**3.3200e-003**	**3.2200e-003**	**143.1960**

3.3 Grading - 2025

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**9.2036**	**1.1309**	**10.3345**	**3.6538**	**1.0404**	**4.6942**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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	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
Worker	0.0475	0.0250	0.4176	1.3300e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		138.7377	138.7377	3.0100e-003	3.0200e-003	139.7137
Total	**0.0475**	**0.0250**	**0.4176**	**1.3300e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**138.7377**	**138.7377**	**3.0100e-003**	**3.0200e-003**	**139.7137**

3.3 Grading - 2025

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0621		1.3333	1.3333		1.3333	1.3333	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**1.8106**	**51.2386**	**36.7226**	**0.0621**	**4.1416**	**1.3333**	**5.4749**	**1.6442**	**1.3333**	**2.9775**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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	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
Worker	0.0475	0.0250	0.4176	1.3300e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		138.7377	138.7377	3.0100e-003	3.0200e-003	139.7137
Total	**0.0475**	**0.0250**	**0.4176**	**1.3300e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**138.7377**	**138.7377**	**3.0100e-003**	**3.0200e-003**	**139.7137**

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.1000	4.1468	1.2773	0.0190	0.6570	0.0254	0.6824	0.1891	0.0243	0.2134		2,039.5187	2,039.5187	0.0427	0.3013	2,130.3867
Worker	0.6313	0.3325	5.5543	0.0177	2.1851	9.8800e-003	2.1950	0.5796	9.0900e-003	0.5887		1,845.2112	1,845.2112	0.0401	0.0402	1,858.1924
Total	**0.7314**	**4.4793**	**6.8316**	**0.0367**	**2.8421**	**0.0353**	**2.8774**	**0.7687**	**0.0334**	**0.8021**		**3,884.7299**	**3,884.7299**	**0.0828**	**0.3415**	**3,988.5791**

3.4 Building Construction - 2025

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	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.1000	4.1468	1.2773	0.0190	0.6570	0.0254	0.6824	0.1891	0.0243	0.2134		2,039.5187	2,039.5187	0.0427	0.3013	2,130.3867
Worker	0.6313	0.3325	5.5543	0.0177	2.1851	9.8800e-003	2.1950	0.5796	9.0900e-003	0.5887		1,845.2112	1,845.2112	0.0401	0.0402	1,858.1924
Total	**0.7314**	**4.4793**	**6.8316**	**0.0367**	**2.8421**	**0.0353**	**2.8774**	**0.7687**	**0.0334**	**0.8021**		**3,884.7299**	**3,884.7299**	**0.0828**	**0.3415**	**3,988.5791**

3.4 Building Construction - 2026

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.0979	4.1226	1.2589	0.0186	0.6570	0.0253	0.6823	0.1892	0.0242	0.2133		2,002.1361	2,002.1361	0.0425	0.2957	2,091.3016
Worker	0.5962	0.3028	5.2455	0.0172	2.1851	9.4100e-003	2.1945	0.5796	8.6600e-003	0.5883		1,803.1064	1,803.1064	0.0366	0.0380	1,815.3444
Total	**0.6940**	**4.4254**	**6.5044**	**0.0358**	**2.8421**	**0.0347**	**2.8768**	**0.7688**	**0.0328**	**0.8016**		**3,805.2425**	**3,805.2425**	**0.0791**	**0.3337**	**3,906.6460**

3.4 Building Construction - 2026

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	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.0979	4.1226	1.2589	0.0186	0.6570	0.0253	0.6823	0.1892	0.0242	0.2133		2,002.1361	2,002.1361	0.0425	0.2957	2,091.3016
Worker	0.5962	0.3028	5.2455	0.0172	2.1851	9.4100e-003	2.1945	0.5796	8.6600e-003	0.5883		1,803.1064	1,803.1064	0.0366	0.0380	1,815.3444
Total	**0.6940**	**4.4254**	**6.5044**	**0.0358**	**2.8421**	**0.0347**	**2.8768**	**0.7688**	**0.0328**	**0.8016**		**3,805.2425**	**3,805.2425**	**0.0791**	**0.3337**	**3,906.6460**

3.5 Paving - 2025

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.745 2	2,206.745 2	0.7137		2,224.587 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

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	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
Worker	0.0356	0.0188	0.3132	1.0000e-003	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		104.0533	104.0533	2.2600e-003	2.2700e-003	104.7853
Total	**0.0356**	**0.0188**	**0.3132**	**1.0000e-003**	**0.1232**	**5.6000e-004**	**0.1238**	**0.0327**	**5.1000e-004**	**0.0332**		**104.0533**	**104.0533**	**2.2600e-003**	**2.2700e-003**	**104.7853**

3.5 Paving - 2025

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	2,206.745 2	2,206.745 2	0.7137		2,224.587 8
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**	**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

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	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
Worker	0.0356	0.0188	0.3132	1.0000e-003	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		104.0533	104.0533	2.2600e-003	2.2700e-003	104.7853
Total	**0.0356**	**0.0188**	**0.3132**	**1.0000e-003**	**0.1232**	**5.6000e-004**	**0.1238**	**0.0327**	**5.1000e-004**	**0.0332**		**104.0533**	**104.0533**	**2.2600e-003**	**2.2700e-003**	**104.7853**

3.5 Paving - 2026

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.745 2	2,206.745 2	0.7137		2,224.587 8
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

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	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
Worker	0.0336	0.0171	0.2958	9.7000e-004	0.1232	5.3000e-004	0.1238	0.0327	4.9000e-004	0.0332		101.6789	101.6789	2.0600e-003	2.1400e-003	102.3691
Total	**0.0336**	**0.0171**	**0.2958**	**9.7000e-004**	**0.1232**	**5.3000e-004**	**0.1238**	**0.0327**	**4.9000e-004**	**0.0332**		**101.6789**	**101.6789**	**2.0600e-003**	**2.1400e-003**	**102.3691**

3.5 Paving - 2026

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	2,206.745 2	2,206.745 2	0.7137		2,224.587 8
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**	**2,206.745 2**	**2,206.745 2**	**0.7137**		**2,224.587 8**

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	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
Worker	0.0336	0.0171	0.2958	9.7000e-004	0.1232	5.3000e-004	0.1238	0.0327	4.9000e-004	0.0332		101.6789	101.6789	2.0600e-003	2.1400e-003	102.3691
Total	**0.0336**	**0.0171**	**0.2958**	**9.7000e-004**	**0.1232**	**5.3000e-004**	**0.1238**	**0.0327**	**4.9000e-004**	**0.0332**		**101.6789**	**101.6789**	**2.0600e-003**	**2.1400e-003**	**102.3691**

3.6 Architectural Coating - 2025

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	138.7770					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**138.9479**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1258	0.0663	1.1067	3.5300e-003	0.4354	1.9700e-003	0.4374	0.1155	1.8100e-003	0.1173		367.6549	367.6549	7.9900e-003	8.0100e-003	370.2413
Total	**0.1258**	**0.0663**	**1.1067**	**3.5300e-003**	**0.4354**	**1.9700e-003**	**0.4374**	**0.1155**	**1.8100e-003**	**0.1173**		**367.6549**	**367.6549**	**7.9900e-003**	**8.0100e-003**	**370.2413**

3.6 Architectural Coating - 2025

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	138.7770					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	0.0154		281.8319
Total	**138.8909**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1258	0.0663	1.1067	3.5300e-003	0.4354	1.9700e-003	0.4374	0.1155	1.8100e-003	0.1173		367.6549	367.6549	7.9900e-003	8.0100e-003	370.2413
Total	**0.1258**	**0.0663**	**1.1067**	**3.5300e-003**	**0.4354**	**1.9700e-003**	**0.4374**	**0.1155**	**1.8100e-003**	**0.1173**		**367.6549**	**367.6549**	**7.9900e-003**	**8.0100e-003**	**370.2413**

3.6 Architectural Coating - 2026

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	138.7770					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**138.9479**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1188	0.0603	1.0452	3.4200e-003	0.4354	1.8800e-003	0.4373	0.1155	1.7300e-003	0.1172		359.2656	359.2656	7.2900e-003	7.5700e-003	361.7040
Total	**0.1188**	**0.0603**	**1.0452**	**3.4200e-003**	**0.4354**	**1.8800e-003**	**0.4373**	**0.1155**	**1.7300e-003**	**0.1172**		**359.2656**	**359.2656**	**7.2900e-003**	**7.5700e-003**	**361.7040**

3.6 Architectural Coating - 2026

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	138.7770					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	0.0154		281.8319
Total	**138.8909**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1188	0.0603	1.0452	3.4200e-003	0.4354	1.8800e-003	0.4373	0.1155	1.7300e-003	0.1172		359.2656	359.2656	7.2900e-003	7.5700e-003	361.7040
Total	**0.1188**	**0.0603**	**1.0452**	**3.4200e-003**	**0.4354**	**1.8800e-003**	**0.4373**	**0.1155**	**1.7300e-003**	**0.1172**		**359.2656**	**359.2656**	**7.2900e-003**	**7.5700e-003**	**361.7040**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	6.4257	6.0019	55.0687	0.1240	13.9780	0.0858	14.0638	3.7230	0.0799	3.8030		13,014.35 26	13,014.35 26	0.7182	0.5444	13,194.52 27
Unmitigated	6.4257	6.0019	55.0687	0.1240	13.9780	0.0858	14.0638	3.7230	0.0799	3.8030		13,014.35 26	13,014.35 26	0.7182	0.5444	13,194.52 27

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	197.91	132.57	110.43	406,672	406,672
Industrial Park	1,778.60	1,340.54	654.44	4,078,051	4,078,051
Single Family Housing	652.05	658.26	589.95	1,487,539	1,487,539
Total	2,628.56	2,131.37	1,354.82	5,972,262	5,972,262

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
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
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
Apartments Mid Rise	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771
Industrial Park	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771
Single Family Housing	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337
NaturalGas Unmitigated	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337

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					
Apartments Mid Rise	620.015	6.6900e-003	0.0571	0.0243	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.9429	72.9429	1.4000e-003	1.3400e-003	73.3764
Industrial Park	23424.4	0.2526	2.2965	1.9291	0.0138		0.1745	0.1745		0.1745	0.1745		2,755.8171	2,755.8171	0.0528	0.0505	2,772.1936
Single Family Housing	5034.08	0.0543	0.4639	0.1974	2.9600e-003		0.0375	0.0375		0.0375	0.0375		592.2444	592.2444	0.0114	0.0109	595.7638
Total		**0.3136**	**2.8176**	**2.1508**	**0.0171**		**0.2167**	**0.2167**		**0.2167**	**0.2167**		**3,421.0044**	**3,421.0044**	**0.0656**	**0.0627**	**3,441.3338**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	0.620015	6.6900e-003	0.0571	0.0243	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.9429	72.9429	1.4000e-003	1.3400e-003	73.3764
Industrial Park	23.4244	0.2526	2.2965	1.9291	0.0138		0.1745	0.1745		0.1745	0.1745		2,755.8171	2,755.8171	0.0528	0.0505	2,772.1936
Single Family Housing	5.03408	0.0543	0.4639	0.1974	2.9600e-003		0.0375	0.0375		0.0375	0.0375		592.2444	592.2444	0.0114	0.0109	595.7638
Total		**0.3136**	**2.8176**	**2.1508**	**0.0171**		**0.2167**	**0.2167**		**0.2167**	**0.2167**		**3,421.0044**	**3,421.0044**	**0.0656**	**0.0627**	**3,441.3338**

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	16.9895	1.1669	8.4239	7.2900e-003		0.1310	0.1310		0.1310	0.1310	0.0000	1,387.0354	1,387.0354	0.0403	0.0252	1,395.5413
Unmitigated	99.4736	1.7139	115.1169	0.2029		15.2039	15.2039		15.2039	15.2039	1,632.1182	540.6118	2,172.7300	2.0618	0.1152	2,258.6040

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	2.0912					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.5300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	82.6099	1.6223	107.1505	0.2024		15.1598	15.1598		15.1598	15.1598	1,632.1182	526.2353	2,158.3535	2.0479	0.1152	2,243.8786
Landscaping	0.2425	0.0916	7.9664	4.2000e-004		0.0441	0.0441		0.0441	0.0441		14.3765	14.3765	0.0140		14.7255
Total	**99.4736**	**1.7139**	**115.1169**	**0.2029**		**15.2039**	**15.2039**		**15.2039**	**15.2039**	**1,632.1182**	**540.6118**	**2,172.7300**	**2.0618**	**0.1152**	**2,258.6040**

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	2.0912					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.5300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1258	1.0753	0.4576	6.8600e-003		0.0869	0.0869		0.0869	0.0869	0.0000	1,372.6588	1,372.6588	0.0263	0.0252	1,380.8159
Landscaping	0.2425	0.0916	7.9664	4.2000e-004		0.0441	0.0441		0.0441	0.0441		14.3765	14.3765	0.0140		14.7255
Total	**16.9895**	**1.1669**	**8.4239**	**7.2800e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**0.0000**	**1,387.0354**	**1,387.0354**	**0.0403**	**0.0252**	**1,395.5413**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Branaugh Property Stage 2 Planned Development

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	69.00	Dwelling Unit	9.57	124,200.00	197
Apartments Mid Rise	27.00	Dwelling Unit	0.30	27,000.00	77
Industrial Park	527.77	1000sqft	30.29	527,773.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2026
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project would subdivide the 40.2-acre site into four parcels to accommodate proposed residential and industrial development. A total of 78 residential units are proposed with the potential to provide up to 97 units within 9.87 acres designated Medium-Density Residential in the General Plan and Eastern Dublin Specific Plan. Approximately 527,773 square feet of industrial use is proposed on 30.29 acres designated Industrial Park in the General Plan and Eastern Dublin Specific Plan.

Construction Phase - The proposed project would include phased construction, which would consist of a demolition phase from 2023 to 2024, grading phase from 2024 to 2025 and building construction from 2025 to 2026. Overall, construction of the proposed project is anticipated to last approximately 30 months, and is anticipated to be fully improved by 2026.

Grading -

Demolition - The proposed project would demolish the existing onsite buildings.

Vehicle Trips - Based on the Proposed Transportation Analysis Methodology

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
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
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	740.00	305.00
tblConstructionPhase	NumDays	50.00	90.00
tblConstructionPhase	NumDays	75.00	260.00
tblConstructionPhase	PhaseEndDate	11/6/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	6/5/2026	3/6/2026
tblConstructionPhase	PhaseEndDate	3/10/2023	1/5/2024
tblConstructionPhase	PhaseEndDate	8/4/2023	1/3/2025
tblConstructionPhase	PhaseEndDate	8/21/2026	3/6/2026
tblConstructionPhase	PhaseStartDate	8/22/2026	12/22/2025
tblConstructionPhase	PhaseStartDate	8/5/2023	1/6/2025
tblConstructionPhase	PhaseStartDate	1/2/2023	9/4/2023
tblConstructionPhase	PhaseStartDate	4/22/2023	1/8/2024
tblConstructionPhase	PhaseStartDate	6/6/2026	12/22/2025
tblLandUse	LotAcreage	22.40	9.57
tblLandUse	LotAcreage	0.71	0.30
tblLandUse	LotAcreage	12.12	30.29
tblVehicleTrips	WD_TR	5.44	7.33
tblVehicleTrips	WD_TR	9.44	9.45

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					
2023	2.3117	21.5807	20.0025	0.0401	0.2380	0.9987	1.2367	0.0511	0.9291	0.9802	0.0000	3,880.740 7	3,880.740 7	1.0536	8.0900e-003	3,909.489 0
2024	3.2702	32.4112	28.1511	0.0634	9.3679	1.3362	10.7041	3.6973	1.2293	4.9266	0.0000	6,141.846 1	6,141.846 1	1.9475	7.8000e-003	6,191.638 1
2025	142.1457	27.9737	40.5156	0.0924	9.3679	1.1316	10.4995	3.6973	1.0411	4.7384	0.0000	9,240.569 2	9,240.569 2	1.9467	0.3601	9,383.640 2
2026	142.1007	27.0282	40.1364	0.0914	3.4007	1.0348	4.4355	0.9169	0.9679	1.8848	0.0000	9,154.258 1	9,154.258 1	1.4249	0.3512	9,294.546 0
Maximum	**142.1457**	**32.4112**	**40.5156**	**0.0924**	**9.3679**	**1.3362**	**10.7041**	**3.6973**	**1.2293**	**4.9266**	**0.0000**	**9,240.569 2**	**9,240.569 2**	**1.9475**	**0.3601**	**9,383.640 2**

2.1 Overall Construction (Maximum Daily Emission)

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					
2023	1.3043	32.7602	25.0330	0.0401	0.1796	0.9147	1.0943	0.0423	0.9146	0.9569	0.0000	3,880.7407	3,880.7407	1.0536	8.0900e-003	3,909.4890
2024	1.8626	51.2729	37.1509	0.0634	4.3059	1.3341	5.6400	1.6878	1.3340	3.0218	0.0000	6,141.8461	6,141.8461	1.9475	7.8000e-003	6,191.6380
2025	141.8181	51.2695	45.0456	0.0924	4.3059	1.7035	5.6400	1.6878	1.7014	3.0218	0.0000	9,240.5692	9,240.5692	1.9467	0.3601	9,383.6402
2026	141.7731	50.8528	44.6664	0.0914	3.4007	1.7028	5.1035	0.9169	1.7007	2.6176	0.0000	9,154.2581	9,154.2581	1.4249	0.3512	9,294.5460
Maximum	**141.8181**	**51.2729**	**45.0456**	**0.0924**	**4.3059**	**1.7035**	**5.6400**	**1.6878**	**1.7014**	**3.0218**	**0.0000**	**9,240.5692**	**9,240.5692**	**1.9475**	**0.3601**	**9,383.6402**

	ROG	NOx	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	**1.06**	**-70.79**	**-17.93**	**0.00**	**45.51**	**-25.63**	**34.97**	**48.17**	**-35.60**	**23.24**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	99.4736	1.7139	115.1169	0.2029		15.2039	15.2039		15.2039	15.2039	1,632.1182	540.6118	2,172.7300	2.0618	0.1152	2,258.6040
Energy	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337
Mobile	5.7869	6.8860	58.8708	0.1171	13.9780	0.0859	14.0638	3.7230	0.0800	3.8030		12,290.9476	12,290.9476	0.8071	0.5947	12,488.3537
Total	**105.5741**	**11.4175**	**176.1384**	**0.3370**	**13.9780**	**15.5064**	**29.4844**	**3.7230**	**15.5006**	**19.2236**	**1,632.1182**	**16,252.5639**	**17,884.6821**	**2.9345**	**0.7727**	**18,188.2915**

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	16.9895	1.1669	8.4239	7.2900e-003		0.1310	0.1310		0.1310	0.1310	0.0000	1,387.0354	1,387.0354	0.0403	0.0252	1,395.5413
Energy	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337
Mobile	5.7869	6.8860	58.8708	0.1171	13.9780	0.0859	14.0638	3.7230	0.0800	3.8030		12,290.9476	12,290.9476	0.8071	0.5947	12,488.3537
Total	**23.0900**	**10.8705**	**69.4455**	**0.1415**	**13.9780**	**0.4336**	**14.4115**	**3.7230**	**0.4277**	**4.1507**	**0.0000**	**17,098.9874**	**17,098.9874**	**0.9129**	**0.6826**	**17,325.2287**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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	78.13	4.79	60.57	58.02	0.00	97.20	51.12	0.00	97.24	78.41	100.00	-5.21	4.39	68.89	11.65	4.75

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	9/4/2023	1/5/2024	5	90	
2	Grading	Grading	1/8/2024	1/3/2025	5	260	
3	Building Construction	Building Construction	1/6/2025	3/6/2026	5	305	
4	Paving	Paving	12/22/2025	3/6/2026	5	55	
5	Architectural Coating	Architectural Coating	12/22/2025	3/6/2026	5	55	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 780

Acres of Paving: 0

Residential Indoor: 306,180; Residential Outdoor: 102,060; Non-Residential Indoor: 791,660; Non-Residential Outdoor: 263,887; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20

Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
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
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	44.00	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	266.00	97.00	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	53.00	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 Demolition - 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					
Fugitive Dust					0.1062	0.0000	0.1062	0.0161	0.0000	0.0161			0.0000			0.0000
Off-Road	2.2691	21.4844	19.6434	0.0388		0.9975	0.9975		0.9280	0.9280		3,746.984 0	3,746.984 0	1.0494		3,773.218 3
Total	**2.2691**	**21.4844**	**19.6434**	**0.0388**	**0.1062**	**0.9975**	**1.1037**	**0.0161**	**0.9280**	**0.9441**		**3,746.984 0**	**3,746.984 0**	**1.0494**		**3,773.218 3**

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	9.8000e-004	0.0676	0.0157	3.0000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.1000e-004	2.8600e-003		32.1792	32.1792	1.0600e-003	5.1000e-003	33.7252
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
Worker	0.0416	0.0288	0.3434	9.9000e-004	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		101.5775	101.5775	3.1300e-003	2.9900e-003	102.5455
Total	**0.0426**	**0.0963**	**0.3592**	**1.2900e-003**	**0.1318**	**1.1500e-003**	**0.1329**	**0.0350**	**1.0700e-003**	**0.0361**		**133.7567**	**133.7567**	**4.1900e-003**	**8.0900e-003**	**136.2707**

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0478	0.0000	0.0478	7.2400e-003	0.0000	7.2400e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,746.9840	3,746.9840	1.0494		3,773.2183
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0478**	**0.9135**	**0.9613**	**7.2400e-003**	**0.9135**	**0.9208**	**0.0000**	**3,746.9840**	**3,746.9840**	**1.0494**		**3,773.2183**

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	9.8000e-004	0.0676	0.0157	3.0000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.1000e-004	2.8600e-003		32.1792	32.1792	1.0600e-003	5.1000e-003	33.7252
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
Worker	0.0416	0.0288	0.3434	9.9000e-004	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		101.5775	101.5775	3.1300e-003	2.9900e-003	102.5455
Total	**0.0426**	**0.0963**	**0.3592**	**1.2900e-003**	**0.1318**	**1.1500e-003**	**0.1329**	**0.0350**	**1.0700e-003**	**0.0361**		**133.7567**	**133.7567**	**4.1900e-003**	**8.0900e-003**	**136.2707**

3.2 Demolition - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1062	0.0000	0.1062	0.0161	0.0000	0.0161			0.0000			0.0000
Off-Road	2.2437	20.8781	19.7073	0.0388		0.9602	0.9602		0.8922	0.8922		3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**2.2437**	**20.8781**	**19.7073**	**0.0388**	**0.1062**	**0.9602**	**1.0664**	**0.0161**	**0.8922**	**0.9083**		**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

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	9.8000e-004	0.0676	0.0158	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.2000e-004	2.8600e-003		31.6788	31.6788	1.0600e-003	5.0200e-003	33.2014
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
Worker	0.0390	0.0257	0.3212	9.6000e-004	0.1232	5.8000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0731	99.0731	2.8400e-003	2.7800e-003	99.9731
Total	**0.0400**	**0.0933**	**0.3370**	**1.2500e-003**	**0.1318**	**1.1200e-003**	**0.1329**	**0.0350**	**1.0600e-003**	**0.0361**		**130.7519**	**130.7519**	**3.9000e-003**	**7.8000e-003**	**133.1746**

3.2 Demolition - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0478	0.0000	0.0478	7.2400e-003	0.0000	7.2400e-003			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.4228	3,747.4228	1.0485		3,773.6345
Total	**1.2617**	**32.6638**	**24.6739**	**0.0388**	**0.0478**	**0.9135**	**0.9613**	**7.2400e-003**	**0.9135**	**0.9208**	**0.0000**	**3,747.4228**	**3,747.4228**	**1.0485**		**3,773.6345**

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	9.8000e-004	0.0676	0.0158	2.9000e-004	8.5500e-003	5.4000e-004	9.0900e-003	2.3400e-003	5.2000e-004	2.8600e-003		31.6788	31.6788	1.0600e-003	5.0200e-003	33.2014
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
Worker	0.0390	0.0257	0.3212	9.6000e-004	0.1232	5.8000e-004	0.1238	0.0327	5.4000e-004	0.0332		99.0731	99.0731	2.8400e-003	2.7800e-003	99.9731
Total	**0.0400**	**0.0933**	**0.3370**	**1.2500e-003**	**0.1318**	**1.1200e-003**	**0.1329**	**0.0350**	**1.0600e-003**	**0.0361**		**130.7519**	**130.7519**	**3.9000e-003**	**7.8000e-003**	**133.1746**

3.3 Grading - 2024

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.2181	32.3770	27.7228	0.0621		1.3354	1.3354		1.2286	1.2286		6,009.7487	6,009.7487	1.9437		6,058.3405
Total	**3.2181**	**32.3770**	**27.7228**	**0.0621**	**9.2036**	**1.3354**	**10.5390**	**3.6538**	**1.2286**	**4.8823**		**6,009.7487**	**6,009.7487**	**1.9437**		**6,058.3405**

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	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
Worker	0.0520	0.0342	0.4283	1.2800e-003	0.1643	7.8000e-004	0.1651	0.0436	7.1000e-004	0.0443		132.0975	132.0975	3.7900e-003	3.7100e-003	133.2975
Total	**0.0520**	**0.0342**	**0.4283**	**1.2800e-003**	**0.1643**	**7.8000e-004**	**0.1651**	**0.0436**	**7.1000e-004**	**0.0443**		**132.0975**	**132.0975**	**3.7900e-003**	**3.7100e-003**	**133.2975**

3.3 Grading - 2024

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0621		1.3333	1.3333		1.3333	1.3333	0.0000	6,009.748 7	6,009.748 7	1.9437		6,058.340 5
Total	**1.8106**	**51.2386**	**36.7226**	**0.0621**	**4.1416**	**1.3333**	**5.4749**	**1.6442**	**1.3333**	**2.9775**	**0.0000**	**6,009.748 7**	**6,009.748 7**	**1.9437**		**6,058.340 5**

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	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
Worker	0.0520	0.0342	0.4283	1.2800e-003	0.1643	7.8000e-004	0.1651	0.0436	7.1000e-004	0.0443		132.0975	132.0975	3.7900e-003	3.7100e-003	133.2975
Total	**0.0520**	**0.0342**	**0.4283**	**1.2800e-003**	**0.1643**	**7.8000e-004**	**0.1651**	**0.0436**	**7.1000e-004**	**0.0443**		**132.0975**	**132.0975**	**3.7900e-003**	**3.7100e-003**	**133.2975**

3.3 Grading - 2025

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					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	2.9012	27.9429	26.3311	0.0621		1.1309	1.1309		1.0404	1.0404		6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**2.9012**	**27.9429**	**26.3311**	**0.0621**	**9.2036**	**1.1309**	**10.3345**	**3.6538**	**1.0404**	**4.6942**		**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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	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
Worker	0.0490	0.0308	0.4025	1.2400e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		128.9424	128.9424	3.4500e-003	3.4800e-003	130.0645
Total	**0.0490**	**0.0308**	**0.4025**	**1.2400e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**128.9424**	**128.9424**	**3.4500e-003**	**3.4800e-003**	**130.0645**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2025

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					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	1.8106	51.2386	36.7226	0.0621		1.3333	1.3333		1.3333	1.3333	0.0000	6,008.2814	6,008.2814	1.9432		6,056.8614
Total	**1.8106**	**51.2386**	**36.7226**	**0.0621**	**4.1416**	**1.3333**	**5.4749**	**1.6442**	**1.3333**	**2.9775**	**0.0000**	**6,008.2814**	**6,008.2814**	**1.9432**		**6,056.8614**

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	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
Worker	0.0490	0.0308	0.4025	1.2400e-003	0.1643	7.4000e-004	0.1650	0.0436	6.8000e-004	0.0443		128.9424	128.9424	3.4500e-003	3.4800e-003	130.0645
Total	**0.0490**	**0.0308**	**0.4025**	**1.2400e-003**	**0.1643**	**7.4000e-004**	**0.1650**	**0.0436**	**6.8000e-004**	**0.0443**		**128.9424**	**128.9424**	**3.4500e-003**	**3.4800e-003**	**130.0645**

3.4 Building Construction - 2025

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.474 4	2,556.474 4	0.6010		2,571.498 1
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.474 4**	**2,556.474 4**	**0.6010**		**2,571.498 1**

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	0.0000
Vendor	0.0962	4.3880	1.3220	0.0190	0.6570	0.0255	0.6825	0.1891	0.0244	0.2135		2,042.562 9	2,042.562 9	0.0424	0.3021	2,133.645 5
Worker	0.6523	0.4101	5.3533	0.0165	2.1851	9.8800e-003	2.1950	0.5796	9.0900e-003	0.5887		1,714.934 4	1,714.934 4	0.0459	0.0462	1,729.857 7
Total	**0.7485**	**4.7980**	**6.6753**	**0.0355**	**2.8421**	**0.0354**	**2.8775**	**0.7687**	**0.0335**	**0.8022**		**3,757.497 3**	**3,757.497 3**	**0.0883**	**0.3483**	**3,863.503 2**

3.4 Building Construction - 2025

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	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.0962	4.3880	1.3220	0.0190	0.6570	0.0255	0.6825	0.1891	0.0244	0.2135		2,042.5629	2,042.5629	0.0424	0.3021	2,133.6455
Worker	0.6523	0.4101	5.3533	0.0165	2.1851	9.8800e-003	2.1950	0.5796	9.0900e-003	0.5887		1,714.9344	1,714.9344	0.0459	0.0462	1,729.8577
Total	**0.7485**	**4.7980**	**6.6753**	**0.0355**	**2.8421**	**0.0354**	**2.8775**	**0.7687**	**0.0335**	**0.8022**		**3,757.4973**	**3,757.4973**	**0.0883**	**0.3483**	**3,863.5032**

3.4 Building Construction - 2026

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	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.0939	4.3626	1.3032	0.0187	0.6570	0.0253	0.6824	0.1892	0.0242	0.2134		2,005.1751	2,005.1751	0.0422	0.2964	2,094.5495
Worker	0.6183	0.3734	5.0663	0.0160	2.1851	9.4100e-003	2.1945	0.5796	8.6600e-003	0.5883		1,675.9716	1,675.9716	0.0419	0.0437	1,690.0388
Total	**0.7122**	**4.7359**	**6.3695**	**0.0346**	**2.8421**	**0.0348**	**2.8769**	**0.7688**	**0.0329**	**0.8017**		**3,681.1467**	**3,681.1467**	**0.0841**	**0.3401**	**3,784.5883**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2026

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	0.0270		0.9036	0.9036		0.9036	0.9036	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.0809**	**23.5544**	**17.8738**	**0.0270**		**0.9036**	**0.9036**		**0.9036**	**0.9036**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

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	0.0000
Vendor	0.0939	4.3626	1.3032	0.0187	0.6570	0.0253	0.6824	0.1892	0.0242	0.2134		2,005.1751	2,005.1751	0.0422	0.2964	2,094.5495
Worker	0.6183	0.3734	5.0663	0.0160	2.1851	9.4100e-003	2.1945	0.5796	8.6600e-003	0.5883		1,675.9716	1,675.9716	0.0419	0.0437	1,690.0388
Total	**0.7122**	**4.7359**	**6.3695**	**0.0346**	**2.8421**	**0.0348**	**2.8769**	**0.7688**	**0.0329**	**0.8017**		**3,681.1467**	**3,681.1467**	**0.0841**	**0.3401**	**3,784.5883**

3.5 Paving - 2025

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

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	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
Worker	0.0368	0.0231	0.3019	9.3000e-004	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		96.7068	96.7068	2.5900e-003	2.6100e-003	97.5484
Total	**0.0368**	**0.0231**	**0.3019**	**9.3000e-004**	**0.1232**	**5.6000e-004**	**0.1238**	**0.0327**	**5.1000e-004**	**0.0332**		**96.7068**	**96.7068**	**2.5900e-003**	**2.6100e-003**	**97.5484**

3.5 Paving - 2025

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	2,206.7452	2,206.7452	0.7137		2,224.5878
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**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

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	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
Worker	0.0368	0.0231	0.3019	9.3000e-004	0.1232	5.6000e-004	0.1238	0.0327	5.1000e-004	0.0332		96.7068	96.7068	2.5900e-003	2.6100e-003	97.5484
Total	**0.0368**	**0.0231**	**0.3019**	**9.3000e-004**	**0.1232**	**5.6000e-004**	**0.1238**	**0.0327**	**5.1000e-004**	**0.0332**		**96.7068**	**96.7068**	**2.5900e-003**	**2.6100e-003**	**97.5484**

3.5 Paving - 2026

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	0.9152	8.5816	14.5780	0.0228		0.4185	0.4185		0.3850	0.3850		2,206.7452	2,206.7452	0.7137		2,224.5878
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9152**	**8.5816**	**14.5780**	**0.0228**		**0.4185**	**0.4185**		**0.3850**	**0.3850**		**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

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	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
Worker	0.0349	0.0211	0.2857	9.0000e-004	0.1232	5.3000e-004	0.1238	0.0327	4.9000e-004	0.0332		94.5097	94.5097	2.3600e-003	2.4600e-003	95.3029
Total	**0.0349**	**0.0211**	**0.2857**	**9.0000e-004**	**0.1232**	**5.3000e-004**	**0.1238**	**0.0327**	**4.9000e-004**	**0.0332**		**94.5097**	**94.5097**	**2.3600e-003**	**2.4600e-003**	**95.3029**

3.5 Paving - 2026

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	2,206.7452	2,206.7452	0.7137		2,224.5878
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**	**2,206.7452**	**2,206.7452**	**0.7137**		**2,224.5878**

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	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
Worker	0.0349	0.0211	0.2857	9.0000e-004	0.1232	5.3000e-004	0.1238	0.0327	4.9000e-004	0.0332		94.5097	94.5097	2.3600e-003	2.4600e-003	95.3029
Total	**0.0349**	**0.0211**	**0.2857**	**9.0000e-004**	**0.1232**	**5.3000e-004**	**0.1238**	**0.0327**	**4.9000e-004**	**0.0332**		**94.5097**	**94.5097**	**2.3600e-003**	**2.4600e-003**	**95.3029**

3.6 Architectural Coating - 2025

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	138.7770					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**138.9479**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1300	0.0817	1.0666	3.2800e-003	0.4354	1.9700e-003	0.4374	0.1155	1.8100e-003	0.1173		341.6975	341.6975	9.1400e-003	9.2100e-003	344.6709
Total	**0.1300**	**0.0817**	**1.0666**	**3.2800e-003**	**0.4354**	**1.9700e-003**	**0.4374**	**0.1155**	**1.8100e-003**	**0.1173**		**341.6975**	**341.6975**	**9.1400e-003**	**9.2100e-003**	**344.6709**

3.6 Architectural Coating - 2025

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	138.7770					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	0.0154		281.8319
Total	**138.8909**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1300	0.0817	1.0666	3.2800e-003	0.4354	1.9700e-003	0.4374	0.1155	1.8100e-003	0.1173		341.6975	341.6975	9.1400e-003	9.2100e-003	344.6709
Total	**0.1300**	**0.0817**	**1.0666**	**3.2800e-003**	**0.4354**	**1.9700e-003**	**0.4374**	**0.1155**	**1.8100e-003**	**0.1173**		**341.6975**	**341.6975**	**9.1400e-003**	**9.2100e-003**	**344.6709**

3.6 Architectural Coating - 2026

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	138.7770					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**138.9479**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1232	0.0744	1.0095	3.1800e-003	0.4354	1.8800e-003	0.4373	0.1155	1.7300e-003	0.1172		333.9342	333.9342	8.3500e-003	8.7000e-003	336.7370
Total	**0.1232**	**0.0744**	**1.0095**	**3.1800e-003**	**0.4354**	**1.8800e-003**	**0.4373**	**0.1155**	**1.7300e-003**	**0.1172**		**333.9342**	**333.9342**	**8.3500e-003**	**8.7000e-003**	**336.7370**

3.6 Architectural Coating - 2026

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	138.7770					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	0.0154		281.8319
Total	**138.8909**	**2.3524**	**1.8324**	**2.9700e-003**		**0.0951**	**0.0951**		**0.0951**	**0.0951**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

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	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
Worker	0.1232	0.0744	1.0095	3.1800e-003	0.4354	1.8800e-003	0.4373	0.1155	1.7300e-003	0.1172		333.9342	333.9342	8.3500e-003	8.7000e-003	336.7370
Total	**0.1232**	**0.0744**	**1.0095**	**3.1800e-003**	**0.4354**	**1.8800e-003**	**0.4373**	**0.1155**	**1.7300e-003**	**0.1172**		**333.9342**	**333.9342**	**8.3500e-003**	**8.7000e-003**	**336.7370**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive 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	5.7869	6.8860	58.8708	0.1171	13.9780	0.0859	14.0638	3.7230	0.0800	3.8030		12,290.94 76	12,290.94 76	0.8071	0.5947	12,488.35 37
Unmitigated	5.7869	6.8860	58.8708	0.1171	13.9780	0.0859	14.0638	3.7230	0.0800	3.8030		12,290.94 76	12,290.94 76	0.8071	0.5947	12,488.35 37

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	197.91	132.57	110.43	406,672	406,672
Industrial Park	1,778.60	1,340.54	654.44	4,078,051	4,078,051
Single Family Housing	652.05	658.26	589.95	1,487,539	1,487,539
Total	2,628.56	2,131.37	1,354.82	5,972,262	5,972,262

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
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Industrial Park	9.50	7.30	7.30	59.00	28.00	13.00	79	19	2
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
Apartments Mid Rise	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771
Industrial Park	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771
Single Family Housing	0.554285	0.058871	0.188253	0.120585	0.022598	0.005697	0.010798	0.007525	0.000977	0.000545	0.026246	0.000848	0.002771

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337
NaturalGas Unmitigated	0.3136	2.8176	2.1508	0.0171		0.2167	0.2167		0.2167	0.2167		3,421.0044	3,421.0044	0.0656	0.0627	3,441.3337

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					
Apartments Mid Rise	620.015	6.6900e-003	0.0571	0.0243	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.9429	72.9429	1.4000e-003	1.3400e-003	73.3764
Industrial Park	23424.4	0.2526	2.2965	1.9291	0.0138		0.1745	0.1745		0.1745	0.1745		2,755.8171	2,755.8171	0.0528	0.0505	2,772.1936
Single Family Housing	5034.08	0.0543	0.4639	0.1974	2.9600e-003		0.0375	0.0375		0.0375	0.0375		592.2444	592.2444	0.0114	0.0109	595.7638
Total		**0.3136**	**2.8176**	**2.1508**	**0.0171**		**0.2167**	**0.2167**		**0.2167**	**0.2167**		**3,421.0044**	**3,421.0044**	**0.0656**	**0.0627**	**3,441.3338**

5.2 Energy by Land Use - NaturalGas

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					
Apartments Mid Rise	0.620015	6.6900e-003	0.0571	0.0243	3.6000e-004		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003		72.9429	72.9429	1.4000e-003	1.3400e-003	73.3764
Industrial Park	23.4244	0.2526	2.2965	1.9291	0.0138		0.1745	0.1745		0.1745	0.1745		2,755.8171	2,755.8171	0.0528	0.0505	2,772.1936
Single Family Housing	5.03408	0.0543	0.4639	0.1974	2.9600e-003		0.0375	0.0375		0.0375	0.0375		592.2444	592.2444	0.0114	0.0109	595.7638
Total		**0.3136**	**2.8176**	**2.1508**	**0.0171**		**0.2167**	**0.2167**		**0.2167**	**0.2167**		**3,421.0044**	**3,421.0044**	**0.0656**	**0.0627**	**3,441.3338**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive 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	16.9895	1.1669	8.4239	7.2900e-003		0.1310	0.1310		0.1310	0.1310	0.0000	1,387.0354	1,387.0354	0.0403	0.0252	1,395.5413
Unmitigated	99.4736	1.7139	115.1169	0.2029		15.2039	15.2039		15.2039	15.2039	1,632.1182	540.6118	2,172.7300	2.0618	0.1152	2,258.6040

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	2.0912					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.5300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	82.6099	1.6223	107.1505	0.2024		15.1598	15.1598		15.1598	15.1598	1,632.1182	526.2353	2,158.3535	2.0479	0.1152	2,243.8786
Landscaping	0.2425	0.0916	7.9664	4.2000e-004		0.0441	0.0441		0.0441	0.0441		14.3765	14.3765	0.0140		14.7255
Total	**99.4736**	**1.7139**	**115.1169**	**0.2029**		**15.2039**	**15.2039**		**15.2039**	**15.2039**	**1,632.1182**	**540.6118**	**2,172.7300**	**2.0618**	**0.1152**	**2,258.6040**

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	2.0912					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	14.5300					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.1258	1.0753	0.4576	6.8600e-003		0.0869	0.0869		0.0869	0.0869	0.0000	1,372.658 8	1,372.658 8	0.0263	0.0252	1,380.815 9
Landscaping	0.2425	0.0916	7.9664	4.2000e-004		0.0441	0.0441		0.0441	0.0441		14.3765	14.3765	0.0140		14.7255
Total	**16.9895**	**1.1669**	**8.4239**	**7.2800e-003**		**0.1310**	**0.1310**		**0.1310**	**0.1310**	**0.0000**	**1,387.035 4**	**1,387.035 4**	**0.0403**	**0.0252**	**1,395.541 3**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B
Special Status Plant Survey Report

May 27, 2021

Randall Branaugh
Bex Development
19077 Madison Avenue
Castro Valley, CA 94546

Subject: Results of Protocol-level Special-Status Plant Surveys in Support of the Branaugh Property Development (Project # 4423-01)

Dear Mr. Inderbitzen:

H. T. Harvey & Associates is pleased to submit this letter report describing the results of special-status plant surveys conducted on the Branaugh property at 1881 Collier Canyon Rd., Dublin, California (APN 905-1-4-4). Technical biological studies conducted in support of the Dublin Boulevard-North Canyons Parkway Project by H. T. Harvey & Associates and others identified several special-status plant species that may occur within the alignment including portions that bisect the Branaugh property. In order to support California Environmental Quality Act (CEQA) analysis of future development of the property, H. T. Harvey & Associates has conducted two rounds of protocol-level surveys for special-status plant species within the approximately 39.9-acre property. The surveys were conducted according to California Native Plant Society (CNPS) and California Department of Fish and Wildlife (CDFW) protocols for assessing project impacts on special-status plant species. No special-status plant species were observed and based on the results of the surveys are considered absent from the property. The following letter report describes the methods and results of our survey.

Methods

The study area considered for this survey included the entirety of the Branaugh property (APN 905-1-4-4) located in the city of Dublin, California, Alameda County, north of I-580, and located between Croak Road to the west and Dolan Road to the east. The study area is located within the *Livermore, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle. Elevations within the study area range from approximately 370 to 580 feet (ft) North American Vertical Datum of 1988 (NAVD88) (Google Inc. 2021), with the highest elevations in the north portion of the parcel, and the lowest elevations along the southern fence line of the property.

Prior to conducting field work, H. T. Harvey & Associates ecologists reviewed available background materials including aerial images (Google Inc. 2021), a USGS topographic map, the CDFW's California Natural Diversity Database (CNDDB 2021), as well previous reports conducted for nearby projects, primarily the Dublin Boulevard-North Canyons Parkway Project (H. T. Harvey & Associates 2019). For the purposes of this report, the "project vicinity" is defined as the area within a 5-mile radius surrounding the project study area.

In addition, we reviewed all species on current CNPS California Rare Plant Rank (CRPR) 1A, 1B, 2A, and 2B lists occurring in the project region, which is defined as the *Livermore, California* USGS 7.5-minute quadrangles and surrounding eight quadrangles (*Diablo, Tassajara, Byron Hot Springs, Dublin, Altamont, La Costa Valley, Mendenhall Springs, and Niles, California*). Quadrangle-level results are not maintained for CRPR 3 and 4 species, so we also conducted a search of the CNPS Inventory records for these species occurring in Alameda County (CNPS 2021). In addition, we queried the CNDDB (2021) for natural communities of special concern that occur within the project study area.

Site Visits

Two rounds of rare plant surveys of the project study area were conducted by H. T. Harvey & Associates. Surveys occurred on April 9th and 10th, 2020 and September 29th, 2020, and on March 25th and April 29th, 2021 for early blooming species. The purpose of these surveys was to conduct protocol-level, floristic surveys for special-status plants that were determined to have potential to occur on the site. The first round of surveys conducted on April 9 and 10th, 2020 by plant ecologists Jill Pastick, M.S. and Brad Comito, B.S. The surveys were conducted over the course of two days in simultaneous with the jurisdictional wetland delineation. The second round of rare plant surveys was conducted by plant ecologists Jill Pastick, M.S. and Andrew Dilworth, B.S. on September 29th, 2020 for late flowering species such as Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) and San Joaquin spearscale (*Extriplex joaquinana*). Prior to the September 29, 2020 survey, a reference site in Santa Clara County (Sunnyvale Baylands Park: CNDDB Occurrence #18) was visited by Ms. Pastick to confirm that Congdon's tarplant was in bloom and was identifiable.

The special-status plant surveys were conducted according to protocols described by CNPS (2001) and CDFW (2018). This requires that surveys are floristic in nature, i.e. that all species encountered during the survey area identified to species, and that the surveys are conducting during time periods that coincide with blooming times for special-status plants that have potential to occur on the site. During the surveys, the plant ecologists walked the entirety of the study area with meandering transects, approximately 50-100 feet apart, for full coverage of the site, with a greater intensity of survey effort spent in areas that were less disturbed and represent a higher potential for occurrence of special-status plant species.

Results

The CNPS (2021) and CNDDB (2021) identify 81 special-status plant species as potentially occurring in at least one of the nine USGS 7.5-minute quadrangles containing or surrounding the project alignment for species with a CRPR 1 and 2, or in Alameda County for CRPR 3 and 4 species. Based on a background review of general habitats and geologic substrates of the study area, as well as previous surveys conducted of the project area, a majority of these species were able to be eliminated from consideration for at least one of the following reasons: (1) absence of suitable habitat types; (2) lack of specific microhabitat or edaphic requirements; (3) the elevation range of the species is outside of the range of the project study area; and/or (4) the species is presumed extirpated from the project region. A previous Caltrans Natural Environment Study (NES) prepared for the Dublin Boulevard-North Canyons Parkway Project (H. T. Harvey & Associates 2019), which includes a central portion of the Branaugh property, determined that twenty-two species were considered to have some potential to occur on or near the study area. Table 1 lists these species along with their habitat requirements, blooming periods, and potential for occurrence within the Branaugh property. These species that were targeted during the two rounds of surveys conducted of the Branaugh parcel.

Table 1. Special-status Plant Species, Their Status, and Potential Occurrence on the Branaugh Property

Name	*Status	Habitat	Results of Survey
California Native Plant Society (CNPS) Rare Species			
Heartscale (*Atriplex cordulata* var. *cordulata*)	CNPS Rank 1B.2	Chenopod scrub, meadows and seeps with saline or alkaline soils; valley and foothill grassland in sandy soils; 0–560 ft.	**Species absent.** There is marginally suitable habitat in the form of seasonal wetlands. However, these wetlands are of low quality, dominated by non-native hydrophytes and grasses. This species is known primarily from the Livermore Wetlands Preserve in eastern Alameda County. Due to a lack of suitable, high quality valley and foothill grassland, and a lack of sandy soils throughout the study area, this species is determined to be absent from the study area.
Crownscale (*Atriplex coronata* var. *coronata*)	CNPS Rank 4.2	Chenopod scrub, valley and foothill grassland, vernal pools in clay alkaline soils; 0–1,935 ft.	**Species absent.** There are some seasonal wetlands mapped throughout the study area, however, these wetlands are not alkaline and are of generally low quality, dominated by non-native hydrophytes and grasses. Only a small section of alkaline California annual grassland occurs in the southern portion of the study area. This species is known primarily from the Livermore Wetlands Preserve in eastern Alameda County. Due to a lack of suitable, high quality valley and foothill grassland, and a lack of sandy throughout the study area, this species is determined to be absent from the study area.

Name	*Status	Habitat	Results of Survey
Brittlescale (*Atriplex depressa*)	CNPS Rank 1B.2	Chenopod scrub, valley and foothill grassland, vernal pools in clay alkaline soils; 0–1,050 ft.	**Species absent.** There is marginally suitable habitat throughout the study area in the form of California annual grassland. A nearby CNDDB record, Occurrence #65, in Livermore, California, showed the species growing in an annual grassland. However, the California annual grassland within the study area was dominated by ruderal grass species, such as wild oats and bromes, and lacks a diversity of native forbs. Thus, suitable habitat was not present within the study area and the species is determined to be absent in the study area.
Lesser saltscale (*Atriplex minuscula*)	CNPS Rank 1B.1	Chenopod scrub, playas, valley and foothill grassland in clay alkaline soils; 45–655 ft.	**Species absent.** This species is known primarily from the Livermore Wetlands Preserve in eastern Alameda County. There is marginally suitable habitat in the southern portion of the study area in the form of California annual grassland with alkaline soils. However, the California annual grassland within the study area was dominated by ruderal grass species, such as wild oats and bromes, and lacks a diversity of native forbs. This species is determined to be absent from the study area.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	CNPS Rank 1B.1	Valley and foothill grassland in depressions, swales floodplains with alkaline soils; usually disturbed areas; 0–755 ft.	**Species absent.** The statewide population includes 91 occurrences, and of these, approximately 20 occur within the immediate vicinity of the study area. The CNDDB has recorded up to 114,000 individuals of Congdon's tarplant to the west of the study area, between Fallon Road and Croak Road (CNDDB Occurrence #11). Congdon's tarplant was targeted during the September 2020 survey, which was conducted at a time when the species would have been apparent if it were present. No Congdon's tarplant was observed on-site.

Name	*Status	Habitat	Results of Survey
Hispid bird's beak (*Chloropyron molle* ssp. *hispidum*)	CNPS Rank 1B.1	Saline marshes, playas, and flats within valley and foothill grassland; 0–510 ft.	**Species Absent.** Suitable habitat is absent from the study area. No saline marshes, playas, or flats were mapped within the property. This species is known primarily from the Livermore Wetlands Preserve in eastern Alameda County. A single CNDDB record has been mapped in Alameda County (Occurrence #15). This occurrence was recorded in an alkali grassland/alkali sink scrub, which was not observed within the study area. Therefore, this species is determined to be absent from the property.
San Joaquin spearscale (*Extriplex joaquinana*)	CNPS Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils; 0–2,740 ft.	**Species absent.** Marginally suitable habitat and suitable alkaline soils occur near the southern portion of the study area. The statewide population is composed of approximately 111 extant occurrences; and of these, 11 are or were within the immediate vicinity of the study area. The CNDDB has recorded several occurrences near the study area, some of which have likely been extirpated by recent development. The species was not observed in the seasonal wetland habitat in the southern during the April 2020 or September 2020 surveys. Thus, it is determined to be absent from the study area.
Diablo helianthella (*Helianthella castanea)*	CNPS Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland generally in rocky alluvial soils; 195–4,265 ft.	**Species absent**. Suitable habitat is absent from the study area. This species is known from two nearby occurrences of this species are mapped north of the study area in Alameda County, (CNDDB 2021, Occurrences # 93 and 94) which is located within a 5-mi radius of the study area. These populations were observed on the north facing slopes of open grassland with scattered shrubs and valley oak trees (CNDDB 2021), which was not observed within the study area. Therefore, this species is determined to be absent from the property.

Name	*Status	Habitat	Results of Survey
Hogwallow starfish (*Hesperevax caulescens*)	CNPS Rank 4.2	Drying shrink-swell clay of shallow vernal pools and flats/depressions in Valley and foothill grassland; sometimes in alkaline soil; 0–1,655 ft.	**Species Absent.** Only marginally suitable habitat was mapped within the study area, in the form of depressions in California annual grassland habitat at the southern portion of the study area. This species is known mainly from the Diablo Range in Alameda County. No CNDDB occurrences have been mapped for this species in Alameda County. This species is determined to be absent from the study area.
Ferris's goldfields (*Lasthenia ferrisiae*)	CNPS Rank 4.2	Wet saline flats and vernal pools with clay soils; 65–2,295 ft.	**Species Absent.** Suitable habitat is absent from the study area. No saline flats or clay vernal pools were mapped within the study area. Additionally, no CNDDB occurrences have been mapped in the study area vicinity. Therefore, this species is determined to be absent from the study area.
Little mousetail (*Myosurus minimus* ssp. *apus*)	CNPS Rank 3.1	Wet fields, vernal pools (alkaline soils), streambanks in valley and foothill grassland; 65–2,100 ft.	**Species absent.** Only marginally suitable habitat is present in the study area. No alkaline vernal pools were mapped within the study area, and the mapped drainage did not provide suitable habitat. This species is known primarily from the Livermore Wetlands Preserve and the Diablo range in eastern Alameda County. This species was not detected during the 2020 focused plant surveys and is determined to be absent from the study area.

Name	*Status	Habitat	Results of Survey
Cotula navarretia (*Navarretia cotulifolia*)	CNPS Rank 4.2	Occurs in wetlands with heavy soils within chaparral, cismontane woodland, valley and foothill grassland; 10–6,005 ft.	**Species absent.** Only marginally suitable habitat in present in the study area, in the form of California annual grassland throughout the study area. The species is known primarily from the Livermore Wetlands Preserve and the Diablo range in eastern Alameda County. However, the California annual grassland within the study area was dominated by ruderal grass species, such as wild oats and bromes, and lacks a diversity of native forbs. Thus, suitable habitat was not present within the study area and the species is determined to be absent in the study area.
Adobe navarretia (*Navarretia nigelliformis* ssp. *nigelliformis*)	CNPS Rank 4.2	Valley and foothill grassland in clay depressions, vernal pools; 325–3,280 ft.	**Species absent.** Only marginally suitable habitat was mapped within the study area in the form of the seasonal wetlands in the central portion of the study area. This species was not observed during the protocol-level surveys that were conducted when this species would have been apparent and identifiable. Therefore, this species is determined to be absent from the study area.
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CNPS Rank 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; 5–3,970 ft.	**Species absent.** A CNDDB occurrence record exists for a small population of prostrate vernal pool navarretia occurring to the west of the study area (CNDDB occurrence #61). This polygon is non-specific, but appears to be centered on a portion of seasonal wetlands near the junction of Fallon Rd. and Croak Rd., east of the study area. Marginally suitable habitat occurs for this species in the seasonal wetlands, though no *Navarretia* species were observed during the spring 2020 surveys. This species is determined to be absent from the study area.

Name	*Status	Habitat	Results of Survey
Lobb's aquatic buttercup (*Ranunculus lobbii*)	CNPS Rank 4.2	Vernal pools and ponds in cismontane woodland, North Coast coniferous forest, valley and foothill grassland; 45–1,540 ft.	**Species absent.** Suitable habitat for this species is not present on the Branaugh property. This species is determined to be absent from the study area.
Caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	CNPS Rank 1B.1	Valley and foothill grassland in alkaline soils; 0–1495 ft.	**Species absent.** There is marginally suitable habitat within the study area, in the form of steep slopes within the grassland habitat. A single CNDDB occurrence is located within a 5-mi radius of the study area (CNDDB 2021, Occurrence #11), however, this occurrence is from 1897, and has not been observed since. All other CNDDB occurrences in Alameda County are historic and recorded east of the project area in the Altamont Hills. This species was not detected during the 202 focused surveys, which were conducted at a time of year when the species would have been blooming and apparent if present. Due to the dominance of non-native grasses and forbs in the grassland on the site, and only small areas mapped as alkaline soils, suitable habitat for this species is limited. Therefore, this species is determined to be absent from the study area.

Special-Status Species Code Designations

FE = Federally listed Endangered

FT = Federally listed Threatened

FC = Federal Candidate for listing

SE = State listed Endangered

ST = State listed Threatened

SC = State Candidate for listing

CSSC = California Species of Special Concern

SP = State Fully Protected Species

Site Conditions

The climate in the vicinity of the study area is coastal Mediterranean, with most rain falling in the winter and spring, and with dry summers. Mild cool temperatures are common in the winter. Hot to mild temperatures are common in the summer. Climate conditions in the study area include a 30-year average of approximately 16.11 inches of annual precipitation with a monthly average temperature range from 48.0ºF to 72.2ºF (PRISM Climate Group 2021). Precipitation in the study area was lower than the normal range of precipitation for the 12-month period leading up to the delineation. Total precipitation recorded in the area from April 2019 through March 2020 was 12.2 inches, which is approximately 75% of the 30-year average (1981-2010) for that same time period (PRISM Climate Group 2021). These conditions were considered when assessing the biotic habitats present within the study area, and the potential for species to occur.

Four soil types occur in the study area: Diablo clay, very deep, 3 to 15 percent slopes; Linne clay loam, 15 to 30 percent slopes; Linne clay loam 15 to 30 percent slopes, MLRA, and Rincon clay loam, 3 to 7 percent slopes (NRCS 2021). Diablo clay and Linne clay loam soils are alkaline soils, with the former being considered mildly alkaline and the latter being moderately alkaline.

Biotic Habitats

The study area consists primarily of undeveloped grazing ranchland and open space, but also includes some rural development in the northwest and southern portion. The land uses on nearby properties are largely agricultural, with residential, industrial, open space, and commercial uses as well. Five habitat types were identified within the study area during the plant surveys: California annual grassland (31.41 ac), seasonal wetland (0.18 ac), developed (8.23 ac), culvert (0.1 ac), and ephemeral stream (0.04 ac). Appendix B provides representative photos of these habitats in the study area.

California Annual Grassland: The majority of the study area consists of California annual grassland habitat (Photos 1, 2, and 3; Appendix B). Much of this grassland is currently is dominated by a suite of non-native grasses, such as meadow barley (*Hordeum murinum*), soft chess (*Bromus hordeaceus*), wild oats (*Avena barbata* and *Avena fatua*), and ripgut brome (*Bromus diandrus).* Common weedy (and non-native) forbs include various species of filaree and geranium (*Erodium* spp. *and Geranium* spp., respectively), shortpod mustard (*Hirschfeldia incana*), and black mustard (*Brassica nigra*).

Several invasive species occur in the study area, including but not limited to black mustard, wild oat, and Italian ryegrass (*Festuca perennis*). There is even less diversity of species in the southern portion of the study area, where the alkaline soils were mapped, with the small patches of grassland dominated by filaree and geranium species and ripgut brome (*Bromus diandrus*).

Developed: This habitat contained existing structures such as buildings, trailers, driveways, and parking lots. Man-made drainage ditches were also observed near the parking lot of the developed areas within the study area. This developed habitat type contained little to no vegetation, and was not suitable for any rare plant species.

Ephemeral Drainage and Culvert: A single ephemeral drainage exists near the center of the study area and runs parallel to the fence that bounds the Branaugh property to the west. This segment of ephemeral drainage is rock-lined and is fed by a culvert from which a small amount of water was observed flowing during the spring survey. This segment of ephemeral stream is approximately 100 feet long and 10 feet wide and is connected at the downstream end by a culvert which conveys flows under a road to a seasonal wetland at its downstream end. This stream was verified by the USACE as part of the Dublin Boulevard Extension Project Jurisdictional Determination.

Seasonal wetland: Seven seasonal wetlands were mapped within the study area. Five of the seasonal wetlands are situated in subtle depressions within the study area, located adjacent to or within a swale/saddle between two hills in the northern portion of the study area. Two additional wetlands are in an excavated ditch west of the developed area. At the time of the spring survey, these wetlands were saturated with pockets of standing water. The seasonal wetlands were dominated by hydrophytic vegetation, including Mexican rush (*Juncus mexicanus*), Italian wild rye (*Hordeum murinum*), and English plantain (*Plantago lancelota*). Typical seasonal wetland habitat within this large complex is depicted in Photos 5 (Appendix B).

Results of Special-status Plant Survey

No special-status plants were observed during the protocol-level surveys conducted on the property in 2020. The winter season preceding the surveys (spring 2020) experienced below average precipitation. Precipitation in the 2019–2020 winter season was approximately 61% of the normal annual precipitation (PRISM Climate Group 2021). Below average precipitation conditions could result in some special-status species, particularly those with an annual life cycle, not being as abundant, and therefore not as apparent. Congdon's tarplant was observed elsewhere in the bay area in September 2020 just prior to the fall survey conducted on the Branaugh property, therefore if this species were present on-site, we are confident we would have observed it. With respect to the suite of species that are typically found in alkali seasonal wetland, vernal, or valley and foothill grassland habitat (adobe navarretia, cotula navarretia, prostrate vernal pool navarretia, hogwallow starfish, Ferris's goldfields, brittlescale, crownscale, heartscale, lesser saltscale, hispid bird's beak, little mousetail, and Lobb's aquatic buttercup), these species are typically found in a particular habitat types, such as those found in the Springtown Alkali Sink ecosystem to the east of the study area. The seasonal wetlands and the alkaline grasslands that were observed on the Branaugh property are not similar to those unique habitats, and characteristic species that are indicative of those habitats were not observed on the property. In addition, the dominance of non-native species such as Italian rye grass and bristly ox-tongue and bur clover, would preclude those vernal pool species listed above in Table 1. Therefore, despite the below-average rainfall conditions, all special-status plant species are determined to be absent from the site.

Please let us know if you have any questions regarding these results.

Sincerely,

Kelly Hardwicke

Kelly Hardwicke, Ph.D.
Principal Plant Ecologist

References

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Appendix A. Plants Observed

Family	Scientific Name	Common Name
Anacardiaceae	*Schinus molle*	Peruvian pepper tree
Apiaceae	*Foeniculum vulgare*	Fennel
	Sanicula bipinnatifida	Purple sanicle
Arecaceae	*Washingtonia robusta*	Fan palm
Asteraceae	*Carduus pycnocephalus*	Italian thistle
	Centaurea solstitialis	Yellow star thistle
	Cynara cardunculus	Cardoon
	Erigeron canadensis	Horseweed
	Helminthotheca echioides	Bristly ox-tongue
	Hypochaeris glabra	Smooth cat's ear
	Lactuca serriola	Prickly lettuce
	Matricaria discoidea	Pineapple weed
	Silybum marianum	Milk thistle
	Sonchus arvensis ssp. arvensis	Field sowthistle
	Sonchus asper	Sticky sandspurry
Betulaceae	*Alnus sp.*	Alder
Boraginaceae	*Amsinckia menziesii*	Common fiddleneck
	Amsinckia tessellata	Bristly fiddleneck
Brassicaceae	*Brassica nigra*	Black mustard
	Capsella bursa-pastoris	Shepard's purse
	Hirschfeldia incana	Summer mustard
	Lepidium nitidum	Shining peppergrass
	Raphanus sativus	Wild radish
	Sinapis arvensis	Charlock mustard
Caryophyllaceae	*Spergularia macrotheca* var. *macrotheca*	Sticky sandspurry
	Stellaria media	Chickweed
Convolvulaceae	*Convolvulus arvensis*	Field bindweed
Cyperaceae	*Carex sp.*	sedge

Family	Scientific Name	Common Name
Fabaceae	*Medicago polymorpha*	Bur medic
	Trifolium hirtum	rose clover
	Trifolium sp.	Clover
	Vicia sativa	Spring vetch
	Vicia villosa	Vetch
Geraniaceae	*Erodium botrys*	Big heron bill
	Erodium cicutarium	red stemmed filaree
	Erodium moschatum	Musky stork's bill
	Geranium dissectum	Cutleaf geranium
	Geranium molle	Crane's bill geranium
Juncaceae	*Juncus mexicanus*	Mexican Rush
Malvaceae	*Malva nicaeensis*	Bull mallow
	Malvella leprosa	Alkali mallow
Myrtaceae	*Eucalyptus sp.*	Eucalyptus
Orobanchaceae	*Castilleja exserta ssp. exserta*	Owl's clover
Plantaginaceae	*Plantago lanceolata*	Narrowleaf plantain
Poaceae	*Avena barbata*	Slender oats
	Avena fatua	Wild oat
	Bromus diandrus	Ripgut brome
	Bromus hordeaceus	Soft brome
	Cynosurus echinatus	Annual dogtail
	Festuca perennis	Italian rye grass
	Hordeum murinum	Foxtail barley
	Stipa tenuissima	Mexican feathergrass
	Poa annua	Annual blue grass
Polemoniaceae	*Gilia tricolor*	Bird's eye gilia
Polygonaceae	*Rumex conglomeratus*	Clustered dock
	Rumex crispus	Curly dock
Rubiaceae	*Sherardia arvensis*	Field madder
Salicaceae	*Populus nigra*	Lombardy poplar
Themidaceae	*Dichelostemma capitatum*	Blue dicks

Family	Scientific Name	Common Name
Ulmaceae	*Ulmus parvifolia/pumila*	Chinese Elm
Urticaceae	*Urtica dioica*	common nettle

Appendix B. Photo Documentation

Photo 1. Photo representative of California annual grassland habitat in the southern portion of the study area. View to the southwest.

Photo 2. Photo of California annual grassland habitat located in the central portion of the study area. View to the north.

Photo 4. Photo of the ephemeral drainage located along the eastern boundary at the center of the study area. View to the north.

Photo 5. Photo representative of seasonal wetland habitat throughout the swale that runs through the center of the study area. View to the south.

Appendix C
Preliminary Delineation of Wetlands/Other Waters

H. T. HARVEY & ASSOCIATES
Ecological Consultants
50 years of field notes, exploration, and excellence

Lands of Branaugh
Preliminary Delineation of Wetlands and Other Waters
Alameda County, California

Project #4423-01

Prepared for:

Randall Branaugh
Bex Development
19077 Madison Avenue
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Prepared by:

H. T. Harvey & Associates

January 11, 2021

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Executive Summary

On April 9 and 10, 2020, H. T. Harvey & Associates' biologists performed a delineation of wetlands and other waters on the Branaugh property in Dublin, California within Alameda County, California. Approximately 40 acres were surveyed for jurisdictional waters (wetlands and other waters) that may be subject to regulation under Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers (USACE). The survey also delineated the extent of waters of the state that may be subject to regulation under the Section 401 of the CWA and the Porter Cologne Water Quality Control Act administered by the Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife (CDFW). The on-site determination took into account drier than normal conditions during the 2019/2020 winter season relative to the 30-year normal, and the results are based on the conditions present at the time of the surveys. The study area is located in the San Francisco Bay East (Hydrologic Unit Code 18050004) watershed.

In total, approximately 0.124 acre of potentially jurisdictional features as defined by the USACE were identified within the study area. These include approximately 0.124 acre of Section 404 wetlands as seasonal wetland. These seasonal wetlands would also be considered waters of the state, subject to regulation by the RWQCB under Section 401 of the Clean Water Act and under the Porter Cologne Water Quality Control Act as well as CDFW jurisdictional features. A swale depicted on National Wetlands Inventory (NWI) maps as palustrine, emergent, persistent, temporarily flooded bisects the northern portion of the project site, and was investigated as part of this study. The feature does not exhibit surface hydrologic connections to drainages upstream or downstream, indicators of a true bed and banks or indicators of regular surface flows such as the presence of Ordinary High Water Marks were lacking; as such, this feature was not considered jurisdictional, aside from where seasonal wetlands meeting three parameters occurred in the swale.

The potentially jurisdictional features identified and delineated during the April 2020 surveys include two regulatory wetlands and waters features that were previously mapped on the Branaugh property as part of a larger delineation for the Dublin Boulevard-North Canyons Parkway Extension Project, and were verified by USACE to be subject to regulation under Section 404 of the Clean Water Act by the USACE (File No. 2017-00145S) (USACE 2019). These features are located in the center of the study area, have not appreciably changed since the area was verified in 2019, and include 0.053 ac of Section 404 wetlands as seasonal wetlands, and 0.048 ac of Section 404 other waters as ephemeral stream and culvert.

Habitat Type	Acres
Total Section 404 Wetlands	**0.124**
Seasonal wetland	0.124
Total Waters of the U.S.	**0.124**
Total Section 401 Waters of the State	**0.124**
Seasonal wetland	0.124
Total CDFW Jurisdictional Habitats	**0.028**
Wetlands and Waters Verified by USACE in 2019 for the Dublin Boulevard Project on Branaugh Property	**0.101**
Total Non-jurisdictional Areas	**39.642**
Wetland Delineation Study Area Total	**39.867**

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Figures

Tables

Appendices

List of Preparers

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Bradley Comito, B.S., Plant Ecologist

Section 1. Introduction

1.1 Study Area Description

The delineation study area is in the city of Dublin, California, Alameda County, north of I-580, in between Croak Road to the west and Dolan Road to the east. (Figure 1). The study area comprises the Branaugh property at 1881 Collier Canyon Rd., Dublin, California (APN 905-1-4-4) (Figure 2). The wetland delineation described in this report focused on the undeveloped, vegetated areas of the property, but the entirety of the Branaugh parcel was surveyed. The study area is located within the *Livermore, California* U.S. Geological Survey (USGS) 7.5-minute quadrangle (Figure 3). Elevations within the study area range from approximately 370 to 580 feet (ft) North American Vertical Datum of 1988 (NAVD88) (Google Inc. 2020), with the highest elevations in the north portion of the parcel. A portion of the property intersects with the project boundary for the Dublin Boulevard-North Canyons Parkway Extension Project, which was the subject of a wetland delineation study in 2018. USACE issued a preliminary jurisdiction determination (PJD) and a verified delineation map on October 31, 2019 (File No. 2017-00145S) (USACE 2019) for that project, including a portion of the subject property.

The climate in the vicinity of the study area is coastal Mediterranean, with most rain falling in the winter and spring, and summers being dry. Mild cool temperatures are common in the winter. Hot to mild temperatures are common in the summer. Climate conditions in the study area include a 30-year average of approximately 16.11 inches of annual precipitation with a monthly average temperature range from 48.0ºF to 72.2ºF (PRISM Climate Group 2020).

Figure 4 shows the soil units mapped by the National Resource Conservation Service (NRCS) within the study area, and Table 1 summarizes the associated texture, drainage classification, landform setting, and hydric soil status (NRCS 2020a, b) for the four soil types found within the study area.

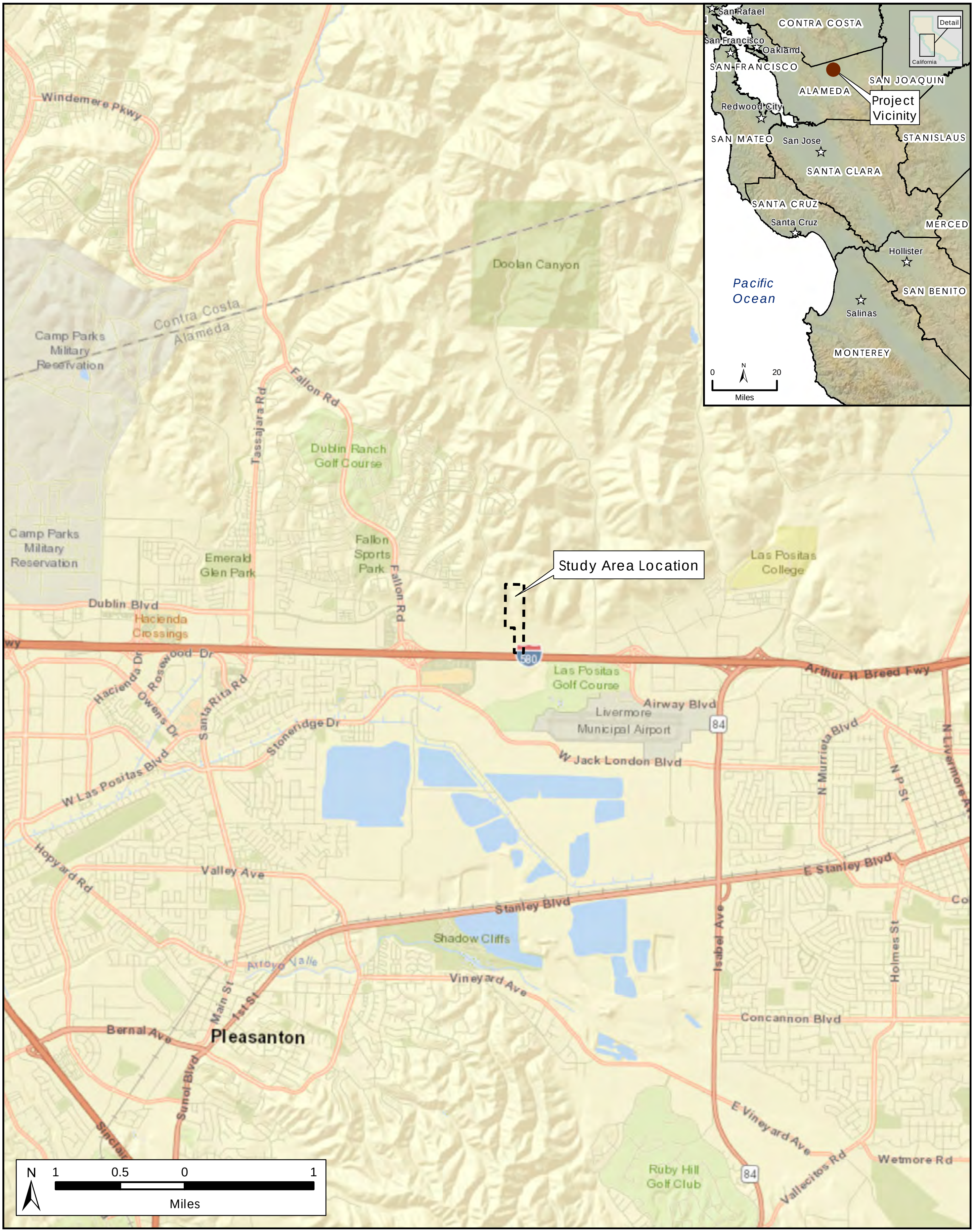

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Figure 1. Vicinity Map
Lands of Branaugh - Preliminary Delineation of Wetlands and Other Waters (4423-01)
January 2021

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Figure 2. Study Area Map
Lands of Branaugh - Preliminary Delineation of Wetlands and Other Waters (4423-01)
January 2021

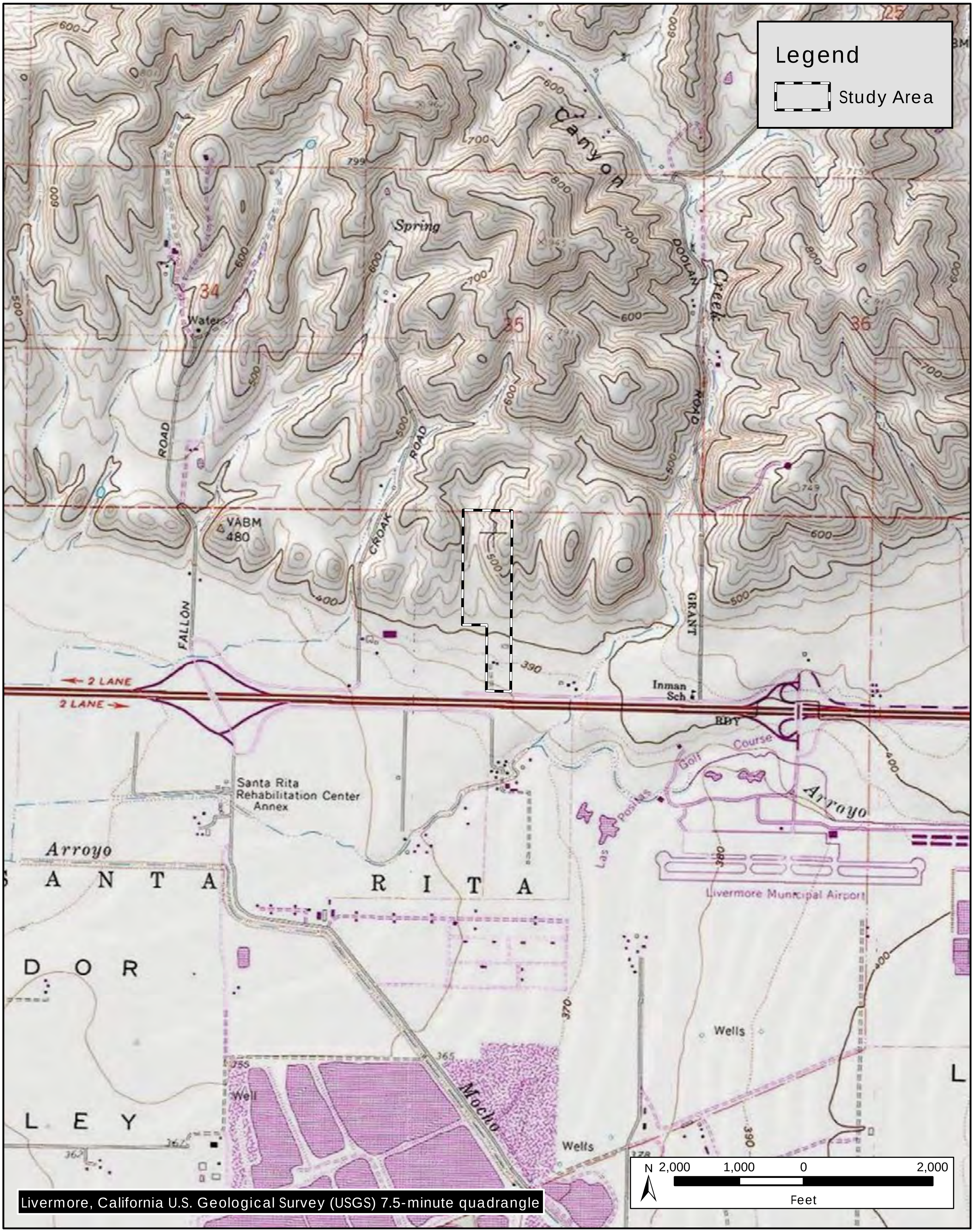

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Figure 3. USGS Topographic Map
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Figure 4. NRCS Soils Map
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Table 1. Soil Type, Texture, Drainage Classification, and Hydric Soil Status for Soil Types Occurring within the Study Area

Soil Symbol	Soil Name	Soil Texture	Drainage Classification	Landform	Hydric Status
RdB	Rincon clay loam, 3 to 7 percent slopes	Clay loam	Well drained	Fans/footslope/valley floors/toeslope	Yes
DvC	Diablo clay, very deep, 3 to 15 percent slopes	Clay	Well drained	Hills/backslope	No
LaC	Linne clay loam 15 to 30 percent slopes	Clay loam	Well drained	Hills/backslope	No
LaD	Linne clay loam 15 to 30 percent slopes, MLRA	Clay loam	Well drained	Hillslopes/mountain slopes/backslope	No

The U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) map of the study area is depicted in Figure 5. The NWI identified a single aquatic feature within the study area (NWI 2020). The feature is mapped as a freshwater emergent wetland (PEM1A) and generally aligns with the area mapped as a non-jurisdictional swale in the study area, as well as the six seasonal wetlands associated with the swale. NWI maps are based on interpretation of aerial photography, limited verification of mapped units, and/or classification of wetland types using the classification system developed by Cowardin et al. (1979). These data are available for general reference purposes and do not necessarily correspond to the actual presence or absence of jurisdictional waters.

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Figure 5. National Wetlands Inventory Map

Lands of Branaugh - Preliminary Delineation of Wetlands and Other Waters (4423-01)

January 2021

Section 2. Survey Methods

Before the delineation survey was conducted, topographic maps and aerial photos of the study area were obtained and reviewed from several sources, such as the USGS topographic map (Figure 3), NRCS soils map (Figure 4), NWI (Figure 5), Google Earth software (Google Inc. 2020), and UC Santa Barbara Library's collection of historic aerial photography (UCSB 2020).

On April 9th and 10th, 2020, H. T. Harvey & Associates plant ecologists, Jill Pastick, M.S., and Brad Comito, B.S., surveyed the study area identified in Figures 1 and 2. The purpose of the survey was to identify the extent and distribution of wetlands and other waters that may be subject to regulation by the USACE, RWQCB, and CDFW. Weather conditions on April 9th and 10th, 2020, were cool to warm, dry, and clear. Approximately three days prior to the survey the region received a significant rain storm event, totaling about one and a half inches over a 72-hour period.

Ms. Pastick and Mr. Comito performed a technical delineation of wetlands and other waters in a 39.9 ac area identified on the accompanying figures as the wetland delineation study area. The delineation was performed in accordance with the *Corps of Engineers 1987 Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987). Additionally, the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Version 2.0)* (Regional Supplement) (USACE 2008a) was followed to document site conditions relative to hydrophytic vegetation, hydric soils, and wetland hydrology. Ms. Pastick and Mr. Comito performed preliminary mapping of the extent and distribution of wetlands and other waters of the U.S. that may be subject to regulation under Section 404 of the Clean Water Act (CWA) as well as waters of the state that may be subject to regulation under the Porter Cologne Water Quality Control Act, which is administered by the Regional Water Quality Control Board (RWQCB). The following sections present descriptions of the methods used to identify Section 404 jurisdictional waters (wetlands and other waters).

2.1 Identification of Jurisdictional Waters

The "Routine Determination Method, On-Site Inspection Necessary (Section D)" outlined in the Corps Manual (Environmental Laboratory 1987), and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Arid West Regional Supplement (USACE 2008a) were used to examine the vegetation, soils, and hydrology on site. This three-parameter approach to identifying wetlands is based on the presence of a prevalence or dominance of hydrophytic vegetation, hydric soils, and wetland hydrology.

In addition to applying these survey methods, we compiled this report in accordance with guidance provided in *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program* (USACE 2016a) and *Information Requested for Verification of Corps Jurisdiction* (USACE 2016b). These documents list the information that must be submitted as part of a request for a jurisdictional determination, including:

- Vicinity map (Figure 1)
- Study area map (Figure 2)
- USGS quadrangle map (Figure 3)
- Soils map (Figure 4)
- NWI map (Figure 5)
- Biotic habitats map (Figure 6)
- Preliminary identification of waters map (Figure 7)
- Plant species observed (Appendix A)
- Current soil survey report (Appendix B)
- Data forms for wetlands sample points and ordinary high water mark (OHWM) datasheets (Appendix C)
- Written rationale for sample point choice (Section 3.1, "Observations, Rationales, and Assumptions")
- Color photos (Appendix D)
- Aquatic resources table (Appendix E)
- Signed statement from the property owner allowing access (Appendix F)

During the survey, the study area was examined for topographic features, drainages, alterations to site hydrology or vegetation, and recent significant disturbance. A determination was then made as to whether normal environmental conditions were present at the time of the field survey. In the field, the techniques used to identify wetlands included digging soil pits to sample soil from various depths, observing the vegetation growing near the soil sample points, and characterizing the current surface and subsurface hydrologic features present near the sample points through both observation of indicators and direct observation of hydrology. Features meeting wetland vegetation, soil, and hydrology criteria were then mapped in the field using a Trimble GeoXT™ GPS unit capable of submeter accuracy.

2.1.1 Identification of Section 404 Jurisdictional Wetlands (Special Aquatic Sites)

Where wetland field characteristics were present, the surveyors examined vegetation, soils, and hydrology using the Routine Determination Method outlined in the Corps Manual (Environmental Laboratory 1987) and the updated data forms, vegetation sampling methods, and hydric soil and hydrology indicators developed for the Arid West Regional Supplement (USACE 2008a).

Hydrophytic Vegetation. Plants that can grow in soils that are saturated or inundated for long periods of time, which contain little or no oxygen when wetted, are considered adapted to those soils and are called hydrophytic. There are different levels of adaptation, as summarized in Table 2. Some plants can only grow in soils saturated with water (and depleted of oxygen), some are mostly found in this condition, and some are found equally in wet soils and in dry soils. Plants observed at each of the sample sites were identified to species, where possible, using *The Jepson Manual, Vascular Plans of California, Second Edition* (Baldwin *et al.* 2012). The wetland indicator status of each species was obtained from the *Arid West 2016 Regional Wetland Plant List* (Lichvar *et al.* 2016). Wetland indicator species are designated according to their frequency of occurrence in wetlands. For instance, a species with a presumed frequency of occurrence of 67 to 99% in wetlands is designated a facultative wetland indicator species. The wetland indicator groups, indicator symbol, and the frequencies of occurrence of species within wetlands, provided as a percentage, are shown in Table 2.

Table 2. Wetland Indicator Status Categories for Vascular Plants

Indicator Category	Symbol	Frequency (%) of Occurrence in Wetlands[1]
Obligate	OBL	>99 (Almost always is a hydrophyte, rarely in uplands)
Facultative wetland	FACW	67 – 99 (Usually a hydrophyte but occasionally found in uplands)
Facultative	FAC	34 – 66 (Commonly occurs as either a hydrophyte or non-hydrophyte)
Facultative upland	FACU	1 – 33 (Occasionally is a hydrophyte, but usually occurs in uplands)
Upland	UPL	<1% (Rarely is a hydrophyte, almost always in uplands)
Not Listed	NI	Considered to be an upland species

1 Based on information contained in the Corps Manual (Environmental Laboratory 1987).

2 Plant species that are not listed in the Arid West 2016 Regional Wetland Plant List (Lichvar et al. 2016) are considered UPL species in Appendix A – Plants Observed in the Study Area

Obligate and facultative wetland indicator species are hydrophytes that occur "in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Facultative indicator species may be considered wetland indicators when found growing in hydric soils that experience periodic saturation. Plant species that are not on the regional list of wetland indicator species are considered upland species. A complete list of the vascular plants observed within the study area, including their current indicator statuses, has been provided in Appendix A.

Hydric Soils. Up to 18 inches of the soil profile were examined for hydric soil indicators. The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as one formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of soil (NRCS 2010). Hydric soils include soils developed under sufficiently wet conditions to support the growth and regeneration of hydrophytic vegetation. In general, evidence of a hydric soil includes characteristics such as reducing soil conditions, soils with bright mottles and/or low matrix chroma, and soils listed as hydric by the U.S. Department of Agriculture (USDA) on the National Hydric Soils List (NRCS 2020b). Reducing soil conditions can also include circumstances where there is evidence of frequent ponding for long or very long duration. A long duration is defined as a period of inundation for a single event that ranges from 7 days to a month and very long is greater than one month (Environmental Laboratory 1987).

Munsell Soil Notations (Munsell 2009) were recorded for the soil matrix of each soil sample. The Munsell color system is based on three color dimensions: hue, value, and chroma. A brief description of each component of the system is described below, in the order they are used in describing soil color (i.e., hue/value/chroma):

1. **Hue.** The Munsell Soil Color Chart is divided into five principal hues: yellow (Y), green (G), purple (P), blue (B), and red (R), along with intermediate hues such as yellow-red (YR) and green-yellow (GY). Example of commonly encountered hue numbers include 2.5YR, 10YR, and 5Y.
2. **Value.** *Value* refers to lightness, ranging from white to grey to black. Common numerical values for value in the Munsell Soil Color Chart range from 2 for saturated soils to 8 for faded or light colors. Hydric soils often show low-value colors when soils have accumulated sufficient organic material to indicate development under wetland conditions, but can show high-value colors when iron depletion has occurred, removing color value from the soil matrix. Value numbers are commonly reported as 8/, 2.5/, and 6/.
3. **Chroma.** *Chroma* describes the purity of the color, from "true" or "pure" colors to "pastel" or "washed out" colors. Chromas commonly range from 1 to 8, but can be higher for gleys. Soil matrix chroma values that are 1 or less, or 2 or less when mottling is present, are typical of soils that have developed under anaerobic conditions. Chroma numbers are listed, for example, as /1, /5, and /8.

The NRCS Web Soil Survey (NRCS 2020a) was consulted to determine which soil types have been mapped in the study area (Table 1, Figure 4). Detailed descriptions of these soil types are provided in Appendix B.

Wetland Hydrology. Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Wetland hydrology indicators provide evidence that the site has a continuing wetland hydrologic regime. Primary indicators might include visual observation of surface water (A1), high water table (A2), soil saturation (B1), and hydrogen sulfide odor (C1). Secondary indicators might include a passing score for the FAC-neutral test (D5) and saturation visible on aerial imagery (C9). Each of the sample points was examined for positive field indicators (primary and secondary) of wetland hydrology, following the guidance provided in the Regional Supplement.

2.1.2 Identification of Section 404 Jurisdictional Other Waters

Surveys were also conducted within the study area for "other waters", which includes lakes, slough channels, seasonal ponds, tributary waters, non-wetland linear drainages, and salt ponds. Such areas are identified by the (seasonal or perennial) presence of standing or running water and generally lack hydrophytic vegetation. In non-tidal or muted tidal waters, USACE jurisdiction extends to the ordinary high water mark (OHWM), which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris." No potentially jurisdictional other waters were mapped within the study area.

In concert with USACE's efforts to revise the wetland delineation manuals and make them more specific to different geographic regions of the United States, as described above, efforts have been initiated by USACE to develop an OHWM delineation manual. In particular, two relatively recent publications have attempted to further refine the definition of OHWM and the delineation of the OHWM in the Arid West (including California):

- A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b)
- Updated Datasheet for the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2010)

For the purposes of the current study, two OHWM transects were surveyed in the field, based on the topography of the site. However, these transects were determined to lack natural geomorphic field indicators to suggest the presence of an OHWM or indicators of regular surface flows. Rather, the feature was designated as a swale, and thus not considered jurisdictional other waters.

2.2 Identification of Waters of the State

The Porter Cologne Water Quality Control Act (Porter-Cologne) broadly defines waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state." Because Porter-Cologne applies to any water, whereas the CWA applies only to certain waters, California's jurisdictional reach overlaps and may exceed the boundaries of waters of the U.S. For example, Water Quality Order No. 2004-0004-DWQ states that "shallow" waters of the State include headwaters, wetlands, and riparian areas. Where forested riparian habitat is not present, jurisdiction is taken to the top of bank or levee. Where forested habitat occurs, the outer canopy of any riparian trees rooted within top of bank may be considered jurisdictional as these trees can provide allochthonous input to the channel below.

On April 2, 2019, the SWRCB adopted the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. In these new guidelines, riparian habitats are not specifically described as waters of the state but instead as important buffer habitats to streams that do conform to the State Wetland Definition. The Procedures describe riparian habitat buffers as important resources that may both be included in required mitigation packages for permits for impacts to waters of the state, as well as areas requiring permit authorization from the RWQCBs to impact.

The 2019 Procedures also clarify that wetland-upland boundaries for wetlands comprising waters of the State should be set using the USACE delineation framework (Environmental Laboratory 1987, USACE 2008a), with one important distinction. Some areas in California function as wetlands despite lacking abundant wetland vegetation. For example, non-vegetated playas, tidal flats, and some types of seasonal wetlands provide a variety of wetland functions, including water filtration, groundwater recharge, and the support of wetland wildlife. While USACE procedures require 5% vegetative cover to be considered a wetland rather than "other waters", the RWQCB has determined that no such minimum vegetative cover is necessary for an area to be considered a wetland under the State Wetland Definition. Waters of the state were identified within the study area.

2.3 Identification of CDFW Jurisdiction

Ephemeral and intermittent streams, rivers, creeks, dry washes, sloughs, blue line streams on USGS maps, and watercourses with subsurface flows fall under California Department of Fish and Wildlife (CDFW) jurisdiction. Canals, aqueducts, irrigation ditches, and other means of water conveyance may also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife. A stream is defined in Title 14, California Code of Regulations §1.72, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish and other aquatic life. Jurisdiction does not include tidal areas such as tidal sloughs unless there is freshwater input. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." Using this definition, CDFW extends its jurisdiction to encompass riparian habitats that function as a part of a watercourse. California Fish and Game Code §2786 defines riparian habitat as "lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source." The lateral extent of a stream and associated riparian habitat that would fall under the jurisdiction of CDFW can be measured in several ways, depending on the particular situation and the type of fish or wildlife at risk. At minimum, CDFW would claim jurisdiction over a stream's bed and bank. Where riparian habitat is present, the outer edge of riparian vegetation is generally used as the line of demarcation between riparian and upland habitats. Though no ephemeral streams were mapped within the new study areas (outside the area already delineated by the USACE), CDFW jurisdictional habitats (seasonal wetlands) were mapped within the study area within an excavated ditch (SW6).

Section 3. Survey Results and Discussion

The following vegetation/land cover types were mapped within the study area: (1) annual grassland, (2) developed/landscaped, and (3) seasonal wetland. (Figure 6). Fifteen sample points (SPs) and two OHWM transects were examined to identify jurisdictional features (Figure 7; Appendix C). Within the study area, approximately 0.124 ac of potentially jurisdictional wetlands regulated by USACE, RWQCB, and/or CDFW were identified (Table 3). The results of the delineation are described below.

Table 3. Summary of Jurisdictional Waters and Wetlands within the Delineation Study Area

Habitat Type	Acres
Total Section 404 Wetlands	**0.124**
Seasonal wetland	0.124
Total Section 404 Waters of the U.S.	**0.124**
Total Section 401 Waters of the State	**0.124**
Seasonal wetland	0.124
Total CDFW Jurisdictional Habitats	**0.028**
Wetlands and Waters Verified by USACE in 2019 for the Dublin Boulevard Project on Branaugh Property	**0.101**
Total Non-jurisdictional Areas	**39.642**
Wetland Delineation Study Area Total	**39.867**

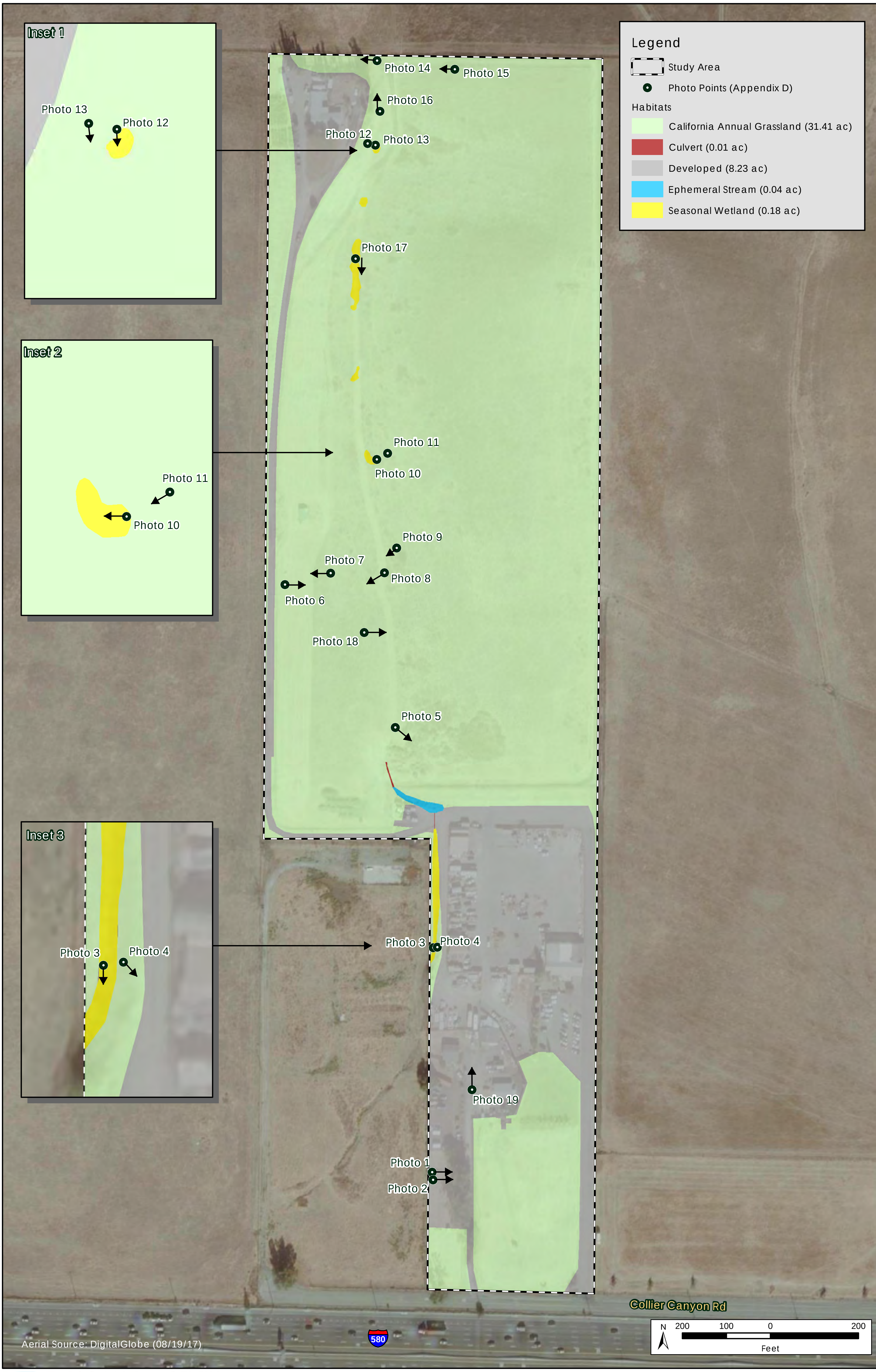

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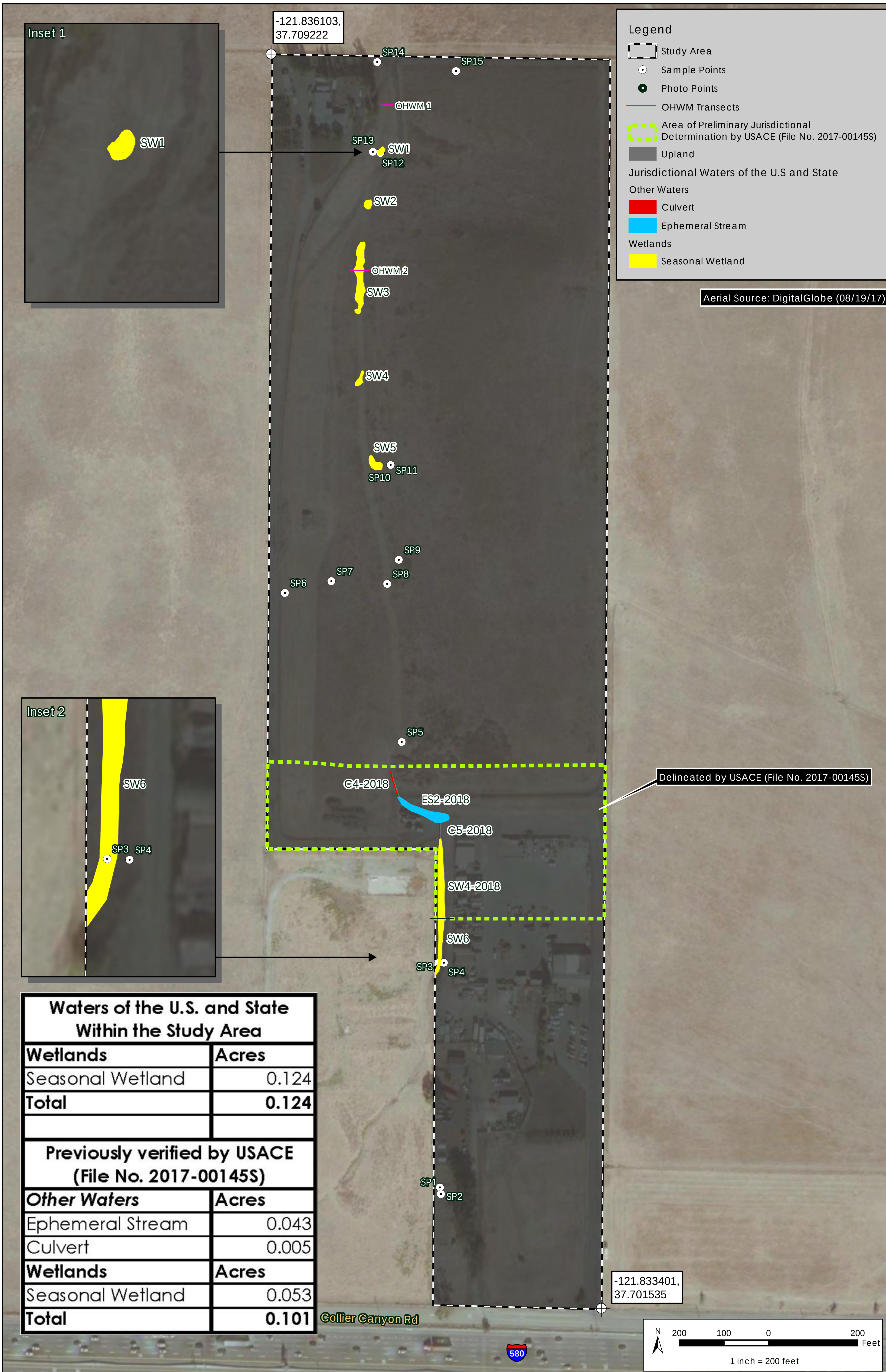
Figure 6. Biotic Habitats and Photo Points Map

Lands of Branaugh - Preliminary Delineation of Wetlands and Other Waters (4423-01)

January 2021



Waters of the U.S. and State Within the Study Area	
Wetlands	**Acres**
Seasonal Wetland	0.124
Total	**0.124**

Previously verified by USACE (File No. 2017-00145S)	
Other Waters	**Acres**
Ephemeral Stream	0.043
Culvert	0.005
Wetlands	**Acres**
Seasonal Wetland	0.053
Total	**0.101**

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Figure 7. Preliminary Identification of Waters
Lands of Branaugh - Preliminary Delineation of Wetlands and Other Waters (4423-01)
January 2021

Additionally, a previous delineation carried out in 2018 and verified by USACE in 2019 for the Dublin Boulevard-North Canyons Parkway Extension Project covers a portion of the study area. This portion of the study area contains 0.101 ac of jurisdictional wetlands and waters and is shown on Figure 7. The PJD and verified map issued by USACE on October 31, 2019 for that area includes 0.053 ac of seasonal wetland (SW4-2018 on Figure 7), 0.043 ac of ephemeral stream (ES2-2018), and 0.005 ac of culverts (C4-2018 and C5-2018).

Information assembled during this investigation and pertinent to the identification of jurisdictional wetlands and other waters is presented in the first five appendices of this report. In addition, Appendix E provided at the end of this document is included as an electronic attachment in Microsoft Excel format, per USACE (2016b) guidelines.

- Appendix A—Plants observed in the study area
- Appendix B—NRCS Soil Survey of Alameda County, California
- Appendix C—USACE Arid West Wetland Data Forms and OHWM Transect Forms
- Appendix D—Photos of the study area
- Appendix E—Aquatic Resources Table
- Appendix F—Signed statement from the property owner(s) allowing USACE personnel to enter the property and collect samples during normal business hours.

3.1 Observations, Rationales, and Assumptions

Site conditions observed during the delineation survey are reported here, along with pertinent background information and precipitation data.

3.1.1 Background Information

The preliminary delineation assumes that normal circumstances prevailed at the time of the April 2020 survey, and results are based upon the conditions present at the time of the survey. The survey was performed using the "Routine Method of Determination" using three parameters, as outlined in the Regional Supplement.

Elevations in the study area range from approximately 370 ft to approximately 580 ft above sea level (Figure 3) (Google 2020). The topography of the study area ranges from relatively flat in the southern portion near I-580, to gently rolling hills to the northeast. The topography slopes slightly southward, and the ephemeral stream within the study area follows a course similar to other nearby drainages in draining from north to southwest. The study area is located within the San Francisco Bay East (Hydrologic Unit Code 18050004) watershed.

3.1.2 Precipitation Data

The survey took place in the spring of 2020, at the end of the rainy season. Relative to the 30-year climate normal (16.11 inches annually), precipitation in the study area was lower than the normal range of precipitation for the 12-month period leading up to the delineation. Total precipitation recorded in the area from April 2019 through March 2020 was 12.2 inches, which is approximately 75% of the 30-year average (1981-2010) for that same time period (PRISM Climate Group 2020). Total precipitation recorded in the study area was drier than normal during the 2019/2020 winter season as well, which began with significant rains in November 2019, but then included a drier than usual January, February and March. Total precipitation recorded in the area from November 2019 through March 2020 was 7.4 in, which is approximately 56% of the 30-year average (1981-2010) for that period, and would be considered below the normal range of precipitation (PRISM Climate Group 2020). These conditions were taken into account when assessing the biotic habitats present on the site. A significant rain storm event, totaling about one and a half inches over a 72-hour period had occurred three days prior to the wetland delineation field survey, which allowed for observations of ponding and saturation. Despite the below average annual precipitation, boundaries of wetlands remained clear owing to the presence of hydrophytic vegetation and hydrology indicators. No standing water was observed at the time of the survey.

3.1.3 Site Conditions and Observations

The majority of the study area is California annual grassland and developed/landscaped (Figure 6). Developed/landscaped areas consist of parking lots, driveways, a house, and other buildings associated with the property, and landscaping/planted vegetation. A swale bisects the northern half of the property, which follows what was likely a historic drainage through the study area. Aerial imagery dating to 1950 (UCSB 2020) indicates this drainage once conveyed natural and artificial runoff from surrounding upland pastures. However, this swale does not appear to have perennial hydrology and lacks distinct indicators of bed and banks. Two OHWM data transects were collected and document a lack of apparent bed and bank channel morphology, despite a topographic position in a saddle between two hills.

There was no water present at the time of the survey in the swale in the northern portion of the property, however water was observed flowing out of a culvert in the central portion of the study area, C4-2018, into ES2-2018. From ES2-2018 water enters the culvert C5-2018 to discharge into SW4-2018/SW6. Similar flows were observed in April 2019 during the USACE verification visit. Seasonal and perennial wetland vegetation occupies low-lying areas associated with the swale and ES2-2018 (Figure 6 and 7). These areas likely receive runoff from hillslopes and the nearby driveway located to the west. These six wetland features that were observed within or near the swale and within the excavated ditch on the southern portion of the site were mapped as seasonal wetlands.

3.1.4 Rationale for Sample Point Choice

Fifteen sample points and two OHWM transects were selected to document conditions in representative jurisdictional and non-jurisdictional areas (Figure 7, Appendix C). Rationale and findings for wetland data form sample point locations are summarized in Table 4.

Table 4. Summary of Sample Point Locations and Results

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP1	Placed to investigate a slight depression at the base of man-made drainage.	No	Yes	Yes (Roadside and irrigation runoff)	The hydrology observed in this location comes from an adjacent roadside ditch and irrigation. The area does not meet the three parameter wetland criteria.
SP2	Placed in the slightly higher ground adjacent SP1.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.
SP3	Placed to investigate a depression south of the previously verified seasonal wetland.	Yes	Yes	Yes	This area is a three parameter wetland.
SP4	Placed in uplands as a paired point to SP3.	No	No	No	Upland; this area does not meet the three parameter
SP5	Placed at the north end of the mapped culvert from the USACE determination.	No	No	No	Upland; this area does not meet the USACE wetland criteria.
SP6	Placed to investigate a slight depression next to the driveway.	Yes	No	No	This area does not meet the three parameter wetland criteria.
SP7	Placed in uplands adjacent SP6.	No	No	No	Upland; this area does not meet the three parameter wetland criteria.
SP8	Placed to investigate a slight depression in an area that was historically saturated, and may have been a former stock pond.	No	No	No	This area does not meet the three parameter wetland criteria.
SP9	Placed to investigate uplands adjacent to SP8.	No	No	No	Upland; this area does not meet the three parameter wetland criteria.
SP10	Placed to investigate a depression along the swale.	Yes	Yes	Yes	This area is a three parameter wetland.

Name	Sampling Rationale	Hydrophytic Vegetation?	Hydric Soil?	Wetland Hydrology?	Overall Wetland Assessment
SP11	Placed in uplands as a paired point to SP10.	No	No	No	Upland position; this area does not meet the three parameter wetland criteria.
SP12	Placed to investigate a depression along the swale.	Yes	Yes	Yes	This area is a three parameter wetland.
SP13	Placed in uplands as a paired point to SP12.	No	No	No	Upland; this area does not meet the three parameter wetland criteria.
SP14	Placed to investigate a depression at the northernmost end of the swale.	No	No	No	This area is not a three parameter wetland.
SP15	Placed to investigate uplands in the northern portion of the study area.	No	No	No	Upland; this area does not meet the three parameter wetland criteria.

OHWM-1 was placed perpendicular to the swale in the northernmost portion of the wetland delineation study area (Appendix C; Appendix D, Photo 16). OHWM-2 was placed perpendicular to the swale in the middle of the wetland delineation study area (Appendix C; Appendix D, Photo 17). This feature is a non-jurisdictional swale, with no or very weak indicators of a bed and bank. There was no flowing water was observed at the time of the survey. The swale is slightly wider at the northern end of the study area (OHWM-1), and decreases in width towards the southern end. Field indicators of an OHWM such as obvious bed and banks, shelving, or knick points were lacking. Surfacewater was present at the outlet of the C4-2018 pipe, where it then flows into ES2-2018. C4-2018 connects to an underground pipe for some unknown length. It does not appear that there is a surface hydrologic connection between the swale and ES2-2018 or C4-2018

3.1.5 Photo Points

Photo point labels, coordinates, and rationales for photo documentation are presented in Table 5 and depicted on Figure 6. Photos are presented in Appendix D.

Table 5. Coordinates and Rationale for Photo Points

Label	Latitude, Longitude	Depiction
Photo 1	37°42'8.18"N , 121°50'4.90"W	Area of slight depression in the middle of a corral receiving run-off from a roadside drainage. Determined not to be a 3-parameter wetland (SP-1).
Photo 2	37°42'8.01"N , 121°50'4.87"W	Point taken on slight higher ground in corral adjacent to SP-1 (SP-2).

Label	Latitude, Longitude	Depiction
Photo 3	37°42'13.22"N , 121°50'4.95"W	3-parameter seasonal wetland on the western boundary of the study area (SP-3, SW6) adjacent to a seasonal wetland from USACE determination (SW4-2018).
Photo 4	37°42'13.24"N , 121°50'4.84"W	Paired upland point (SP-4).
Photo 5	37°42'18.16"N , 121°50'6.12"W	Sample point at the southern end of the previously mapped ephemeral stream. Grassland dominated by upland grasses and forbs northwest of the swale.
Photo 6	37°42'21.33"N , 121°50'9.29"W	Determined not to be a 3-parameter wetland (SP-6).
Photo 7	37°42'21.60"N , 121°50'8.01"W	Sample point to investigate uplands (SP-7).
Photo 8	37°42'21.63"N , 121°50'6.49"W	Sample point to investigate uplands (SP-8).
Photo 9	37°42'22.19"N , 121°50'6.15"W	Sample point to investigate uplands (SP-9).
Photo 10	37°42'24.17"N , 121°50'6.75"W	3 Parameter seasonal wetland (SP10, SW5). Representative photo of the seasonal wetlands observed along the swale.
Photo 11	37°42'24.31"N , 121°50'6.45"W	Paired upland point to SW-5 (SP-11)
Photo 12	37°42'31.23"N , 121°50'6.91"W	3 Parameter seasonal wetland (SP12, SW1). Representative photo of the seasonal wetlands observed along the swale.
Photo 13	37°42'31.26"N , 121°50'7.13"W	Paired upland point to SP-12 (SP-13).
Photo 14	37°42'33.13"N , 121°50'6.90"W	Sample point to investigate uplands in northern portion of the study area (SP-14).
Photo 15	37°42'32.96"N , 121°50'4.70"W	Sample point to investigate area at northern end of the swale (SP-15).
Photo 16	37°42'31.99"N , 121°50'6.80"W	OHWM-1 transect across the swale in the northern portion of the study area.
Photo 17	37°42'28.67"N , 121°50'7.43"W	OHWM-2 transect across the swale in the central portion of the study area.
Photo 18	37°42'20.26"N , 121°50'6.99"W	Representative photo of annual grassland habitat within the study area.
Photo 19	37°42'10.03"N , 121°50'3.76"W	Representative photo of developed habitat within the study area.

3.2 Identification of Potential Section 404 Wetlands

In general, areas that were considered to be wetlands included stands of hydrophytes and/or areas determined to be ponded and/or saturated for long duration. Approximately 0.0.124 ac of potential USACE jurisdictional wetlands were identified within the study area (Figure 7).

3.2.1 Seasonal Wetlands

Seasonal wetlands generally result from spring rain and typically occur in slight depressions in open fields, or at the base of hillslopes. Surface water may be lacking during the summer and fall, but seasonal wetlands typically support hydrophytic plants year-round. Six seasonal wetland features were mapped within the study area.

Seasonal Wetlands (SW1, SW2, SW3, SW4, SW5, SW6, and SW4-2018). Seven seasonal wetlands were mapped along the ephemeral stream within the study area (Figure 7; Appendix C; Appendix D, Photos 3, 10, and 12). Five of the seasonal wetlands are situated in subtle depressions within the study area, located adjacent to, and within the swale in the northern portion of the study area. Two additional wetlands (SW4-2018 and SW6) are located in the western portion of the study area, in a swale west of the developed area. These two features are mapped as separate features because SW4-2018 was part of the 2019 PJD and SW6 is a continuation of this feature to the south of that original verification boundary (USACE 2019). Both of these mapped features are part of the same wetland that are located in the swale that would have been the continuation of the historic drainage through the property. At the time of the delineation, which took place at the end of the rainy season, these seasonal wetlands were relatively dry, with SW4-2018/SW6 being the exception. At the time of the survey, these wetland was saturated with pockets of standing water. This feature also likely receives additional runoff from the developed area immediately to the east, which includes a landscape supply center that would contribute regular inputs of runoff. Each of these wetlands contained hydrophytic vegetation and hydric soil features, including redox features.

Vegetation. The seasonal wetlands were dominated by hydrophytic vegetation, including Mexican rush (*Juncus mexicanus,* FACW), Italian wild rye (*Hordeum murinum,* FAC), and English plantain (*Plantago lancelota,* FAC).

Soils. The soils within these wetlands were primarily clay. These soils were considered to be hydric based on the presence of redox features, including prominent redox concentrations in the top twelve inches of a dark soil (hydric soil field indicator F6).

Hydrology. At the time of the survey, surface water, a high water table or soil saturation were not observed at SW1, SW2, SW3, SW4, and SW5. Primary hydrology indicators observed at these features include soil cracking, inundation visual on aerials, and water-stained leaves. Additionally, each of these features occurs in a landscape position, a low topographic position and shallow depression, which would suggest the presence of seasonal ponding. At SW6, observed primary indicators of hydrology include presence of surface water and saturation.

3.3 Identification of Potential Section 404 Other Waters

Within the study area, no potentially jurisdictional Section 404 other waters were mapped. The other waters previously verified by the USACE in 2019 are discussed below.

3.3.1 Ephemeral Stream

In general, areas that were considered to be ephemeral stream include topographically low lying drainages with a bed and a bank, and which convey periodic and intermittent flow occurring immediately following storm events. Ephemeral stream within the study area is limited to the while 0.048 ac previously verified by USACE in 2019 (Figure 7).

Ephemeral Stream (ES2-2018). A segment of ephemeral stream within the study area (ES2-2018) was delineated and verified by USACE in 2019. This segment of ephemeral drainage is rock-lined and is fed by a culvert (C4-2018) from which a small amount of water was observed flowing during the 2020 delineation. During the USACE site visit in April 2019, several days after a previous rain event, water was also observed emanating from this culvert. This segment of ephemeral stream is approximately 100 feet long and 10 feet wide and is connected at the downstream end by a culvert (C5-2018), which conveys flows under a road to a seasonal wetland, SW4-2018, at its downstream end. At the time of the 2020 survey, which took place after more recent rains than in 2019, water was still discharging from C4-2018. It should be noted that ES2-2018 and SW4-2018 may have some connection to groundwater, possibly through the underground piping, and be considered short-term intermittent rather than fully ephemeral.

Downstream of ES2-2018, the ephemeral drainage is apparent south of SW6 where it flows off the Branaugh property and onto the property to the west and north of Interstate 580. The course of its flow when it reaches Interstate 580 could not be determined as part of this wetland delineation survey, because we did not have access to that location.

3.4 Identification of Section 401 Potentially Jurisdictional Waters of the State

The extent of Section 401 waters of the state (RWQCB jurisdiction) in the study area includes a total of 0.297 ac, including areas within Section 404 jurisdiction as described above. Waters of the state within the study area include all waters of the U.S., and cover approximately 0.124 ac of seasonal wetlands (Figure 7). Characteristics of waters of the state within the study area are described above in Sections 3.2 and 3.3.

3.5 Identification of CDFW Potentially Jurisdictional Habitats

The extent of CDFW jurisdictional habitats in the new study area includes a total of 0.028 ac, which includes areas within Section 404/401 jurisdiction as described above. The new study area contains the continuation of an excavated ditch that captures flows from ES2-2018. Though the ditch has a bed and banks, there is no woody riparian habitat as defined by CDFW (Figure 7).

3.6 Wetlands and Waters Previously Verified by USACE

The study area includes a portion of the property in which a previous wetland delineation identified wetlands and waters of the U.S., which were then subsequently verified by USACE to be Section 404 wetlands and waters the U.S. These features are located in the center of the study area, and include ES2-2018, SW4-2018, C4-2018, and C5-2018 as shown on Figure 7 (USACE File No. 2017-00145S; USACE 2019). These areas were inspected by the delineators during the April 2020 surveys and no substantive alterations has occurred since the area was verified.

3.7 Areas Not Meeting the Regulatory Definition of Waters of the U.S.

Approximately 39.642 acres of the study area do not meet the regulatory definition of state or federal waters, wetlands, or riparian habitats. These portions of the study area consist of California annual grassland, developed/landscaped areas, and ditches excavated in uplands and carrying primarily roadside or irrigation runoff (Figure 6). These ditches occur in upland landscape positions and do not meet the USACE or RWQCB criteria for wetlands, or the CDFW criteria for riparian areas.

Twelve of the fifteen wetland data form sample points were in upland areas (Appendix C, SP1, SP2, SP4, SP5, SP6, SP7, SP8, SP9, SP11, SP13, SP14, and SP15). Non-jurisdictional uplands include the following land cover types: annual grassland and developed. These vegetation types occur in upland landscape positions and do not meet the USACE criteria for wetlands or other waters. Vegetation in the annual grassland is typically dominated by upland grass and forb species, such as ripgut brome, wild oats, and black mustard. Soils were observed to be clay and clay loam with no mottles and no other indicators of regular inundation (*i.e.*, organic buildup or streaking).

OHWM transects were performed to investigate the broad swale in the northern portion of the project site. Vegetation within this swale is characterized the California annual grassland described above, except where seasonal wetlands are present.

SP1 was dug to investigate a slight depression in the middle of a corral in a largely disturbed and developed portion of the study area. The roughly 300 square foot are is at the base of a ditch used to direct landscaping and agricultural run-off excavated in the southwest corner of the study area. The entire corral area in this location is relatively level (Appendix D, Photo 1, 2). Some ponding was present, as were subtle redox features in the soil. However, hydrophytic vegetation was not dominant, and instead the area was dominated by upland forbs such as filarees (*Erodium* spp., UPL) and mallow (*Malva nicaeensis*, UPL), which appear to be dominant even in years with average rainfall. The depression likely only receives water from stormwater and road run-off for brief periods during the heaviest storm events and the sprinkler system associated with the developed portion of the study area. The area surrounding SP1 is not expected to be a wetland.

Man-made drainage ditches were also observed near the parking lot of the developed areas within the study area. These drainages were likely built to collect storm run-off from the parking areas, and were not found to have a connection to the ephemeral streams, or other waters features on site such as SW6. Because they were ditches dug in uplands, draining uplands, and do not appear to re-constructions of historic drainages they were considered to be non-jurisdictional.

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Appendix A. Plants Observed in the Study Area

Family	Scientific Name	Common Name	WIC
Anacardiaceae	*Schinus molle*	Peruvian pepper tree	FACU
Apiaceae	*Foeniculum vulgare*	Fennel	UPL
	Sanicula bipinnatifida	Purple sanicle	UPL
Arecaceae	*Washingtonia robusta*	Fan palm	FACW
Asteraceae	*Carduus pycnocephalus*	Italian thistle	UPL
	Centaurea solstitialis	Yellow star thistle	UPL
	Cynara cardunculus	Cardoon	UPL
	Erigeron canadensis	Horseweed	UPL
	Helminthotheca echioides	Bristly ox-tongue	FAC
	Hypochaeris glabra	Smooth cat's ear	UPL
	Lactuca serriola	Prickly lettuce	FACU
	Matricaria discoidea	Pineapple weed	FACU
	Silybum marianum	Milk thistle	UPL
	Sonchus arvensis ssp. arvensis	Field sowthistle	FACU
	Sonchus asper	Sticky sandspurry	FAC
Betulaceae	*Alnus sp.*	Alder	FACW
Boraginaceae	*Amsinckia menziesii*	Common fiddleneck	UPL
	Amsinckia tessellata	Bristly fiddleneck	UPL
Brassicaceae	*Brassica nigra*	Black mustard	UPL
	Capsella bursa-pastoris	Shepard's purse	FACU
	Hirschfeldia incana	Summer mustard	UPL
	Lepidium nitidum	Shining peppergrass	FAC
	Raphanus sativus	Wild radish	UPL
	Sinapis arvensis	Charlock mustard	UPL
Caryophyllaceae	*Spergularia macrotheca* var. *macrotheca*	Sticky sandspurry	FAC
	Stellaria media	Chickweed	FACU
Convolvulaceae	*Convolvulus arvensis*	Field bindweed	UPL
Cyperaceae	*Carex sp.*	sedge	FAC-OBL
Fabaceae	*Medicago polymorpha*	Bur medic	FACU
	Trifolium hirtum	rose clover	UPL
	Trifolium sp.	Clover	UPL
	Vicia sativa	Spring vetch	FACU
	Vicia villosa	Vetch	UPL
Geraniaceae	*Erodium botrys*	Big heron bill	FACU
	Erodium cicutarium	red stemmed filaree	UPL
	Erodium moschatum	Musky stork's bill	UPL
	Geranium dissectum	Cutleaf geranium	UPL
	Geranium molle	Crane's bill geranium	UPL
Juncaceae	*Juncus mexicanus*	Mexican Rush	FACW
Malvaceae	*Malva nicaeensis*	Bull mallow	UPL
	Malvella leprosa	Alkali mallow	FACU
Myrtaceae	*Eucalyptus sp.*	Eucalyptus	UPL

Family	Scientific Name	Common Name	WIC
Orobanchaceae	*Castilleja exserta ssp. exserta*	Owl's clover	UPL
Plantaginaceae	*Plantago lanceolata*	Narrowleaf plantain	FAC
Poaceae	*Avena barbata*	Slender oats	UPL
	Avena fatua	Wild oat	UPL
	Bromus diandrus	Ripgut brome	UPL
	Bromus hordeaceus	Soft brome	FACU
	Cynosurus echinatus	Annual dogtail	UPL
	Festuca perennis	Italian rye grass	UPL
	Hordeum murinum	Foxtail barley	FACU
	Stipa tenuissima	Mexican feathergrass	UPL
	Poa annua	Annual blue grass	FAC
Polemoniaceae	*Gilia tricolor*	Bird's eye gilia	UPL
Polygonaceae	*Rumex conglomeratus*	Clustered dock	FACW
	Rumex crispus	Curly dock	FAC
Rubiaceae	*Sherardia arvensis*	Field madder	UPL
Salicaceae	*Populus nigra*	Lombardy poplar	UPL
Themidaceae	*Dichelostemma capitatum*	Blue dicks	FACU
Ulmaceae	*Ulmus parvifolia/pumila*	Chinese Elm	UPL
Urticaceae	*Urtica dioica*	common nettle	FAC

Appendix B. NRCS Soil Survey Report for the Study Area

United States Department of Agriculture

NRCS

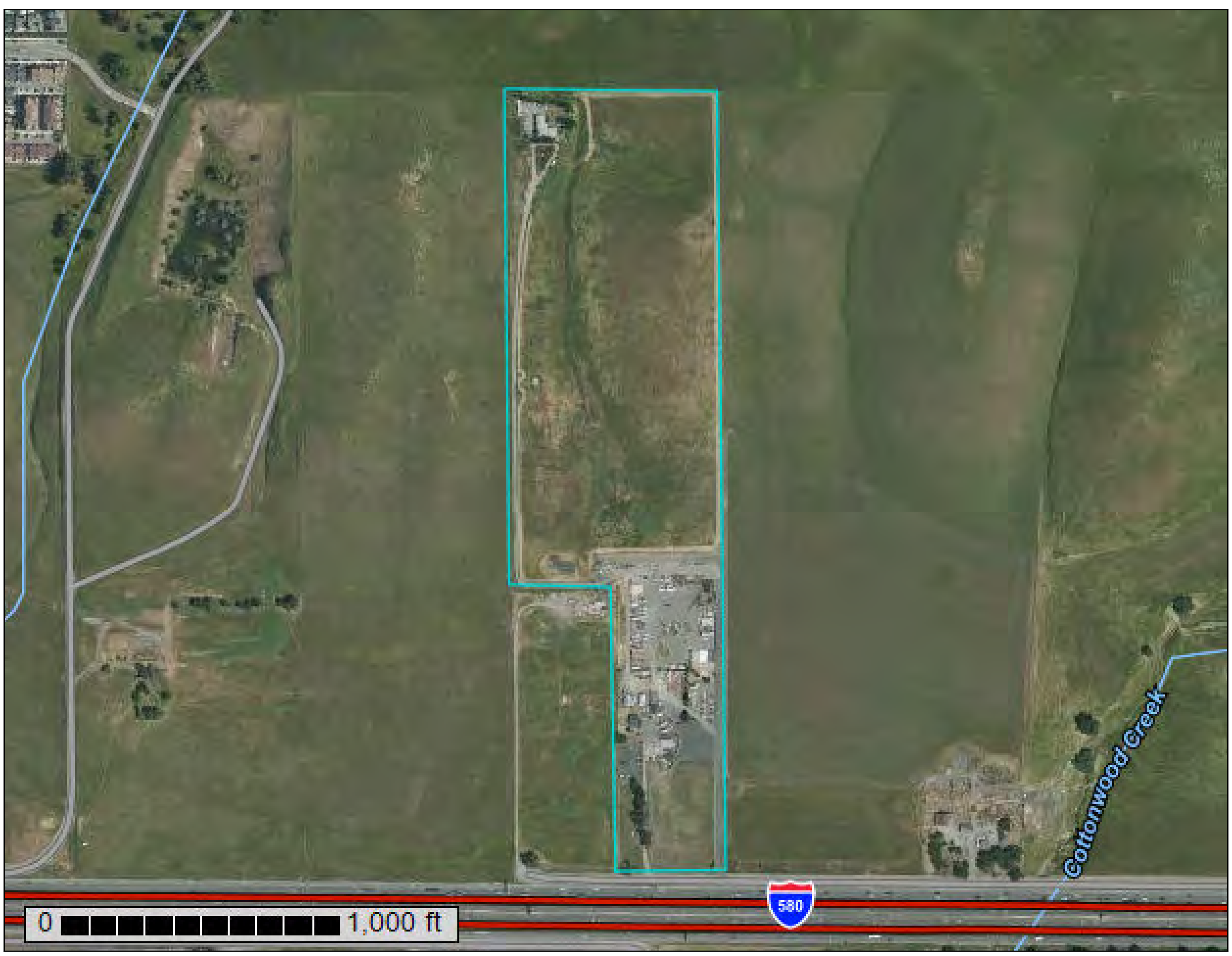
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Alameda Area, California

4423-01 Branaugh Property



April 30, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:5,010 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 200, 400, 800, 1200

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)

Soils
Soil Map Unit Polygons
Soil Map Unit Lines
Soil Map Unit Points

Special Point Features
Blowout
Borrow Pit
Clay Spot
Closed Depression
Gravel Pit
Gravelly Spot
Landfill
Lava Flow
Marsh or swamp
Mine or Quarry
Miscellaneous Water
Perennial Water
Rock Outcrop
Saline Spot
Sandy Spot
Severely Eroded Spot
Sinkhole
Slide or Slip
Sodic Spot
Spoil Area
Stony Spot
Very Stony Spot
Wet Spot
Other
Special Line Features

Water Features
Streams and Canals

Transportation
Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background
Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alameda Area, California
Survey Area Data: Version 13, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—May 10, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
DvC	Diablo clay, very deep, 3 to 15 percent slopes	6.8	16.7%
LaC	Linne clay loam, 3 to 15 percent slopes	2.9	7.1%
LaD	Linne clay loam, 15 to 30 percent slopes, MLRA 15	25.1	61.5%
RdA	Rincon clay loam, 0 to 3 percent slopes	0.2	0.6%
RdB	Rincon clay loam, 3 to 7 percent slopes	5.7	14.0%
Totals for Area of Interest		**40.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Alameda Area, California

DvC—Diablo clay, very deep, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: hb3b
Elevation: 300 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Diablo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Diablo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Alluvium derived from shale and siltstone

Typical profile

H1 - 0 to 15 inches: clay
H2 - 15 to 42 inches: silty clay
H3 - 42 to 60 inches: silty clay

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Altamont

Percent of map unit: 5 percent
Hydric soil rating: No

Linne

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

LaC—Linne clay loam, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: hb3l
Elevation: 700 to 1,700 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 240 to 260 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Linne and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Linne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex

Across-slope shape: Convex
Parent material: Residuum weathered from sandstone and shale

Typical profile
H1 - 0 to 36 inches: clay loam
H2 - 36 to 40 inches: weathered bedrock

Properties and qualities
Slope: 3 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Moderate (about 6.4 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Altamont
Percent of map unit: 5 percent
Hydric soil rating: No

Diablo
Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake
Percent of map unit: 3 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Pescadero
Percent of map unit: 2 percent
Landform: Basin floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

LaD—Linne clay loam, 15 to 30 percent slopes, MLRA 15

Map Unit Setting

National map unit symbol: 2w63l
Elevation: 110 to 1,560 feet
Mean annual precipitation: 13 to 22 inches
Mean annual air temperature: 59 to 61 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Linne and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Linne

Setting

Landform: Hillslopes, mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

Ap - 0 to 9 inches: clay loam
A1 - 9 to 14 inches: clay loam
A2 - 14 to 29 inches: clay loam
AC - 29 to 32 inches: sandy clay loam
Ck - 32 to 36 inches: fine sandy loam
Cr - 36 to 51 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 35 to 50 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Diablo

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: CLAYEY (R015XD001CA)
Hydric soil rating: No

Altamont

Percent of map unit: 4 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pescadero

Percent of map unit: 2 percent
Landform: Drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Convex, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Haploxerolls, landslides

Percent of map unit: 1 percent
Landform: Slumps, landslides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

RdA—Rincon clay loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hb4j
Elevation: 10 to 600 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Rincon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rincon

Setting

Landform: Fans, valley floors
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 52 inches: sandy clay
H3 - 52 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Clear lake

Percent of map unit: 5 percent
Hydric soil rating: No

San ysidro

Percent of map unit: 5 percent
Hydric soil rating: No

Pleasanton

Percent of map unit: 5 percent
Hydric soil rating: No

RdB—Rincon clay loam, 3 to 7 percent slopes

Map Unit Setting

National map unit symbol: hb4k
Elevation: 10 to 600 feet
Mean annual precipitation: 12 to 16 inches
Mean annual air temperature: 57 degrees F
Frost-free period: 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Rincon and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rincon

Setting

Landform: Fans, valley floors
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
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Parent material: Alluvium derived from sandstone and shale

Typical profile

H1 - 0 to 16 inches: clay loam
H2 - 16 to 52 inches: sandy clay
H3 - 52 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 3 to 7 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

San ysidro

Percent of map unit: 5 percent
Hydric soil rating: No

Pleasanton

Percent of map unit: 5 percent
Hydric soil rating: No

Clear lake

Percent of map unit: 5 percent
Hydric soil rating: No

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the following National Soil Survey Handbook link: “National Soil Survey Handbook.”

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   - A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   - B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   - C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   - A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   - B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1

Moderate: 13-30:1

Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0

Coarse sand: 1.0 to 0.5

Medium sand: 0.5 to 0.25

Fine sand: 0.25 to 0.10

Very fine sand: 0.10 to 0.05

Silt: 0.05 to 0.002

Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated
Prismatic: Vertically elongated and having flat tops
Columnar: Vertically elongated and having rounded tops
Angular blocky: Having faces that intersect at sharp angles (planes)
Subangular blocky: Having subrounded and planar faces (no sharp angles)
Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand
Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.

Appendix C. USACE Arid West Wetland Data Forms and OHWM Datasheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP1

Investigator(s): J. Pastick; B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flats Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.702264 Long: -121.834662 Datum: NAD 83

Soil Map Unit Name: Rincon clay loam, 3 to 7 percent slopes NWI classification NA

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

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

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

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

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

Remarks:

Point taken to investigate a very slight depression in the middle of an otherwise level corral in a largely distubed and developed portion of the study area. The roughly 300 square foot area is at the base of a ditch used to direct landscaping and agricultural run-off excavated in the southwest corner of the study area.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Erodium cicutarium*	9	X	UPL
2. *Malva parviflora*	1		UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		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 Text 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.

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

Remarks:

Ruderal vegetation

SOIL

Sampling Point: SP1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 2/1	97	5 YR 4/6	3	C	M	clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: None

Depth (inches): NA

Hydric Soil Present? Yes X No ___

Remarks:

Some hydrogen sulfide odor present. Algae on soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

X 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 Plowed Soils (C6)
X 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 X	No ___	Depth (inches): 1
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 4

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Some scattered ponding observed, however, this could have been from run-off from neraby roadside ditch and recent rain. Ground appears to be compacted.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020
Applicant/Owner: Randy Branaugh State: California Sampling Point: SP2
Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E
Landform (hillslope, terrace, etc.): Flats Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.702223 Long: -121.834654 Datum: NAD 83
Soil Map Unit Name: Rincon clay loam, 3 to 7 percent slopes NWI classification NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation ____ Soil ____ or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____ Soil ____ or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:
Point taken to examine areas in corral adjacent to SP1. Lower than average rainfall for this time of year.

VEGETATION

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: *5 ft x 5 ft*)			
1. *Erodium cicutarium*	85	X	UPL
2. *Hordeum murinum*	15		UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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 Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:
Ruderal annual-forb dominated vegetation.

SOIL

Sampling Point: SP2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 3/2	100				M	clay loam	Many fine roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present? Yes ______ No X Depth (inches): NA
Saturation Present? Yes ______ No X Depth (inches): NA
(includes capillary fringe)

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: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP3

Investigator(s): J.Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.703649 Long: -121.834692 Datum: NAD 83

Soil Map Unit Name: Diablo clay, very deep, 3 to 15 percent slopesto 7 percent slopes NWI classification PEM

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

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

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

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

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

Remarks:
Lower than average rainfall for this time of year. Point taken to investigate a depression south of the previously verified USACE determined seasonal wetland. Point taken in SW6.

VEGETATION

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: *5 ft x 5 ft*)			
1. *Helminthotheca echioides*	20	X	FAC
2. *Bromus diandrus*	2		UPL
3. *Hordeum murinum*	5	X	FACU
4. *Erigeron canadensis*	2		FACU
5.			
6.			
7.			
8.			
Total Cover:	26		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 66 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species	20	x 3 = 60
FACU species	7	x 4 = 28
UPL Species	2	x 5 = 10
Column totals	34 (A)	98 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

___ Dominance Text is >50%

X 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.

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

Remarks:
Seasonal wetland vegetation dominated by bristly ox-tongue.

SOIL

Sampling Point: SP3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/1	100					clay loam	rocky
5-20	10 YR 3/1	93	2.5 YR 3/6	7	C	M	clay loam	Photo @ 11:24 am

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: None

Depth (inches): NA

Hydric Soil Present? Yes X No ___

Remarks:

Hydroden sulfide odor present. Soil moist, some rocks on the top layer

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- X 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)
- X 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 Plowed 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 X No ___ Depth (inches): 1

Water Table Present? Yes X No ___ Depth (inches): 11 in

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Saturated soil; water present, contiguous with verified USACE wetlands to the north; water table present at 11 in; Algal mats on soil surface.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP4

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.703649 Long: -121.834657 Datum: NAD 83

Soil Map Unit Name: Diablo clay, very deep, 3 to 15 percent slopesto 7 percent slopes NWI classification NA

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

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

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

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

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

Remarks:

Paired upland point to SP3. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Helminthotheca echioides*	8		FAC
2. *Bromus diandrus*	25	X	UPL
3. *Lactuca serriola*	5		FACU
4. *Erigeron canadensis*	12	X	FACU
5.			
6.			
7.			
8.			
Total Cover:	50		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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 Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

Ruderal annual grassland vegetation.

SOIL

Sampling Point: SP4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 3/1	90					clay	Many fine roots
	10 YR 4/4	10						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present?	Yes ______	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ______	No X	Depth (inches): NA

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: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP5

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): flats Local Relief (concave, convex, none): Concave Slope (%): 0-1

Subregion (LRR): LRR-C Lat: 37.705005 Long: -121.835008 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

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

Remarks:

Point taken to investigate the area just north of the mapped culvert in the previously verified USACE map. Lower than average annual precipitation for this time of year.

VEGETATION

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: *5 ft x 5 ft*)			
1. *Avena fatua*	30	X	UPL
2. *Hordeum murinum*	25	X	FACU
3. *Brassica nigra*	10		UPL
4. *Bromus diandrus*	10		UPL
5. *Festuca perennis*	5		FAC
6. *Carduus pycnocephalus*	3		UPL
7. *Geranium molle*	2		UPL
8. *Lysmachia arvensis*	T		FAC
Total Cover:	85		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(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 Text 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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

Annual grassland vegetation.

SOIL

Sampling Point: SP5

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5 YR 4/1	100					sandy clay	Rocky, many fine roots
2-8	10 YR 4/1	70					sandy clay	
	10YR 5/4	30					clay	
8-18	10YR 4/1	95					clay	
	10YR 5/4	5						

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: None

Depth (inches): NA

Hydric Soil Present? Yes ___ No X

Remarks:

Lighter color soils in the matrix below two inches are likely from soil mixing and did not appear to be redox features.

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 Plowed Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?		X	NA
Water Table Present?		X	NA
Saturation Present? (includes capillary fringe)		X	NA

Wetland Hydrology Present? Yes ___ No X

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

Remarks:

Insufficient indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020
Applicant/Owner: Randy Branaugh State: California Sampling Point: SP6
Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E
Landform (hillslope, terrace, etc.): Flats Local Relief (concave, convex, none): None Slope (%): 0
Subregion (LRR): LRR-C Lat: 37.705914 Long: -121.835930 Datum: NAD 83
Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation ___ Soil ___ or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation ___ Soil ___ or Hydrology ___ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

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

Remarks:
Sample point take to investigate a slight depression next to the driveway. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Festuca perennis*	45	X	FAC
2. *Hordeum murinum*	15		FACU
3. *Bromus hordeaceaous*	15		FACU
4. *Avena fatua*	10		UPL
5. *Bromus diandrus*	5		UPL
6. *Brassica nigra*	5		UPL
7. *Erodium moschatum*	3		UPL
8. *Geranium molle*	2		UPL
Total Cover:	100		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	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:

X Dominance Text 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.

Hydrophytic Vegetation Present? Yes X No ___

Remarks:
The grassland vegetation in this location is dominated by Italian rye grass, which in this case is exhibiting the features of an upland grass. Other co-dominant species of grasses and forbs are upland species.

SOIL

Sampling Point: SP6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/1	100					clay loam	Many fine roots
5-18	10 YR 2/1	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present? Yes ______ No __X__ Depth (inches): NA
Saturation Present? (includes capillary fringe) Yes ______ No __X__ Depth (inches): NA

Wetland Hydrology Present? Yes ______ No __X__

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

Remarks:
Insufficient indicators. Area receives runoff from the driveway.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP7

Investigator(s): J.Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): flats Local Relief (concave, convex, none): None Slope (%): 0-1

Subregion (LRR): LRR-C Lat: 37.705990 Long: -121.835571 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

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

Remarks:
Sample point taken to investige uplands in this area. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Hordeum murinum*	55	X	FACU
2. *Bromus diandrus*	15		UPL
3. *Avena sp.*	10		UPL
4. *Festuca perennis*	10		FAC
5. *Erodium moschatum*	7		UPL
6. *Sisymbrium officinale*	3		UPL
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(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 Text 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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Annual grassland vegetation.

SOIL

Sampling Point: SP7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 3/3	100					clay loam	Many fine roots
2-18	10 YR 3/2	100					clay loam	Rocky soils

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present?	Yes ______	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ______	No X	Depth (inches): NA

Wetland Hydrology Present? Yes ______ No X

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

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP8

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flats Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.705978 Long: -121.835138 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

Remarks:

Placed in to investigate a slight depression in an area that was historically saturated and may have been a former stock pond. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Festuca perennis*	45	X	FAC
2. *Brassica nigra*	30	X	UPL
3. *Bromus diandrus*	10		UPL
4. *Hordeum murinum*	7		FACU
5. *Bromus hordeaceus*	5		UPL
6. *Carduus pycnocephalus*	5		FACU
7. *Cynosorus echinatus*	T		UPL
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	45	x 3 = 135
FACU species	12	x 4 = 48
UPL Species	45	x 5 = 225
Column totals	102 (A)	408 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

____ Dominance Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

Annual grassland vegetation dominated by italian rye grass and other annual grasses and forbs.

SOIL

Sampling Point: SP8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					sandy clay	Many fine roots
3-18	10 YR 5/4	30					sandy clay	
	10YR 4/1	70					sandy clay	Sand pockets

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Lighter color soils in the matrix below three inches are likely from soil mixing and did not appear to be redox features.

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 Plowed 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): NA
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): NA

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Sample point was taken in a location that appeared on historic aerials to have once been a stock pond. No current indicators of hydrology were observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP9

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): flats Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.706128 Long: -121.835051 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

Remarks:
Sample point taken to investigate uplands in the area. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Brassica nigra*	45	X	UPL
2. *Carduus pycnocephalus*	20	X	UPL
3. *Hordeum murinum*	20	X	FACU
4. *Bromus diandrus*	10		UPL
5. *Geranium dissectm*	5		UPL
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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 Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:
Annual grassland vegetation.

SOIL

Sampling Point: SP9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10 YR 3/2	100					sandy clay	Many fine roots
3-18	10 YR 5/4	30					sandy clay	
	10YR 4/1	70					sandy clay	Pockets of sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Lighter color soils in the matrix below three inches are likely from soil mixing and did not appear to be redox features.

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 Plowed 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): NA
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): NA

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP10

Investigator(s): J. Pastic, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flat Local Relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.706706 Long: -121.835220 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification PEM 1A

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

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

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

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

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

Remarks:
Sample point taken to characterize seasonal wetlands along the swale - Point taken inside SW5. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Juncus mexicanus*	40	X	FACW
2. *Plantago lancelota*	20	X	FAC
3. *Trifolium sp.*	15		FACU
4. *Festuca perennis*	15		FAC
5. *Bromus diandrus*	2		UPL
6. *Helminthotheca echioides*	2		FAC
7. *Medicago polymorpha*	2		FACU
8. *Hordeum murinum*	2		FACU
Total Cover:	100		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		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:

X Dominance Text 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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
Seasonal wetland vegetation dominated by Mexican rush.

SOIL

Sampling Point: SP10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10 YR 3/2	100					clay	
8-12	10 YR 5/4	97	2.5 YR 3/6	3	C	M	clay	
12-18	10YR 4/1	90	2.5 YR 3/6	10	C	M	clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: None

Depth (inches): NA

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Soil not saturated, but moist at 12 inches.

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**)
- X 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 Plowed 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)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): NA
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): NA

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Wetland vegetation occurs in a depression that is seasonally inundated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP11

Investigator(s): J. pastick, . Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flat Local Relief (concave, convex, none): None Slope (%): 1-2

Subregion (LRR): LRR-C Lat: 37.706712 Long: -121.835125 Datum: NAD 83

Soil Map Unit Name: Diablo clay, very deep, 3 to 15 percent slopesto 7 percent slopes NWI classification NA

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

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

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

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

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

Remarks:

Paired upland point to SP10. Lower than average annual precipitation for this time of year.

VEGETATION

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: *5 ft x 5 ft*)			
1. *Bromus diandrus*	35	X	UPL
2. *Festuca perennis*	25	X	FAC
3. *Geranium mollis*	10		UPL
4. *Brassica nigra*	5		UPL
5. *Hordeum murinum*	5		FACU
6.			FACU
7.			
8.			
Total Cover:	80		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL Species	50	x 5 =	250
Column totals	100	(A)	345 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ Dominance Text 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.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

Annual grassland vegetation.

SOIL

Sampling Point: SP11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5 YR 3/2	100					clay	many fine roots
5-18	10 YR 4/1	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

Hydric Soil Present? Yes ____ No X

Remarks:

Soil is dry in the upper 18 inches.

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 Plowed 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): NA
Water Table Present?	Yes ____	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): NA

Wetland Hydrology Present? Yes ____ No X

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

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Drier conditons than normal for this time of year. (Lower than average rain fall). City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP12

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flat Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.708634 Long: -121.835238 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification PEM1A

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

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

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

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

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

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

Remarks:
Sample point taken in seasonal wetland, SW1. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Juncus mexicanus*	35	X	FACW
2. *Festuca perennis*	25	X	FAC
3. *Geranium molle*	15		UPL
4. *Helminthotheca echioides*	10		FAC
5. *Medicago polymorpha*	5		FACU
6. *Bromus diandrus*	3		UPL
7. *Hordeum murinum*	3		UPL
8. *Avena fatua*	2		UPL
Total Cover:	98		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		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:

X Dominance Text 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.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
Seasonal wetland vegetation dominated by Mexican rush and Italian rye grass.

SOIL

Sampling Point: SP12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 2/1	100					clay	roots to 5 in; patches of small rocks and sand
5-20	10 YR 2/1	95	2.5 YR 3/6	5	C	M	clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (If present):

Type: None

Depth (inches): NA

Hydric Soil Present? Yes X No ___

Remarks:

Distinct redox concentrations below the top five inches.

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)
- X 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 Plowed 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): NA
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): NA

Wetland Hydrology Present? Yes X No ___

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

Remarks:

Inundation visible on aerial - wetland feature is situated in a depression along the ephemeral stream that is seasonally inundated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 10, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP13

Investigator(s): Jillian Pastick Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 5

Subregion (LRR): LRR-C Lat: 37.708640 Long: -121.835297 Datum: NAD 83

Soil Map Unit Name: Diablo clay, very deep, 3 to 15 percent slopesto 7 percent slopes NWI classification NA

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

Are Vegetation ____ Soil ____ 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:
Upland paired point to SP12. Lower than average annual precipitation for this time of year.

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Brassica nigra*	35	X	UPL
2. *Bromus diandrus*	25	X	UPL
3. *Festuca perennis*	10		FAC
4. *Hordeum murinum*	10		FACU
5. *Geranium molle*	10		UPL
6. *Helminthotheca echioides*	5		FAC
7. *Avena fatua*	5		UPL
8. *Lactuca serriola*	3		FACU
Total Cover:	103		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(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 Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:
Annual grassland vegetation.

SOIL

Sampling Point: SP13

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]		
0-3	10 YR 4/1	100					clay	pockets of sand
3-10	10 YR 4/1	60						
	2.5 Y 5/4	40						
10-18	10 YR 4/1	80						
	2.5 Y 5/4	20						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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

Remarks:

Lighter color soils in the matrix below three inches are likely from soil mixing and did not appear to be redox features.

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 Plowed 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): NA
Water Table Present? Yes ______ No X Depth (inches): NA
Saturation Present? Yes ______ No X Depth (inches): NA
(includes capillary fringe)

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

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

Remarks:

Upland landscape position.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP14

Investigator(s): J. Pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope (%): 18

Subregion (LRR): LRR-C Lat: 37.709194 Long: -121.835273 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

Remarks:

Sample point take to investigate a slight depression at the northernmost point of ephemeral stream (ES1). Lower than average annual precipitation for this time of year..

VEGETATION

	Absolute Cover %	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum (Plot size: *5 ft x 5 ft*)			
1. *Avena fatua*	60	X	UPL
2. *Vicia sativa*	18		FACU
3. *Carduus pycnocephalus*	8		UPL
4. *Brassica nigra*	5		UPL
5. *Festuca perennis*	5		FAC
6. *Trifolium sp.*	2		OBL-UPL
7. *Erodium sp.*	3		UPL
8. *Gilia tricolor*	T		UPL
Total Cover:	101		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
Total Cover:			

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0%	(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 Text 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.

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

Remarks:

Annual grassland vegetation.

SOIL

Sampling Point: SP14

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10 YR 4/1	100					clay	many fine roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present? Yes ___ No X Depth (inches): NA
Saturation Present? Yes ___ No X Depth (inches): NA
(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

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

Remarks:
No indicators of hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: Branaugh Property Wetland Delineation City/County: Dublin/ Alameda Sampling Date: April 9, 2020

Applicant/Owner: Randy Branaugh State: California Sampling Point: SP15

Investigator(s): J. pastick, B. Comito Section/Township/Range: T3S R1E

Landform (hillslope, terrace, etc.): Flat Local Relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): LRR-C Lat: 37.709145 Long: -121.834662 Datum: NAD 83

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes, MLRA 15 NWI classification NA

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

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

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

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

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

Remarks:
Placed to investigate uplands in the northern portion of the study area. Lower than average annual precipitation for this time of year.

VEGETATION

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: *5 ft x 5 ft*)			
1. *Bromus diandrus*	25	X	UPL
2. *Hordeum murinum*	20	X	FACU
3. *Carduus pycnocephalus*	12		UPL
4. *Vicia sativa*	10		FACU
5. *Geranium molle*	10		UPL
6. *Helminthotheca echioides*	8		FAC
7. *Medicago polymorpha*	8		FACU
8. *Festuca perennis*	8		FAC
Total Cover:	98		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 2 % Cover of Biotic Crust 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (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 Text 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.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:
Annual grassland vegetation.

SOIL

Sampling Point: SP15

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 3/1	100					clay	Many fine roots in the top 5 in

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining, RC=Root Channel, 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: None

Depth (inches): NA

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 Plowed 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): NA
Water Table Present?	Yes ___	No X	Depth (inches): NA
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): NA

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Upland landscape position.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Branaugh Property	**Date:** 4/10/20	**Time:** 12:50 PM
Project Number: 4423-01	**Town:** Livermore	**State:** California
Stream: Nearby Stream-Cottonwood Creek-NWI PEM1A	**Photo begin file#:**	**Photo end file#:**
Investigator(s): J. Pastick; B.Comito		

Y ☐ / N ☒ Do normal circumstances exist on the site?	**Location Details:** Base of a hillslope in northern portion of property.
Y ☐ / N ☒ Is the site significantly disturbed?	**Projection:** **Datum:** NAD 83 **Coordinates:** 37°42'31.99"N, 121°50'6.80"W

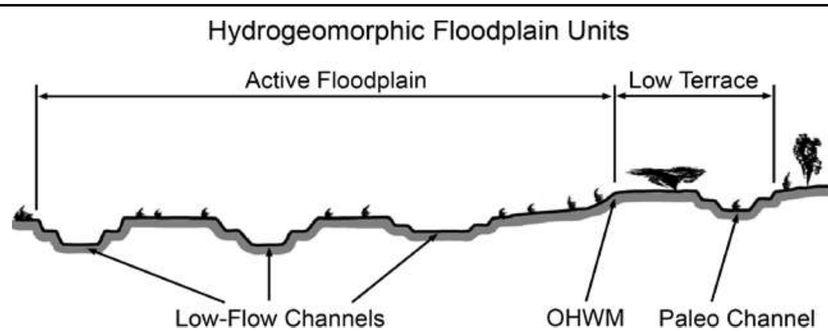
Potential anthropogenic influences on the channel system:
Potentially grazed; previous agricultural impact; close proximity to home and road.

Brief site description:
Annual grassland. Shallow swale, lacking incision, at the base of two hillslopes.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1993-2018
- ☒ Topographic maps
- ☒ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

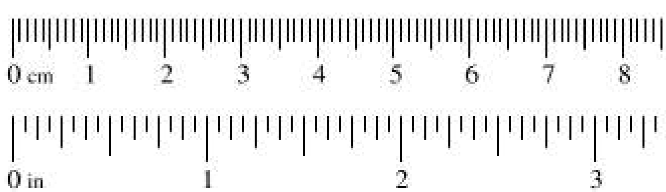


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

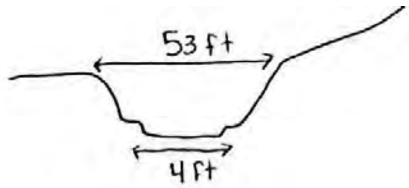
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
			Boulder	Gravel
	10.08	256		
			Cobble	
	2.56	64		
			Pebble	
	0.157	4		
			Granule	
	0.079	2.00		
			Very coarse sand	Sand
	0.039	1.00		
			Coarse sand	
	0.020	0.50		
			Medium sand	
1/2	0.0098	0.25		
			Fine sand	
1/4	0.005	0.125		
			Very fine sand	
1/8	0.0025	0.0625		
			Coarse silt	Silt
1/16	0.0012	0.031		
			Medium silt	
1/32	0.00061	0.0156		
			Fine silt	
1/64	0.00031	0.0078		
			Very fine silt	
1/128	0.00015	0.0039		
			Clay	Mud



Project ID: 4423-01 **Cross section ID:** OHWM 1 **Date:** 4/10/20 **Time:** 12:50 PM

Cross section drawing:



OHWM

GPS point: 37°42'31.99"N, 121°50'6.80"W

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [ ] Break in bank slope
- [x] Other: Minor/inconsistent inciscions
- [ ] Other:____________________

Comments:

The swale has no connection to nearby streams. Minor incision was observed. No flows were observed in the swale.

Floodplain unit: [x] Low-Flow Channel [ ] Active Floodplain [ ] Low Terrace

GPS point: ____________________

Characteristics of the floodplain unit:

Average sediment texture: Clay

Total veg cover: 90 Tree: ___% Shrub: ___% Herb: ___%

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [ ] Soil development
- [ ] Surface relief
- [ ] Other: ____________________
- [ ] Other: ____________________
- [ ] Other: ____________________

Comments: Populus trees at the top of the hillslope to west adjacent, to the house (likely landscaped). Very little bare ground. Species mostly FAC and FACW: bristly ox-tongue, *Medicago polymorpha.* Upland species are less common, but are present throughout the area and include common vetch, wild oats, and black mustard.

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Branaugh Property	**Date:** 4/10/20	**Time:** 1:04 PM
Project Number: 4423-01	**Town:** Livermore	**State:** California
Stream: Nearby Stream-Cottonwood Creek-NWI PEM1A	**Photo begin file#:**	**Photo end file#:**
Investigator(s): J. Pastick; B.Comito		

Y ☐ / N ☒ Do normal circumstances exist on the site?	**Location Details:** Base of a hillslope in northern portion of property.
Y ☐ / N ☒ Is the site significantly disturbed?	**Projection:** **Datum:** NAD 83 **Coordinates:** 37°42'28.69"N, 121°50'7.43"W

Potential anthropogenic influences on the channel system:
Drier than normal conditions. Potentially grazed; previous agricultural impact; close proximity to home and road.

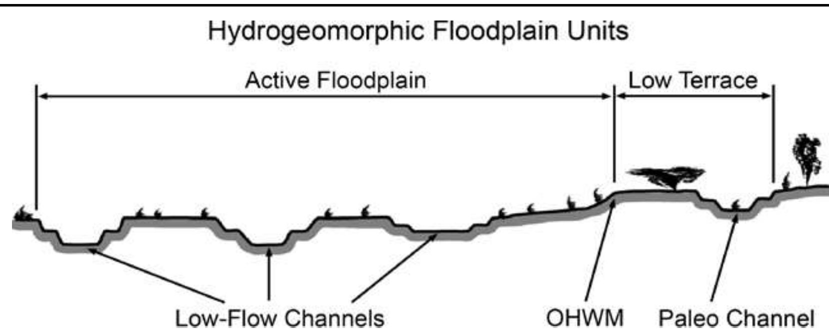
Brief site description:
Primarily annual grassland. Shallow swale, lacking incision, at the base of two hillslopes.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 1993-2018
- ☒ Topographic maps
- ☒ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☒ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Historical aerials available.

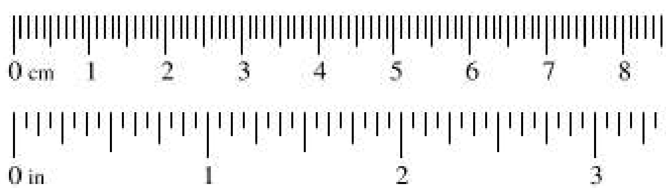


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ☒ GPS
   - ☐ Digitized on computer
   - ☐ Other:

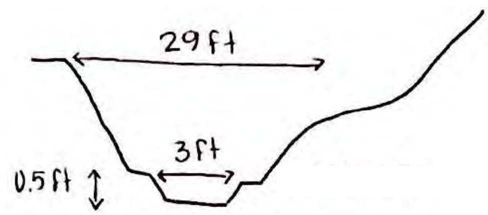
Wentworth Size Classes

Inches (in)		Millimeters (mm)	Wentworth size class	
			Boulder	Gravel
	10.08	256		
			Cobble	
	2.56	64		
			Pebble	
	0.157	4		
			Granule	
	0.079	2.00		
			Very coarse sand	Sand
	0.039	1.00		
			Coarse sand	
	0.020	0.50		
			Medium sand	
1/2	0.0098	0.25		
			Fine sand	
1/4	0.005	0.125		
			Very fine sand	
1/8	0.0025	0.0625		
			Coarse silt	Silt
1/16	0.0012	0.031		
			Medium silt	
1/32	0.00061	0.0156		
			Fine silt	
1/64	0.00031	0.0078		
			Very fine silt	
1/128	0.00015	0.0039		
			Clay	Mud



Project ID: 4423-01 **Cross section ID:** OHWM 1 **Date:** 4/10/20 **Time:** 12:50 PM

Cross section drawing:



OHWM

GPS point: 37°42'31.99"N, 121°50'6.80"W

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other:
- ☐ Other: ____________

Comments:

The swale has no connection to nearby streams. Minor incision was observed. No flows were observed in the swale. Subtle soil cracks available throughout base of swale. Highly vegetated, with little bare soil.

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: ____________

Characteristics of the floodplain unit:

Average sediment texture: Clay ________

Total veg cover 100% Tree: ___% Shrub: ___% Herb: ___%

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: ____________
- ☐ Other: ____________
- ☐ Other: ____________

Comments: Subtle soil cracks apparent througout this area. Species mostly FAC and FACW: *Festuca perennis*, *Juncus mexicanus*, bristly ox-tongue, *Medicago polymorpha.* Upland species are less common, but are present throughout the area and include ripgut brome, *Hordeum murinum,* and Black mustard.

Appendix D. Photos of the Study Area

Photo 1. Sample point SP-1. Point taken to investigate an area of recent inundation in low spot in a corral. Location was determined not to be a three parameter wetland, and was likely receiving runoff from a nearby roadside ditch. Photo direction = east.

Photo 2. Upland point (SP-2) Point taken on slight higher ground in corral adjacent to SP-1. Photo direction = east.

Photo 3. Sample point SP-3. Location determined to be a seasonal wetland, connecting to a previously mapped seasonal wetland, SW04-2018 (USACE 2019). Photo direction = south.

Photo 4. Paired upland point (SP-4) to wetland sample point SP-3. Photo direction = southeast.

Photo 5. Sample point SP-5, located at the north end of a previously mapped culvert. This area was determined not to be a wetland. Photo direction = southeast.

Photo 6. Wetland sample point SP-6. This location was determined to not be a three parameter wetland. Photo direction = east.

Photo 7. Sample point SP-7, taken to investigate uplands. Photo direction = west.

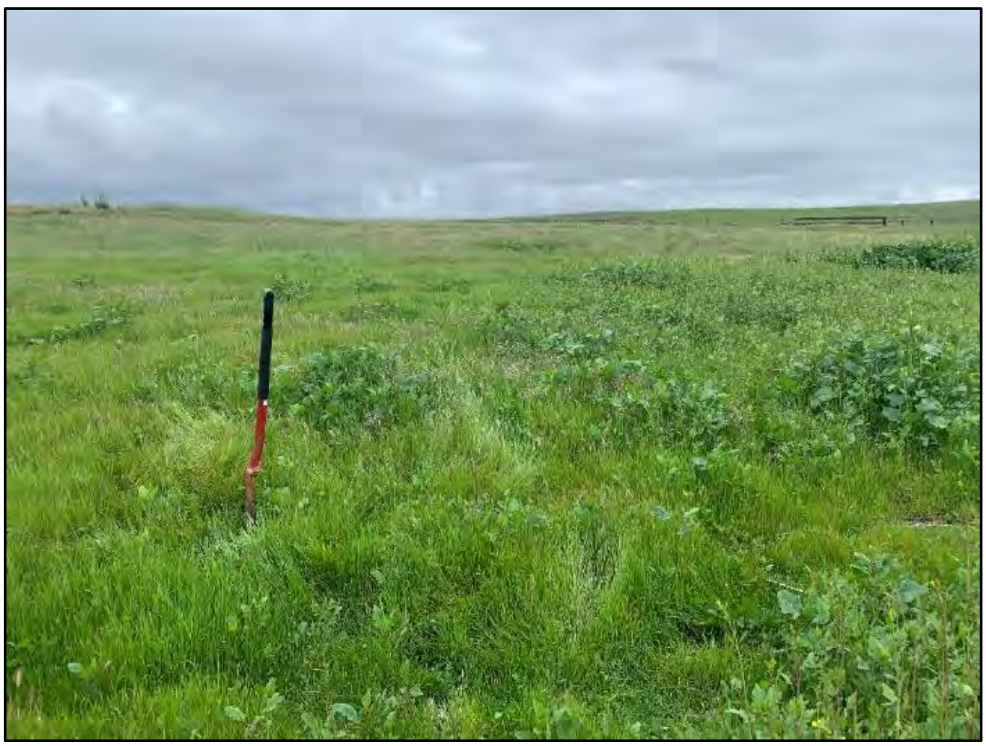


Photo 8. Sample point SP-8, taken to investigate uplands. Location determined not to be a three parameter wetland. Photo direction = southwest.

Photo 9. Sample point, SP-9, taken to investigate uplands. Photo direction = southwest.

Photo 10. Wetland sample point SP-10. Location determined to be a three parameter seasonal wetland. Photo direction = west.

Photo 11. Paired upland point (SP-11) to wetland sample point SP-10. Photo direction = southwest.

Photo 12. Wetland sample point SP-12. Location determined to be a seasonal wetland. Photo direction = south.


Photo 13. Paired upland point (SP-13) to SP12. Photo direction = southeast.


Photo 14. Paired upland point (SP-14) to sample point SP-15. Photo direction = west.

Photo 15. Photo of sample point location SP-15. This location was located adjacent to the ephemeral stream, and was determined not to be a wetland. Photo direction = west.

Photo 16. Location of OHWM-1, taken in the northern portion of the study area. Photo direction = north.

Photo 17. Location of OHWM-2 transect. Photo direction = south.

Photo 18. Representative photo of California annual grassland habitat found throughout the majority of the study area. Photo direction = east.

Photo 19. Representative photo of the developed habitat, located primarily in the southern portion of the study area. Photo direction = north.

Appendix E. Aquatic Resources Table

Waters Name	Cowardin Code	HGM Code	Measurement Type	Amount	Units	Waters Type	Latitude	Longitude	Local Waterway
SW1	PEM	Depress	Area	0.004	ACRE	NRPWW	37.708646	-121.835232	Cottonwood Creek
SW2	PEM	Depress	Area	0.006	ACRE	NRPWW	37.708315	-121.835329	Cottonwood Creek
SW3	PEM	Depress	Area	0.050	ACRE	NRPWW	37.707865	-121.835384	Cottonwood Creek
SW4	PEM	Depress	Area	0.006	ACRE	NRPWW	37.707235	-121.835377	Cottonwood Creek
SW5	PEM	Depress	Area	0.014	ACRE	NRPWW	37.706719	-121.835243	Cottonwood Creek
SW6	PEM	Depress	Area	0.081	ACRE	NRPWW	37.703756	-121.834689	Cottonwood Creek

Appendix F. Signed statement from the property owner(s) allowing USACE personnel to enter the property

I, Randall Branaugh, will allow Corps personnel to enter my property (APN 905-1-4-4) in the City of Dublin, Alameda County, California to collect samples during normal business hours. The property is not land-locked, therefore permission from the adjacent property owner(s) in order to provide access is not necessary.

Thank you,

Randall Branaugh
Bex Development
19077 Madison Avenue
Castro Valley, CA 94546
510.881.1828
rlbranaughex@gmail.com

Appendix D

Branaugh and Righetti Property Development – Listed Species Impacts, Mitigation, and Take Approval Summary

H. T. HARVEY & ASSOCIATES

Ecological Consultants

50 years of field notes, exploration, and excellence

Memorandum

December 8, 2021 **Projects #2480-03 and 4423-01**

To: **Randy Branaugh / Milton and Matthew Righetti**

From: **Steve Rottenborn and Jeff Wilkinson, H. T. Harvey & Associates**

Subject: **Branaugh and Righetti Property Development – Listed Species Impacts, Mitigation, and Take Approval Summary**

The purpose of this memo is to provide the Branaughs and Righettis (hereafter "Landowners") with the acreages of impacts to habitat of the California red-legged frog (*Rana draytonii*) and California tiger salamander (*Ambystoma californiense*) (listed species) that will result from development of various portions of their properties by Trumark development, the Dublin Boulevard Extension (DBE) project, and their own projects; describe how mitigation will be provided for the areas being affected by each of these projects; and describe how incidental take approval from the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (collectively, the "agencies) will be obtained for the lands impacted by these various projects.

In addition to development by the Landowners, the Branaugh and Righetti properties will be impacted by two other projects. Trumark is developing land north of the Branaugh and Righetti properties and will be grading onto both properties, as indicated in Figure 1. Trumark will obtain incidental take approval from the agencies for their impacts on listed species, and will provide mitigation for their impacts on the Branaugh and Righetti properties as though their activities result in permanent impacts to listed species habitat. The City of Dublin is planning the DBE project, which will bisect both properties. The City has received a Biological Opinion (BO) from the USFWS for the DBE project (USFWS 2020) and will be obtaining an Incidental Take Permit from the CDFW for impacts to California tiger salamanders. The DBE project will result in three types of impacts on listed species:

- Direct, permanent impacts consist of the permanent conversion of the current natural habitats (e.g., grassland and wetlands) to development (e.g., road and associated shoulders and other infrastructure, including the permanent City right-of-way).
- Direct, temporary impacts consist of construction-related impacts, such as grading and staging within the City's construction right-of-way, for the DBE project that will be restored to natural habitats after completion of the project.

- Indirect, permanent impacts consist of impacts due to the isolation of natural habitats after completion of the DBE project so that listed species will not be able to freely disperse between these habitats and other occupied habitats in the region.

We expect mitigation from all the projects considered here (Trumark, DBE, and the individual Landowners' development projects) to be required in accordance with ratios established by the East Alameda County Conservation Strategy (EACCS; ICF International 2010) and the Programmatic BO for the EACCS (USFWS 2012). Those ratios vary between the two listed species considered here; based on the location of the impact vs. mitigation areas; and based on whether impacts and/or mitigation occurs in critical habitat (impacts on the northern portions of both the Branaugh and Righetti properties will affect California red-legged frog critical habitat). Because the location(s) of the mitigation area(s) for these various projects are not yet known with certainty, the mitigation ratios have not yet been established. However, the mitigation options that the City of Dublin is investigating for the DBE (and that are likely to be available to the Landowners) are located in areas where the average mitigation ratio will be approximately 3:1 (mitigation:impact) for permanent impacts and 1:1 for direct, temporary impacts.

In order to better describe these impacts and required mitigation, we have illustrated six zones of impacts on the properties that vary with respect to which project will impact them, whether those impacts are temporary vs. permanent, and whether impacts are direct vs. indirect (Figure 1). Ultimately, we understand that the entirety of both parcels will be permanently impacted with respect to listed species[1]. We have also provided a table for each property listing the amount (in acres) of impacts and required mitigation, and the parties deemed responsible for providing this mitigation for each zone of impact in Figure 1 (Tables 1 and 2). These zones of impacts and required mitigation are described below.

Table 1. Branaugh Property Impacts and Mitigation

Zone	Impacts (ac)	Required Mitigation for Permanent Impacts (ac)[1]	Mitigation to be Provided by Others (ac)	Remaining or Reimbursement Mitigation to be Provided by Branaugh (ac)
1	1.32	3.96	3.96[2]	0.00
2	26.48	79.44	0.00	79.44
3	1.85	5.55	1.85[3]	3.70
4	0.44	1.32	1.32[4]	0.00
5	0.06	0.18	0.18[5]	0.12[5]
6	1.22	3.66	3.66[6]	3.66[6]
Total	31.37	94.11	17.08	86.92

[1] Assumes a mitigation ratio of 3:1, though the ultimately required ratios may vary depending on the mitigation site location

[2] Mitigation provided by Trumark (3:1)

[3] Partial mitigation (1:1) provided by City of Dublin for direct, temporary impacts during DBE construction

[4] Mitigation provided entirely by City of Dublin for direct, permanent impacts from DBE (3:1)

[5] Partial mitigation (1:1) provided by City of Dublin for direct, temporary impacts during DBE construction; additional mitigation (2:1) provided by City of Dublin for indirect, permanent impacts from DBE to be reimbursed by Branaugh

[6] Mitigation provided by City of Dublin for indirect, permanent impacts from DBE (3:1) to be reimbursed by Branaugh

[1] Some of the wetland areas at the southern edge of the Righetti property are unlikely to be impacted directly, but because development will separate these wetlands from source populations of listed species, the USFWS and CDFW are expected to consider these areas "lost" to listed species and therefore permanently impacted.

Table 2. Righetti Property Impacts and Mitigation

Zone	Impacts (ac)	Required Mitigation for Permanent Impacts (ac)[1]	Mitigation to be Provided by Others (ac)	Remaining or Reimbursement Mitigation to be Provided by Righetti (ac)
1	1.26	3.78	3.78[2]	0.00
2	26.38	79.14	0.00	79.14
3	2.30	6.90	2.30[3]	4.60
4	2.04	6.12	6.12[4]	0.00
5	1.83	5.49	5.49[5]	3.66[5]
6	15.56	46.68	46.68[6]	46.68[6]
Total	49.37	148.11	64.37	134.08

[1] Assumes a mitigation ratio of 3:1, though the ultimately required ratios may vary depending on the mitigation site location

[2] Mitigation provided by Trumark (3:1)

[3] Partial mitigation (1:1) provided by City of Dublin for direct, temporary impacts during DBE construction

[4] Mitigation provided entirely by City of Dublin for direct, permanent impacts from DBE (3:1)

[5] Partial mitigation (1:1) provided by City of Dublin for direct, temporary impacts during DBE construction; additional mitigation (2:1) provided by City of Dublin for indirect, permanent impacts from DBE to be reimbursed by Righetti

[6] Mitigation provided by City of Dublin for indirect, permanent impacts from DBE (3:1) to be reimbursed by Righetti

Zone 1 consists of upland habitat in the northern portions of the properties that will be graded by Trumark. Trumark is currently obtaining take approval from the agencies for impacts on the listed species and will be providing the mitigation acreages for these impacts. We are assuming that Trumark will be required to provide mitigation for direct, permanent impacts on listed species at a ratio of 3:1 for the acreage that they will grade. If there is lag time between Trumark's impacts and any impacts by development of the Landowners' properties, habitat conditions could improve in Trumark's impact areas (e.g., restoration of grassland and return of mammals that create burrows for frogs and salamanders), and it is possible that the Landowners will be required to obtain USFWS and CDFW take approval for their eventual impacts to these areas. However, it is our opinion that the agencies should not require additional compensatory mitigation when the Landowners impact those areas.

Zone 2 consists of upland habitat on the properties between Zone 1 (the areas to be graded by Trumark in the north) and the areas of direct, temporary impacts from the DBE. Any impacts on listed species from proposed development in areas of Zone 2 will require the Landowners to obtain take approval from the agencies, and provide the required mitigation for these impacts (assumed to be at a ratio of approximately 3:1 for permanent impacts), per the EACCS.

Zone 3 consists of habitat north of the DBE that will undergo direct, temporary impacts from the DBE project. Therefore, the City will provide mitigation acreage at a 1:1 ratio (assuming those impacts occur prior to impacts by the Landowners's development activities). When these Zone 3 lands are subsequently impacted by the Landowners' development projects, we expect that the Landowners will need to provide additional mitigation at a ratio of approximately 2:1 (to achieve the total 3:1 ratio required for permanent impacts). If there is lag time between DBE's temporary impacts and subsequent development of the Landowners' properties, the City would restore natural habitat in Zone 3, and habitat conditions could improve (e.g., restoration of grassland and return of mammals that create burrows for frogs and salamanders). In that case, it is possible that the Landowners will be required to obtain USFWS and CDFW take approval for their eventual impacts to these areas. However, it is our opinion that the agencies should not require compensatory mitigation at a total ratio (including mitigation provided by both the City and Landowners combined) of more than approximately 3:1. If the Landowners' development activities disturb Zone 3 before this area is disturbed by the DBE, then the Landowners may be responsible for all mitigation (at the full 3:1 ratio).

Zone 4 consists of natural habitat (excluding developed areas, which are not listed species habitat) on the properties that will undergo direct, permanent impacts on the listed species from the DBE project (i.e., will become the road, shoulders, and associated infrastructure). The City has obtained take approval of listed species from the USFWS and is in the process of obtaining take approval of listed species from the CDFW and will provide mitigation acreages for these direct, permanent impacts at a ratio of approximately 3:1 per the EACCS.

Zone 5 consists of natural habitat (excluding developed areas) on the properties south of the DBE that will undergo direct, temporary impacts from the DBE project. In addition, the DBE will isolate these areas from breeding habitat for listed species north of the DBE, thus resulting in indirect, permanent impacts on the listed species through the effective loss of habitat. The City will provide mitigation at a ratio of approximately 3:1, as though Zone 5 is permanently impacted by the DBE project. Of this mitigation, we expect that the City will take responsibility for mitigation at a 1:1 ratio for the DBE project's direct, temporary impacts (assuming those impacts occur prior to impacts by the Landowners's development activities) and will require the Landowners to reimburse the City for the additional 2:1 mitigation when they develop Zone 5. If the Landowners' development activities disturb Zone 5 before this area is disturbed by the DBE, then we expect the Landowners to be responsible for all mitigation (at the full 3:1 ratio).

Zone 6 consists of natural habitat (excluding developed areas) on the properties south of the DBE project that will not undergo any direct impacts from DBE construction (i.e., will not be graded or used for staging during the DBE project, and will thus remain natural habitat). However, because the DBE will isolate these areas from breeding habitat north of the DBE, the City and agencies are considering Zone 6 to undergo indirect, permanent impacts from the DBE project. Therefore, the City will provide mitigation at a ratio of approximately 3:1 for these impacts and will require the Landowners to reimburse the City for all of that mitigation when they develop Zone 6.

Each of the Landowners will be required to obtain incidental take approval for listed species prior to development of their properties. At a minimum, the Landowners would need incidental take approval for development of Zone 2. However, the agencies may require take approval for any areas that have any habitat value (i.e., natural or restored grassland habitat, or any areas with small mammal burrows) at the time when a Landowner's development impacts that habitat. Depending on the lag between Trumark and DBE construction and construction by the Landowners, it is possible that the Landowners may need to obtain incidental take approval for all zones except Zone 4. However, we will work with the Landowners to try to obtain USFWS and CDFW concurrence that mitigation is not needed twice for the same area, so that the total mitigation provided by all parties for any particular area does not exceed 3:1.

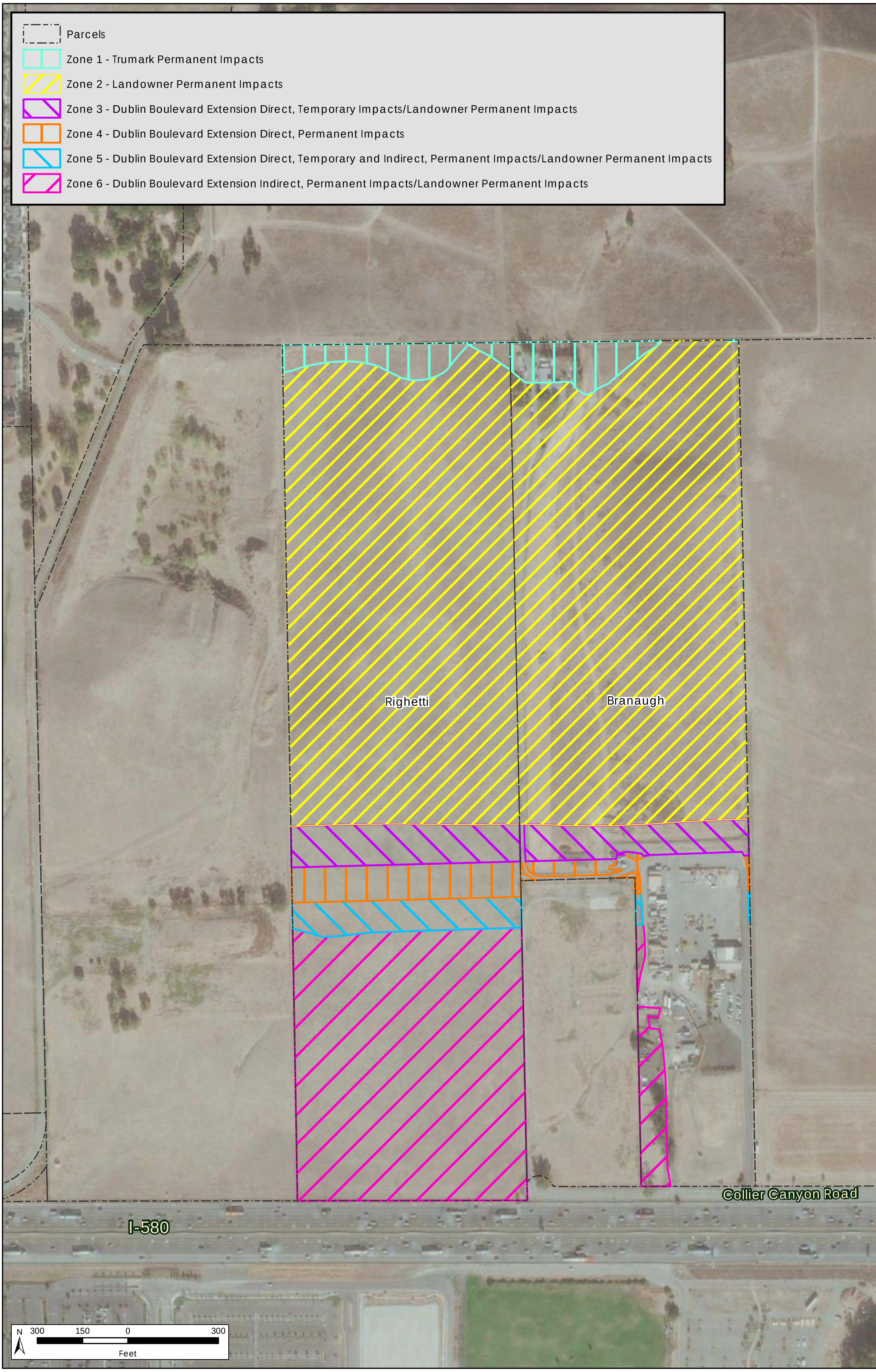
We recommend that the Landowners consult with the City, USFWS, and CDFW in a joint meeting to obtain concurrence regarding how the Landowners will be required to seek incidental take approval on the listed species for a project (i.e., in which zones) and what the required mitigation for the Landowners' approval will ultimately be, with the intent of avoiding any over-mitigation (i.e., greater than a 3:1 ratio in total, in any given area.

References

ICF International. 2010. EACCS East Alameda County Conservation Strategy. October 2010.

[USFWS]. U.S. Fish and Wildlife Service. 2012. Programmatic Biological Opinion for U.S. Army Corps of Engineers (Corps) Permitted Projects Utilizing the East Alameda County Conservation Strategy that May Affect Federally Listed Species in East Alameda County, California. 08ESMFOO-2012-F-0092-1, May 31, 2021.

[USFWS]. U.S. Fish and Wildlife Service. 2020. Formal Consultation on Dublin Boulevard-North Canyons Parkway Extension Project in Alameda County, California. 08ESMF00-2020-F-1476, December 18, 2020.



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H. T. HARVEY & ASSOCIATES
Ecological Consultants

Figure 1. California Red-legged Frog and California Tiger Salamander Habitat Impacts on the Branaugh and Righetti Properties
(2480-01/4423-01)
December 2021

Appendix E
Cultural Resources Study

LSA

CARLSBAD
CLOVIS
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

February 7, 2022

Amy Million
Principal Planner
City of Dublin
100 Civic Plaza
Dublin, CA 94568

Subject: Cultural Resource Study for the Branaugh Property Stage 2 Planned Development Project, Dublin, Alameda County, California (LSA Project No. DUB2101.02, Phase 2)

Dear Ms. Million:

LSA prepared this study to meet the requirements of the California Environmental Quality Act (CEQA) and implementing regulations (California Code of Regulations, Title 14, Section 15000 et seq.). The purpose of the study was to: (1) identify cultural resources that may meet the CEQA definition of a historical resource (California Public Resources Code [PRC] §21084.1) or unique archaeological resource (PRC §21083.2), and that may be impacted by the proposed project; (2) identify human remains, including those interred outside of formal cemeteries; and (3) recommend mitigation, additional study, or consultation outreach that may be required to address potential impacts to such resources and/or remains.

LSA Archaeologist/Cultural Resources Analyst Kendra Kolar, M.A., conducted the background research and prepared this technical report. LSA Archaeologist Lennon Fanning conducted the field survey. The methods and results of these tasks are described in this report, and recommendations are provided based on the findings.

PROJECT DESCRIPTION AND LOCATION

The proposed project site is located in Section 2 of Township 3 South, Range 1 East, Mount Diablo Base Line Meridian, as depicted on the United States Geological Survey (USGS) *Livermore, Calif*. 7.5-minute topographic quadrangle (Attachment A: Figure 1). The project site sits east of Croak Road and north of Interstate 580 on the eastern edge of Dublin, adjacent to unincorporated Alameda County. The approximately 40.2-acre parcel (Assessor's Parcel Number [APN] 905-01-004-04) consists primarily of undeveloped grazing ranchland and open space, but it also includes two areas of rural residential development (Attachment A: Figure 2). Existing structures include a circa 1958 barn and shed, two mid-20th century single-family homes, and several modern sheds all comprising a farm complex in the southern portion of the project site. A third house, built in the 1980s, sits in the northwest corner of the project site.

The proposed project would involve demolishing all existing structures and subdividing the project site into four parcels to accommodate new residential and industrial development. A total of 78 residential units would be constructed on 9.87 acres (with the potential to provide up to 97 units). Approximately 527,773 square feet of industrial use is planned for the remaining 30.29 acres. The proposed project would include three bioretention basins and storm drains throughout the project site, which would connect to a downstream hydromodification facility. Hydromodification vaults would be included on the site to provide flow duration controls for the project. Proposed maximum depths of construction-related excavation would be approximately 30 feet for building pads and approximately 15 feet for utility trenching, bioretention basins, storm drains, and hydromodification vaults.

The project site straddles a north-south oriented drainage and extends onto the valley floor south of the drainage. Elevations range from 580 feet above sea level at the highest points in the drainage, down to approximately 370 feet above sea level on the valley floor. Published geologic data identify Pliocene to early Pleistocene Livermore Gravel (Qtlg) deposits along the hillslopes flanking the drainage in the northern half of the project site, including the location of the existing ca. 1980 house (Dibblee 2006). The bottom of the drainage is mapped as Holocene alluvium (Qa), which extends onto the valley floor in the southern half of the project site, where the farm complex is located.

Soils in the drainage in the northern half of the project site are mapped as Linne clay loam, which typically consists of clay loam extending to bedrock at 36 to 40 inches below surface (NRCS 2022). Soils on the valley floor in the southern half of the project site include Rincon clay loam, typically consisting of clay loam, sandy clay, and stratified sandy to clay loam horizons extending at least 60 inches below surface, and Diablo clay that typically features clay and silty clay extending at least 60 inches below surface.

Currently and historically, the nearest source of water is Cottonwood Creek, which flows out of Doolan Canyon to the east before feeding into Arroyo Las Positas roughly 0.2 miles southeast of the project site.

BACKGROUND RESEARCH

LSA conducted background research consisting of a records search at the Northwest Information Center (NWIC), a review of historical maps and aerial photographs, a search of the Sacred Lands File (SLF) at the Native American Heritage Commission (NAHC), and a review of published geological information to gauge buried site sensitivity. The results of these tasks are summarized below and are used to assess the potential for undiscovered archaeological deposits within the project site.

NWIC Records Search

A cultural resources records search was conducted on November 6, 2021, by staff at the NWIC of the California Historical Resources Information System to identify previous archaeological site records and cultural resource studies within the project site and vicinity. The NWIC, an affiliate of the Office of Historic Preservation (OHP), is the official State repository of cultural resources records and reports for Alameda County. The search encompassed the project site and surrounding 0.5-mile radius.

The project site contains a historic-period farm complex (the Collier Ranch) consisting of four buildings over 50 years old: a circa 1958 shed and two-story, three-bay barn, and two mid-20th century single-family homes. These buildings were evaluated for significance as a historical resource. They were found to be not eligible, either individually or as a group, for inclusion on the California

Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP). The other structures on the project site, consisting of several modern sheds and a circa 1980 single-story single-family residence, have not yet reached sufficient age to warrant evaluation for significance.

Three previous cultural resource studies overlapped the current project site, and another seven were conducted within a half-mile radius. All of these are summarized in Table A. No archaeological resources are recorded within the project boundaries or within a half-mile of the project site.

Table A: Previous Cultural Resource Studies Within 0.5 Miles

Title, Author, Year	Study Type/Location	Results
An Archaeological Reconnaissance of the Proposed Pipeline Routes and Reservoir Locations, Livermore-Amador Valley Water Management Agency, Alameda County, California. Edward M. Love, Miley Paul Holman, and David Chavez. 1976 (NWIC Report No. S-000898)	Archaeological field survey (partially within 0.5 miles of project site)	P-01-000046 (CA-ALA-000026/H) P-01-000063 (CA-ALA-000043) P-01-000065 (CA-ALA-000045) *all recorded more than 0.5 miles from project site
Cultural Resource Evaluation of the Bezley Mining Project on Croak Road and Highway 580 in the County of Alameda. Robert Cartier. 1982 (NWIC Report No. S-004924)	Archaeological field survey (within 0.5 miles of project site)	None
Archaeological Reconnaissance of the SMP-18 Quarry Area (APN 99 B-3200-4-4) Near Livermore, Alameda County, California. Randy S. Wiberg. 1984 (NWIC Report No. S-007105)	Archaeological field survey (overlaps project site)	None
Archaeological Inspection of Proposed Righetti Quarry, Alameda County, California. Miley Paul Holman. 1985 (NWIC Report No. S-007376)	Archaeological field survey (overlaps project site)	None
A Report of Findings for the Johnson Prezoning No. 2-313, Annexation No. 150-84, Tentative Tract Map No. 5393, Alameda County, California. Miley Paul Holman. 1985 (NWIC Report No. S-008893)	Archaeological field survey and excavation (partially within 0.5 miles of project site)	1 unrecorded buried midden site (location not obtained)
A Cultural Resources Study for the North Livermore Master Plan/Specific Plan, Environmental Impact Report, Alameda County, California. Randy S. Wiberg, Randall Dean, and Miley P. Holman. 1998 (NWIC Report No. S-020335)	Archaeological and architectural/historical field survey, evaluation (partially within 0.5 miles of project site)	P-01-000067 (CA-ALA-000047) P-01-002197 P-01-002200 P-01-002201 P-01-002202 *all recorded more than 0.5 miles from project site 31 unrecorded historic resources & 1 prehistoric isolate (locations not obtained)
1881 Collier Canyon Road, Livermore (Collier Ranch), Eastern Dublin Properties Resource Management Plan, Supplemental Cultural Resources Review - Built Environment, City of Dublin, Alameda County (APN 905-0001-004-04). Colin I. Busby. 2004 (NWIC Report No. S-030611)	Architectural/historical field survey and evaluation (overlaps project site)	unrecorded Collier Ranch complex

Table A: Previous Cultural Resource Studies Within 0.5 Miles

Title, Author, Year	Study Type/Location	Results
Historic Property Survey Report: I-580 Eastbound HOV Lane Project: Hacienda Drive to East of Greenville Road, 04-Ala-580 KP 12.6/30.7 (PM R7.8/19.1), EA 04258-290810, Alameda County, California. M. Kate Lewis. 2006 (NWIC Report No. S-031701 and a–b)	Archaeological and architectural/historical field survey (partially within 0.5 miles of project site)	P-01-000262 P-01-000263 P-01-002197 P-01-002204 P-01-010779 P-01-010780 P-01-010781 *all recorded more than 0.5 miles from project site Possibly 1 unrecorded midden deposit
Collocation ("CO") Submission Packet, FCC Form 621, Driving Range, BA-02129A. Lorna Billat. 2006 (NWIC Report No. S-032276)	Archaeological and architectural/historical field survey (within 0.5 miles of project site)	None
Historic Property Survey Report for the I-580 Westbound High Occupancy Vehicle Lane Project, Greenville Road to San Ramon/Foothill Roads, Alameda County, California: 4-Ala-580, P.M. 8.29/21.43, EA 29082K. Brian F. Byrd. 2008 (NWIC Report No. S-035826)	Archaeological and architectural/historical field survey (within 0.5 miles of project site)	None

Source: Compiled by LSA (2022).

Historical Map and Photograph Review

In order to assess the potential for historic-period archaeological deposits, LSA reviewed historical topographic maps and aerial photographs to identify whether buildings or structures were present in the past within the project site (Table B). To summarize, the earliest structures documented within the project site were built by 1949 in the area of the extant historic-period farm complex and in the southeast corner of the project site at the intersection of Collier Canyon Road and the driveway extending along the eastern boundary of the project site. It is unclear if these early buildings in the area of the farm complex were later demolished or incorporated into the extant farm complex. The structure in the southeast corner of the project site was removed between 1966 and 1968.

Table B: Historical Map and Aerial Photograph Review

Map/Photograph	Results
1906 *Pleasanton* USGS topographic quadrangle (1:62,500)	Project site is undeveloped. No structures present. Cottonwood Creek shown to the east following approximately its current alignment. An east-west oriented road abuts the south end of the project site.
1941 *Pleasanton* USGS topographic quadrangle (1:62,500)	Same as previous map with the addition of a structure west of the project site at the end of an unimproved road. The east-west road is labeled as Highway 50.

Table B: Historical Map and Aerial Photograph Review

Map/Photograph	Results
1953 *Livermore* USGS topographic quadrangle (1:24,000)	The structure and road west of the project site are no longer depicted (although they do appear in aerial photos until 1979). A structure (possibly a residence) and an outbuilding are shown within the project site at the end of an unimproved road in the area of the extant farm complex. Another structure is shown in the southeast corner of the project site at the intersection of what is now Collier Canyon Road and the driveway leading into the project site.
1961 *Livermore* USGS topographic quadrangle (1:24,000)	Two possible residences are located at the end of the unimproved road; the outbuilding in that location is no longer shown. The possible residences, along with a rectangular outbuilding in the location of the extant barn, are depicted in the area of the extant farm complex within the project site. The structure in the southeast corner of the project site is no longer shown.
1968 *Livermore* USGS topographic quadrangle (1:24,000)	There is no change from the previous map.
1973 *Livermore* USGS topographic quadrangle (1:24,000)	A road following the current alignment of Collier Canyon Road is depicted, replacing the previous street access to the project site.
1980 *Livermore* USGS topographic quadrangle (1:24,000)	There is no change from the previous map.
1949 aerial photo	Structures are present in the area of the extant mid-century houses, and there appears to be fenced pasture or corrals and possibly a structure in the vicinity of the extant barn location. A structure is visible in the southeast corner of the project site, at the intersection of what is now Collier Canyon Road and the driveway leading into the project site, which was noted on the 1953 USGS map.
1958 aerial photo	The extant historic-period farm complex structures appear to be present.
1960, 1966, 1968 aerial photos	These photos generally show modifications to the farm complex. The structure in the southeast corner of the project site disappears between 1966 and 1968.
1979, 1982, 1987 aerial photos	These photos document modern development within the project site, including construction of the house in the far northwest corner, which appears on the 1987 photo, but not the 1982 photo.

Source: Compiled by LSA (2022).

NAHC Sacred Lands File Search

LSA submitted a request to the NAHC to search the SLF for Native American cultural resources that may be impacted by the proposed project. The NAHC maintains the SLF database and is the official State repository of Native American sacred-site location records in California.

Cody Campagne, NAHC Cultural Resources Analyst, responded to the SLF search request on February 4, 2022, stating that the results were negative and that there were no known Native American cultural resources in the project site (Appendix B). He noted, however, that “the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area.”

Mr. Campagne provided a list of Native American individuals to contact for additional information regarding the potential for cultural resources in the project site.

LSA understands that the City of Dublin is responsible for conducting Native American consultation, per Assembly Bill 52, for this project.

Geoarchaeological Review

Fundamentally, there is an inverse relationship between landform age and the potential for buried pre-contact archaeological deposits. Pleistocene-age landforms (1.8 million years to ca. 11,500 cal B.P.) predate human occupation of the region; archaeological deposits on these landforms, if present, would be located at or near the surface. In contrast, landforms that formed during the Holocene (ca. 11,500 years ago to the present) may contain buried surfaces (paleosols) that would have been available in the past for human habitation (Meyer and Rosenthal 2007).

Geoarchaeological studies in the region identify landform age, type, and position in the landscape as important criteria for assessing the potential for buried archaeological deposits. In their regional geoarchaeological study and sensitivity model, which included nine San Francisco Bay Area counties, Meyer and Rosenthal (2007) identified Holocene-age landforms as having a general potential for containing buried pre-contact archaeological deposits. They further determined that pre-contact archaeological sites tend to be situated at the base of hills near sources of water, and on stream terraces, and buried beneath a few inches to several feet of alluvial soils.

As discussed earlier in this report, Holocene-age alluvial deposits are mapped along the bottom of the drainage in the northern half of the project site, as well as on the valley floor in the southern half of the project site. Soils information indicates that the alluvium on the valley floor could reach considerable depths. Although the project site straddles the interface between the valley floor and adjacent uplands, it historically does not appear to have been in close proximity to a stream. Thus, according to Meyer and Rosenthal's criteria, portions of the project site do have general potential for buried pre-contact archaeological deposits based on the age of the landforms present and position in the landscape. However, these areas likely have low to moderate sensitivity given the distance to the closest historically documented stream.

FIELD SURVEY

Lennon Fanning, LSA Archaeologist, conducted a pedestrian survey of the project site on December 14, 2021. Photographs from the survey are provided in Attachment C. The survey was conducted in approximately 5.5 meter-wide transects, oriented magnetic east-west, and included periodic meandering to access exposed soil and avoid cattle.

At the time of the survey, the project site consisted primarily of open field covered in low green grass. A sizably steep hill occupied the northern part of the project site, which sloped to the south toward a paved area containing an operational business, houses, and parking lot. The grass was generally dense, although thinner and sparse in a few areas. Surface visibility varied, depending on the grass cover, from 15 to 40 percent, with some opportunities to examine soil exposed in vehicle tracks, cattle tracks, and rodent burrow back dirt.

The soil consisted of black silt/clay with gravel that included well-rounded pebbles and cobbles as well as broken pieces of sand- or claystone. Modern trash was scattered throughout the open field. Bird and rodent bone were observed in a few rodent burrow back dirt piles. No archaeological deposits were noted.

SUMMARY AND RECOMMENDATIONS

No archaeological resources were identified within the project site during the course of this study. The project site does contain a historic-period farm complex (the Collier Ranch) consisting of four buildings over 50 years old: a circa 1958 shed and two-story, three-bay barn, and two mid-20th century single-family homes. These buildings were evaluated for significance as a historical resource. They were found to be not eligible, either individually or as a group, for inclusion on the CRHR or the NRHP. Other structures on the project site, consisting of several modern sheds and a circa 1980 single-story single-family residence, have not yet reached sufficient age to warrant evaluation for significance. These existing buildings will be demolished as part of the proposed development.

Background research indicated that buildings were present as early as 1949 in the area of the extant historic-period farm complex, and also in the southeast corner of the project site. It is unclear if the former were later demolished or incorporated into the extant farm complex. The structure in the southeast corner of the project site was removed between 1966 and 1968. There is high potential for any of these past or existing historical structures to have associated features, such as wells, refuse deposits, and structural remnants, buried within the project site.

Holocene-age alluvial deposits are mapped along the bottom of the drainage in the northern half of the project site, as well as on the valley floor in the southern half of the project site. Soils information indicates that the alluvium on the valley floor could reach considerable depths. The project site straddles the interface between the valley floor and adjacent uplands, but does not appear to have been historically in close proximity to a stream. Based on the age of the landforms present and position in the landscape, there is general potential for the portions of the project site in the bottom of drainage and on the valley floor to contain (possibly deeply) buried pre-contact archaeological deposits. However, these areas likely have relatively low sensitivity given the distance to the closest historically documented stream.

Recommendations

Due to the high potential for historic-period archaeological deposits, LSA recommends archaeological monitoring of ground-disturbing construction activities in two areas of the project site: the general vicinity of the extant historic-period farm complex and the southeast corner of the project site, as shown in Attachment A: Figure 3. Following demolition of the existing structures, a qualified archaeologist should be contracted to monitor all ground-disturbing construction activities in these two areas, including grading, utility trenching, and foundation-related excavation.

No additional investigation is recommended at this time for the remainder of the project site given the relatively low sensitivity for pre-contact archaeological deposits. Recommendations are provided below should unanticipated pre-contact or historic-period materials be encountered during construction activities.

Accidental Discovery of Archaeological Deposits

The following procedures should be followed in the event that archaeological deposits are identified inadvertently during project activities, and an archaeologist is not present on the site:

> *If deposits of pre-contact or historical archaeological materials are encountered during project activities, all work within 25 feet of the discovery should be redirected and the qualified archaeologist should assess the situation, consult with agencies as appropriate, and make recommendations for the treatment of the discovery. Project personnel should not collect or move any archaeological materials. Archaeological materials can include flaked-stone tools (e.g., projectile points, knives, and choppers) or obsidian, chert, basalt, or quartzite toolmaking debris; bone tools; culturally darkened soil (i.e., midden soil often containing heat-affected rock, ash and charcoal, shellfish remains, bones, and other cultural materials); and stone-milling equipment (e.g., mortars, pestles, and handstones). Pre-contact archaeological sites often contain human remains. Historic-period 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, metal, and other refuse.*

It is recommended that impacts to archaeological cultural resources be avoided by project activities. If such deposits cannot be avoided, the Applicant should, in consultation with the City and (if applicable) local California tribal groups, evaluate the significance of the find under CEQA. If the find is determined to qualify as a historical resource (PRC §21084.1) or unique archaeological resource (PRC §21083.2), impacts to the deposit will need to be avoided or such impacts must be treated. If treatment is required, a plan should be developed in consultation with the Applicant and City to mitigate, avoid, or minimize impacts to cultural resources. Treatments may consist of, but are not necessarily limited to, systematic recovery and analysis of archaeological deposits; recording the resource; preparation of a report of findings; accessioning recovered archaeological materials at an appropriate curation facility; and community outreach. All reports produced as part of the evaluation and treatment of cultural resources identified during the project shall be submitted to the City for review and comment. All final documents should be submitted to the NWIC.

Accidental Discovery of Human Remains

In the event that human remains are encountered at any time during project work, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner would notify the NAHC within 24 hours. The NAHC would determine and notify a Most Likely Descendant (MLD) per PRC 5097.98. With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD’s recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

Please do not hesitate to contact me if you have any questions.

Sincerely,

LSA Associates, Inc.

Kendra Kolar

Kendra Kolar, M.A.
Cultural Resources Analyst

Attachment: A: Project Figures
Figure 1: Project Site Location
Figure 2: Aerial Photo of the Project Site
Figure 3: Areas of Recommended Archaeological Monitoring
B: NAHC SLF Results
C: Field Survey Photos

REFERENCES CITED

Dibblee, Jr., Thomas W.

2006 *Geologic Map of the Livermore Quadrangle, Contra Costa and Alameda Counties, California.* 1:24,000. Santa Barbara Museum of Natural History, Santa Barbara, California. Electronic document, https://ngmdb.usgs.gov/mapview/?center=-121.826,37.711&zoom=15 (accessed January 2022).

Meyer, Jack, and Jeffrey Rosenthal

2007 Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4. Far Western Anthropological Research Group, Inc., Davis, California.

Natural Resources Conservation Service (NRCS)

2022 Web Soil Survey. Electronic document, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx (accessed January 2022).

NETRONLINE

2022 Historic Aerials. Electronic document, https://historicaerials.com/viewer# (accessed January 2022).

U.S. Geological Survey (USGS)

1906 *Pleasanton, Calif.*, 1:62,500 topographic quadrangle. USGS, Washington, D.C.

1941 *Pleasanton, Calif.*, 1:62,500 topographic quadrangle. USGS, Washington, D.C.

1953 *Livermore, Calif.*, 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1961 *Livermore, Calif.*, 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1968 *Livermore, Calif.*, 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1973 *Livermore, Calif.*, 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1980 *Livermore, Calif.*, 7.5-minute topographic quadrangle. USGS, Washington, D.C.

ATTACHMENT A

PROJECT FIGURES

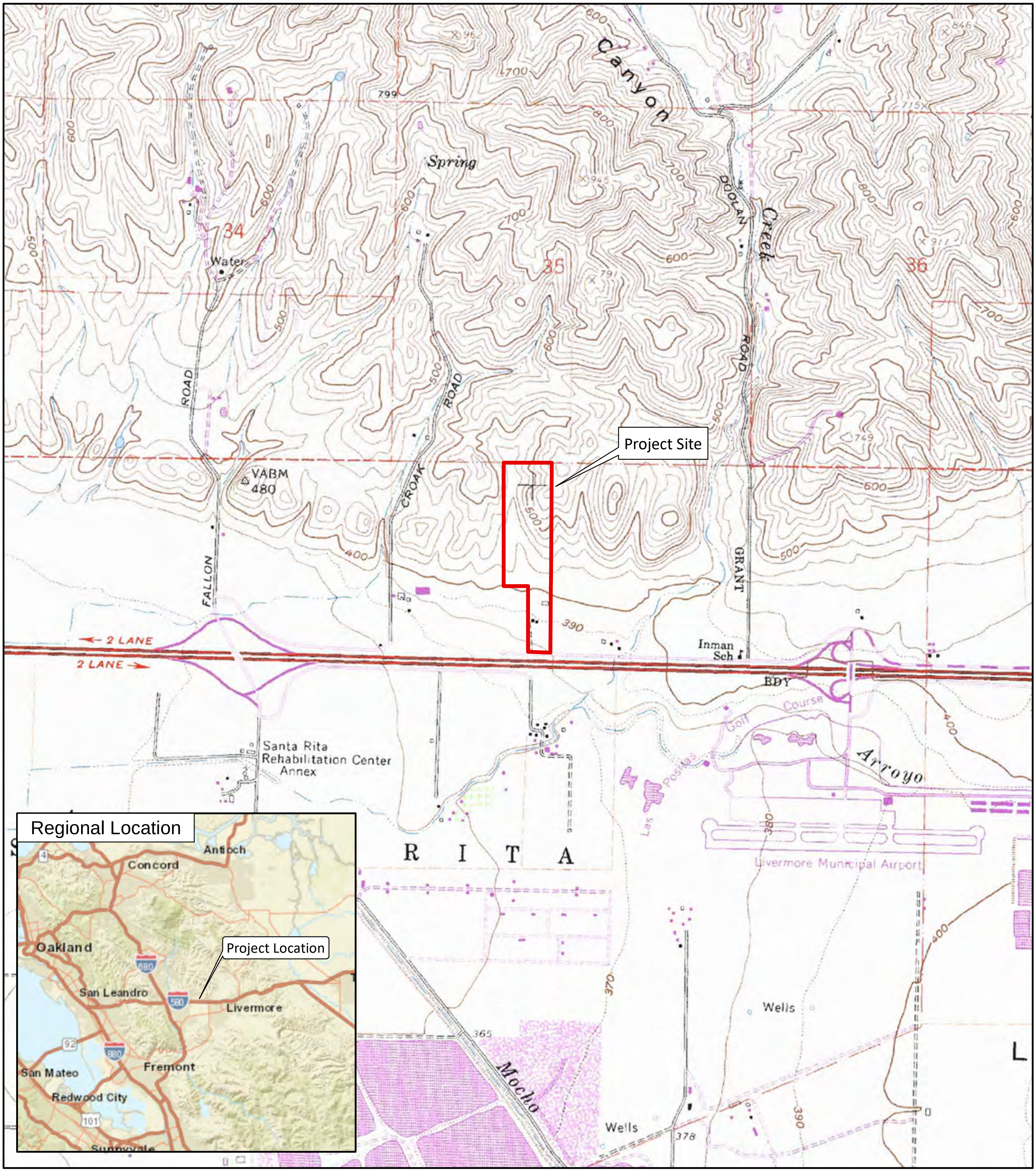

FIGURE 1

0 1000 2000

FEET

Branaugh Property Stage 2 Planned Development Project
Dublin, Alameda County, California
Project Site Location

SOURCE: USGS 7.5-minute Topo Quads -*Livermore, Calif.* (1980).

I:\DUB2101.02\GIS\Maps\Branaugh Property\Cultural\Figure 1_Project Site Location.mxd (1/25/2022)

LSA

LEGEND

Project Site

FIGURE 2

N

0 200 400

FEET

SOURCE: Nearmap (09/2021).

Branaugh Property Stage 2 Planned Development Project
Dublin, Alameda County, California

Aerial Photo of Project Site

I:\DUB2101.02\GIS\Maps\Branaugh Property\Cultural\Figure 2_Aerial Photo of Project Site.mxd (2/3/2022)

LSA

LEGEND

Project Site

Archaeological Monitoring Areas

FIGURE 3

N

0 200 400
FEET

SOURCE: Nearmap (09/2021).

Branaugh Property Stage 2 Planned Development Project
Dublin, Alameda County, California

Areas of Recommended Archaeological Monitoring

I:\DUB2101.02\GIS\Maps\Branaugh Property\Cultural\Figure 3_Areas of Recommended Archaeological Monitoring.mxd (2/2/2022)

ATTACHMENT B

NAHC SLF RESULTS

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 4, 2022

Kendra Kolar
LSA Associates, Inc.

Via Email to: Kendra.Kolar@LSA.net

Re: Branaugh Property Stage 2 Planned Development Project, Alameda County

Dear Ms. Kolar:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Alameda County
2/4/2022

Amah MutsunTribal Band of Mission San Juan Bautista
Irene Zwierlein, Chairperson
3030 Soda Bay Road — Costanoan
Lakeport, CA, 95453
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com

Costanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street — Costanoan
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com

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

Indian Canyon Mutsun Band of Costanoan
Kanyon Sayers-Roods, MLD Contact
1615 Pearson Court — Costanoan
San Jose, CA, 95122
Phone: (408) 673 - 0626
kanyon@kanyonkonsulting.com

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232 — Costanoan
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
marellano@muwekma.org

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717 — Costanoan
Linden, CA, 95236 — Northern Valley
Phone: (209) 887 - 3415 — Yokut
canutes@verizon.net

North Valley Yokuts Tribe
Timothy Perez,
P.O. Box 717 — Costanoan
Linden, CA, 95236 — Northern Valley
Phone: (209) 662 - 2788 — Yokut
huskanam@gmail.com

The Ohlone Indian Tribe
Andrew Galvan,
P.O. Box 3388 — Bay Miwok
Fremont, CA, 94539 — Ohlone
Phone: (510) 882 - 0527 — Patwin
Fax: (510) 687-9393 — Plains Miwok
chochenyo@AOL.com

Wilton Rancheria
Jesus Tarango, Chairperson
9728 Kent Street — Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 683-6015
jtarango@wiltonrancheria-nsn.gov

Wilton Rancheria
Dahlton Brown, Director of Administration
9728 Kent Street — Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
dbrown@wiltonrancheria-nsn.gov

Wilton Rancheria
Steven Hutchason, THPO
9728 Kent Street — Miwok
Elk Grove, CA, 95624
Phone: (916) 683 - 6000
Fax: (916) 863-6015
shutchason@wiltonrancheria-nsn.gov

Wuksache Indian Tribe/Eshom Valley Band
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct. — Foothill Yokut
Salinas, CA, 93906 — Mono
Phone: (831) 443 - 9702
kwood8934@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Branaugh Property Stage 2 Planned Development Project, Alameda County.

Native American Heritage Commission
Native American Contact List
Alameda County
2/4/2022

The Confederated Villages of Lisjan

Corrina Gould, Chairperson	
10926 Edes Avenue	Bay Miwok
Oakland, CA, 94603	Ohlone
Phone: (510) 575 - 8408	Delta Yokut
cvltribe@gmail.com	

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Branaugh Property Stage 2 Planned Development Project, Alameda County.

ATTACHMENT C

FIELD SURVEY PHOTOS

Photo C-1. Overview to south of valley floor within project site showing extant historic-period farm complex.

Photo C-2. Overview to north toward drainage in north half of project site.

Photo C-3. Example of rodent bone in exposed soil.

Appendix F
Historic Resources Evaluation

LSA

CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

MEMORANDUM

DATE: November 8, 2021

TO: Amy Million, Principal Planner, City of Dublin

FROM: Michael Hibma, Associate/Architectural Historian, LSA

SUBJECT: Historical Resource Evaluation of the Branaugh Property at 1881 Collier Canyon Road, Dublin, Alameda County, California (LSA Project No.: DUB2101.02).

Dear Ms. Million,

LSA prepared a Historical Resource Evaluation (HRE) of a historic-period farm complex containing four buildings over 50 years old: a circa 1958 two-story, three-bay barn, two mid-20th century single family homes, and a detached shed on a 39.8-acre property (APN 905-01-004-04), in a semi-rural setting just within a portion of the eastern boundary of the City of Dublin, Alameda County, California (project site) (Appendix A: Figures 1 and 2). The proposed project would demolish the existing buildings in the project site. A separate, single-story single-family residence constructed at the northwestern corner of the project site circa 1980 has not yet reached sufficient age to warrant evaluation for significance as a historical resource and is not addressed in this HRE.

LSA understands the project site was previously evaluated in 2004 for California Register of Historical Resources (CRHR) as part of the Eastern Dublin Properties Resource Management Plan (RMP) and again in 2019 for National Register of Historic Palaces (NRHP) eligibility as part of the Dublin Boulevard North Canyons Parkway Extension Project. The earlier study, in the form of a Supplemental Cultural Resources Review for built environment resources was prepared by cultural resources staff of San Leandro-based Basin Research Associates, who found the project site's built environment not eligible for individual or collective significance under any of the evaluative criteria of the CRHR. The later study, in the form of an Archaeological Survey Report (ASR) was prepared by cultural resource staff of Walnut Creek-based PaleoWest, who found the project site's built environment was not eligible under any of the evaluative criteria of the NRHP. The ASR was Caltrans archaeologists reviewed and approved the ASR's findings on September 27, 2019.

Despite the 2004 Basin Research Associates study, LSA understands the project site's status as a historical resource for the purposes of the California Environmental Quality Act (CEQA) remains unaddressed. To address this gap, this HRE included a review of the Basin Research Associates and PaleoWest studies for information about the design, construction history, and ownership of the buildings in the project site. An LSA architectural historian also conducted a supplemental field review to document existing conditions to determine the status of the historic-period farm complex at the southeastern corner of the project site using the evaluative criteria of the California Register of Historical Resources (CRHR) fund at §5024.1 of the California Public Resources Code (PRC).

Based on background research and field observations, LSA concludes that the historic-period farm complex in the project site is not eligible for inclusion in the CRHR due to a lack of historical significance. As such, the farm complex does not appear to be a historical resource for the purposes of CEQA. The methods, analysis, and conclusions of this HRE are presented in the sections that follow. See Appendix B for Department of Parks and Recreation (DPR) 523 Series forms record update evaluation of the historic-period farm complex utilizing the evaluative criteria of the CRHR.

Michael Hibma, M.A., AICP, completed the analysis. Mr. Hibma is an architectural historian at LSA's Point Richmond office and has over 14 years of experience in cultural resources management. He holds an M.A. in History from California State University, Sacramento; meets the Secretary of the Interior's *Professional Qualifications Standards* as an architectural historian and historian (Title 36 CFR Part 61); and is certified by the American Institute of Certified Planners (AICP #32009).

BACKGROUND RESEARCH

Records Searches

LSA reviewed the results of a record search requested by PaleoWest of the project site and a 0.25-mile radius on February 8, 2017 (NWIC File #16-1157) by staff of the Northwest Information Center (NWIC) of the California Historical Resources Information System, Sonoma State University, Rohnert Park. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official State repository of cultural resource records and reports for Alameda County. An additional records search (NWIC File #17-1264) was completed on November 3, 2018, using a wider one-mile radius. A third records search (NWIC File #21-0679) was completed on November 6, 2021, using a ½-mile radius.

As part of the review of the previous NWIC records search results, LSA also reviewed the following local and State inventories for built environment cultural resources in and adjacent to the project site:

- *California Inventory of Historic Resources* (California Department of Parks and Recreation 1976);
- *Five Views: An Ethnic Historic Site Survey for California* (California Office of Historic Preservation 1988);
- *California Points of Historical Interest* (California Office of Historic Preservation 1992);
- *California Historical Landmarks* (California Office of Historic Preservation 1996);
- *An Architectural Guidebook to San Francisco and the Bay Area* (Cerny 2007);
- *A Living Legacy: Historic Architecture of the East Bay* (Wilson 1987); and
- *Built Environment Resource Directory: Alameda County* (California Office of Historic Preservation 2021). The directory includes the listings of the NRHP, National Historic Landmarks, CRHR, California Historical Landmarks, and California Points of Historical Interest.

Results. The records searches identified one previously recorded cultural resource within the project site.

- 1881 Collier Canyon Road, Livermore (Collier Ranch). This resource was identified by Basin Research Associates in November 2004 as part of a supplemental cultural resources review in support of the Eastern Dublin Properties Resource Management Plan (RMP). Basin Research reviewed documentation prepared for the RMP, conducted a pedestrian field survey, and prepared a CRHR-based evaluation of the buildings in the project site. The Basin Research evaluation found that the Collier Ranch does not appear either individually or as a group to be eligible for the [CRHR] (Basin Research Associates 2004). No other resources within the project site were identified.

The records search identified five previously identified cultural resources within one mile of the project site.

- P-01-002114/CA-ALA-508/H, 4J Ranch Site;
- P-01-000124/CA-ALA-000394, Pleasanton Meadows Site;
- P-1-001776, JR-3 (Channelized canal segment);
- P-01-002122/CA-ALA-516H, GD-6 (remains of a homestead); and
- P-01-010526, Livermore Airport Prehistoric/Historic Site.

LSA reviewed the online Built Environment Resources Directory and identified the following resources added after the PaleoWest evaluation:

- PW-127-3; 1818 [sic] Collier Canyon Road.[1] On November 7, 2019, the Office of Historic Preservation assigned California Historical Resource Status Code of 6Y to this resource indicating that this resource was "[d]etermined ineligible for NR[HP] by consensus through Section 106 process – Not evaluated for CR[HR] or local listing" (OHP 2021).

- PW-127-4; 1421 Collier Canyon Road (east of and adjacent to the project site). On November 7, 2019, the Office of Historic Preservation assigned California Historical Resource Status Code of 6Y to this resource indicating that this resource was "[d]etermined ineligible for NR[HP] by consensus through Section 106 process – Not evaluated for CR[HR] or local listing" (OHP 2021).

Map Review

LSA reviewed the following maps for historical information about the project site and its vicinity:

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[1] It appears this address in incorrect. 1818 Collier Canyon Road does not correspond to a current physical address. LSA believes the correct address is 1881 Collier Canyon Road, i.e., the project site.

- *Pleasanton, Calif*., 15-minute topographic quadrangle (U.S. Geological Survey 1906, 1941, 1953, and 1961); and

- *Livermore, Calif*., 7.5-minute topographic quadrangle (U.S. Geological Survey 1953, 1961, 1968, 1973, and 1980.

Results. The *Pleasanton, Calif.*, 15-minute quadrangles depict the project site as largely undeveloped land. An unnamed road to Livermore is depicted roughly corresponding to modern Interstate 580. In 1941, the project site shown with one black square, indicating the presence of an earlier building since demolished (barns and other substantial outbuildings are shown by the USGS by an uncolored square or rectangle). The Inman School is clearly named at the southeastern corner of intersection of then-U.S. Highway 50 and modern Doolan Road. By 1953, no changes are shown in the project site. A new square building shape is shown east of and adjacent to the project site, this may correspond to modern day 1421 Collier Canyon Road /APN 905-001-0102 and ;-302 (PaleoWest Resource Number PW-127-4).

By 1961, one additional residential building is depicted in the project site and is accessed via an unpaved driveway and the rectangular uncolored shape is depicted where the modern barn building is. The black square shape near the road shown in 1953 is no longer depicted USGS 1906, 1941, 1953, and 1961). Subsequent maps show intensifying development south of and across four-lane U.S. 50 and Interstate 580, examples include the Livermore Airport, the Las Positas Golf Course, and the Santa Route Rehabilitation Center. An increasing level of development, mostly south of the highway continues through the 1980s. A notable change is the construction of the modern Airway Boulevard and Collier Canyon Road off-ramp structure and the modern alignment of Collier Canyon Road (USGS 1968, 1973, and 1980).

FIELD REVIEW

LSA architectural historian Michael Hibma reviewed the exterior of the buildings in the project site at 1881 Collier Canyon Road and vicinity on October 14, 2021. The purpose of the review was to characterize their architectural style and to identify alterations.

Project Site Description

The project site contains a historic-period farm complex north of Interstate 580 along the edge of the Diablo Range foothills that form the northern boundary of the Amador Valley. The complex contains four detached buildings: a two-story barn, two single-family residences, and a detached shed or workshop. A separate detached, single-story, single-family residence at the far northwestern corner of the property. The project site also includes an oval-shaped parking lot south of the barn, a covered seating area, paved drives ways and lawns and landscaped areas near the detached residences. The project site also contains vehicles and equipment storage areas.

Alterations observed generally consisted of textured, non-original stucco cladding, signage, modern replacement fenestration, modern replacement entrances, vegetation, and security lighting. These buildings are modest examples of a general Vernacular style architecture and is similar in visual appearance to contemporary residential and agricultural outbuildings in rural eastern Alameda County and rural areas statewide.

Property Ownership[1]

An evaluation of the project site prepared in November 2018 by cultural resources staff PaleoWest indicated the project site was entirely within Rancho Santa Rita, an 8800-acre grant given to Jose Dolores Pacheco in 1839 and used for cattle grazing. In 1854 Samuel Barclay Martin bought Rancho Santa Rita. Eight years later Martin sold Owen Paul Sutton and Elias Nelson Conway 640 acres of land in Murray Township that included the project, Three years alter in 1865 Conway and Sutton sold San Lorenzo resident and merchant Augusts Melville Church land that included the project site. He resided on his ranch by the late 1860s and 1870s. In 1872, he deed a portion of his land to the Inman School District. By 1877, Church sold and moved to Oakland.

In 1878, Owen R. Owen had purchased 320 acres north of Positas Creek from Church. There is no indication that Owen lived in what would become the present project site. In 1900, the parcel belonged to R.S. Farrelly and in 1910 to H. Farrelly. In 1927, the Farrelly Ranch was sold and the property's then-new owner appears to have settled on the parcel, by 1939 per an aerial photograph, as one building was shown, what appears to be a small house to the east of Croak Road. In 1934, the owner, Alice M. Short, deeded a portion of the land to the State of California, likely for the construction of the highway. However, the evidence reviewed suggests that these individuals did not live at or conduct their work at the project site.

HISTORICAL AND ARCHITECTURAL CONTEXT

Please see Appendix B for DPR 523 Series forms. A full historical context is provided in the ASR.

ELIGIBILITY EVALUATION

Background research, including a records search, a literature review, archival research, and a field review by an architectural historian identified one potential built environment cultural resource more than 50 years old in the project site: an historic-period farm complex at 1881 Collier Canyon Road. Please see Appendix B for DPR 523 Series forms, which contain a CRHR-based eligibility evaluation of the building as a Continuation Sheet Update to the PaleoWest DPE 523 from record prepared in November 2018 by PaleoWest cultural resource staff.

CONCLUSION

PaleoWest previously evaluated the historic-period farm complex at 1881 Collier Canyon Road in November 2018. The project site contains a two-story, three-bay barn, two mid-20th century houses, and a shed. Modern modular sheds and containers less than 50 years old are also present on site and are associated with operation of current businesses. The evaluation in the PaleoWest ASR found the historic-period farm complex was ineligible for inclusion in the NRHP due to a lack of a historical significance. Based on the results of this HRE, LSA concurs with the 2004 Basin Research

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[1] This section is adapted from an *Archaeological Survey Report for the Dublin Boulevard-North Canyon Parkway Extension, Alameda County, California*. 2019. Pages 20-21. PaleoWest Archaeology, Walnut Creek, California. On file at Caltrans District 4, 111 Grand Avenue, Oakland, California. See Appendix D.

Associates' and the 2018 PaleoWest findings that the farm complex in the project site at 1881 Collier Canyon Road is not eligible for inclusion in the CRHR or NRHP under any significance criteria. For these reasons, the project site's built environment do not appear to qualify as historical resources for the purposes of CEQA (PRC §21084.1).

Sincerely,

Michael Hibma, M.A., AICP
Associate/Architectural Historian

Attached:	Appendix A	Figures 1 and 2
	Appendix B	DPR 523 Series Forms - PW-127-3; 1881 Collier Canyon Road

REFERENCES CONSULTED[1]

California Office of Historic Preservation (OHP)

1988 *Five Views: An Ethnic Historic Site Survey for California*. California Department of Parks and Recreation, Sacramento.

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1996 *California Historical Landmarks*. California Department of Parks and Recreation, Sacramento.

2001 *California Environmental Quality Act (CEQA) and Historical Resources*. California Department of Parks and Recreation, Sacramento.

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Basin Research Associates

2004 *1881 Collier Canyon Road, Livermore (Collier Ranch) Eastern Dublin Properties Resource Management Plan (RMP) area Supplemental Cultural Resources Review - Built Environment City of Dublin, Alameda County (APN 905-0001-004-04)*. Basin Research Associates, San Leandro. On file at NWIC, Sonoma State University, Rohnert Park (S-30611).

Cerny, Susan Dinkelspiel

2007 *An Architectural Guidebook to San Francisco and the Bay Area*. Gibbs Smith Publisher, Santa Barbara, California.

PaleoWest

2018 *Archaeological Survey Report for the Dublin Boulevard North Canyon Parkway Extension, Alameda County, California*. DPR 523 from record: 1881 Collier Canyon Road/PW-1274-3. On File with Caltrans District 4, Oakland, California.

ParcelQuest

2021 Assessor's Parcel Information. Electronic document, http://www.parcelquest.com/, accessed various.

U.S. Geological Survey (USGS)

1906 *Pleasanton, Calif.,* 15-minute topographic quadrangle. USGS, Washington, D.C.

1941 *Pleasanton, Calif.,* 15-minute topographic quadrangle. USGS, Washington, D.C.

[1] For a full set of references consulted, please see the DPR523 forms in Appendix B of this report.

1953 *Pleasanton, Calif.,* 15-minute topographic quadrangle. USGS, Washington, D.C.

1961 *Pleasanton, Calif.,* 15-minute topographic quadrangle. USGS, Washington, D.C.

1953 *Livermore, Calif.,* 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1961 *Livermore, Calif.,* 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1968 *Livermore, Calif.,* 7.5-minute topographic quadrangle. USGS, Washington, D.C.

1973 *Livermore, Calif.,* 7.5-minute topographic quadrangle. USGS, Washington, D.C.

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1987 *A Living Legacy: Historic Architecture of the East Bay*. Lexikos Press, San Francisco, California.

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1992 *San Francisco Architecture: The Illustrated Guide to Over 1,000 of the Best Buildings, Parks, and Public Artworks in the Bay Area*. Chronicle Books, San Francisco, California.

2005 *San Francisco Architecture: An Illustrated Guide to the Outstanding Buildings, Public Artworks, and Parks in the Bay Area of California*. Ten Speed Press, Toronto, Canada.

APPENDIX A: MAPS

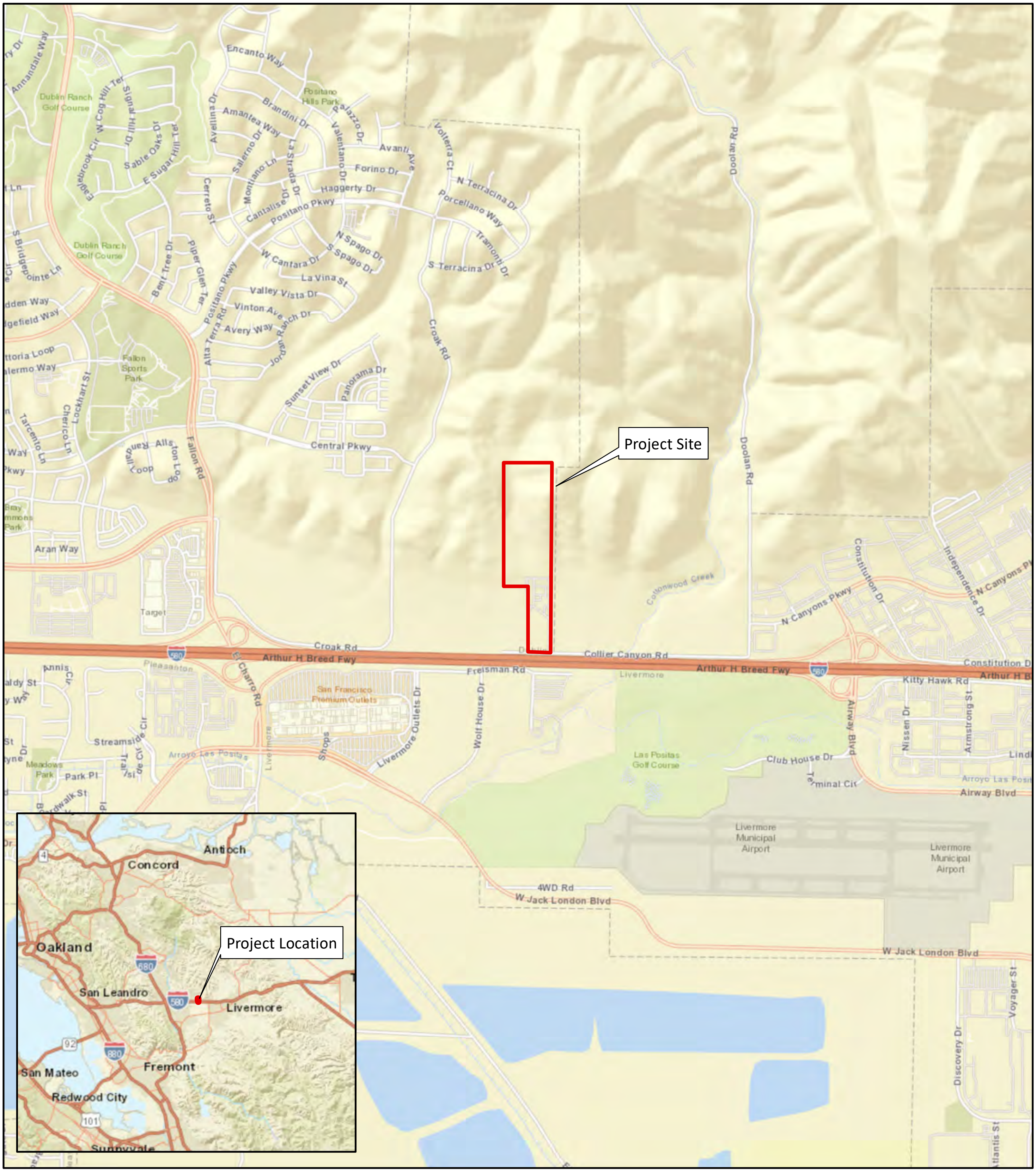


FIGURE 1

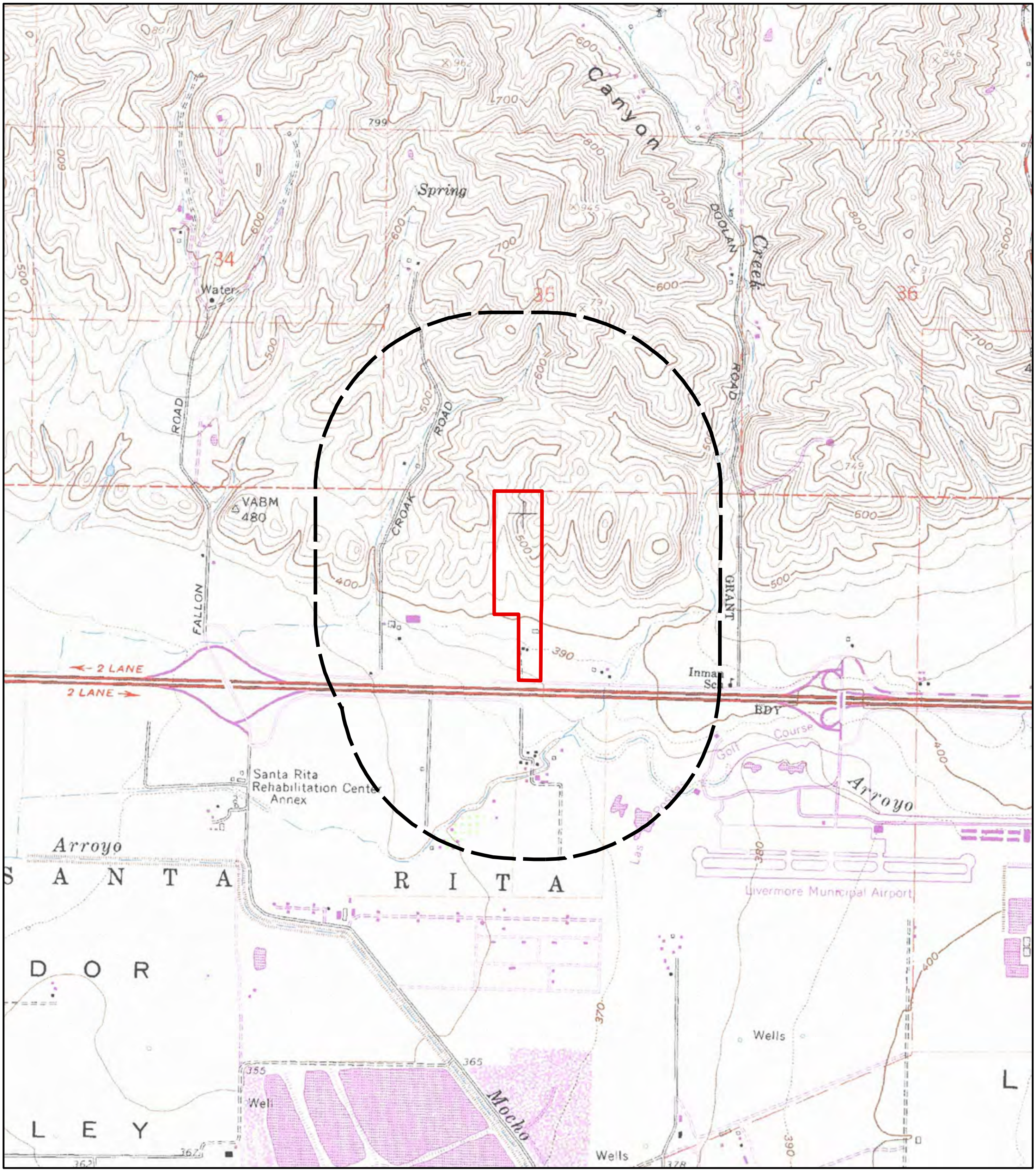
0 1000 2000
FEET

Branaugh Property Stage 2 Planned Development

Regional Location

SOURCE: ESRI World Street Map (03/20).

I:\DUB2101.02\Maps\Figure 1_Regional Location.mxd (9/8/2021)



LSA

LEGEND

Project Site

0 1000 2000
FEET

FIGURE 2

Branaugh Property Stage 2 Planned Development
Dublin, Alameda County, California

Project Site

SOURCE: USGS 7.5-minute Topo Quads -*Livermore, Calif.* (1980).

I:\DUB2101.02\GIS\Maps\Branaugh Property\Cultural\Records Search Map.mxd (10/4/2021)

APPENDIX B: DPR SERIES 523 FORMS – PW-127-3; 1881 COLLIER CANYON ROAD, DUBLIN, CALIFORNIA

Recorded by: Michael Hibma, M.A., AICP **Date:** 11/1/21 ☐ Continuation **X** Update

L3. Description

This record serves as an update for a historic-period farmstead at 1881 Collier Canyon Road. This farm complex is comprised of four buildings over 50 years old: a circa 1958 two-story, three-bay barn, two mid-20th century single family homes, and a detached shed on a 39.8-acre property (APN 905-01-004-04), in a semi-rural setting just within a portion of the eastern boundary of the City of Dublin, Alameda County. Basin Research Associates previously evaluated this resource in 2004 for California Register of Historical Resources (CRHR) eligibility. In 2019, PaleoWest conducted a National Register of Historic Palaces (NRHP) eligibility as part of the Dublin Boulevard North Canyons Parkway Extension Project. PaleoWest prepared an Archaeological Survey Report that was reviewed and accepted by Caltrans in 2019. Both Basin Research Associates and PaleoWest found the farm complex not eligible under any CRHR or NRHP evaluative criteria. PaleoWest designed this resource as PW-127-3. On November 7, 2019, the Office of Historic Preservation assigned California Historical Resource Status Code of 6Y to this resource indicating that this resource was "[d]etermined ineligible for NR[HP] by consensus through Section 106 process – Not evaluated for CR[HR] or local listing." The farm complex is therefore not a historical resource for the purposes of the California Environmental Quality Act (CEQA). This farm complex was identified and recorded on November 1, 2021, in support of a proposed demolition project.

L9. Remarks

This continuation sheet update was prepared by LSA Associates architectural historian Michael Hibma, M.A., AICP on November 1, 2021. This addendum updates the DPR 523 form record prepared in November 2018 by PaleoWest in support of the *Archaeological Survey Report for the Dublin Boulevard North Canyon Parkway Extension Project*, prepared by Evan Tudor Elliot M.A., RPA. The evaluation in the PaleoWest ASR found the historic-period farm complex was ineligible for inclusion in the NRHP due to a lack of a historical significance. This update addresses the farm complex's status as a historical resource for the purposes of the California Environmental Quality Act (CEQA) via the CRHR evaluative criteria. Mr. Hibma visited the project site on October 14, 2021, to inspect the built environment, identify its notable elements, and apply the CRHR evaluative criteria to the earlier PaleoWest resource record.

Based on the results of this HRE, LSA concurs with the 2004 Basin Research Associates' and the 2018 PaleoWest findings that the farm complex in the project site at 1881 Collier Canyon Road is not eligible for inclusion in the CRHR or NRHP under any significance criteria due to a lack of historical significance. For these reasons, the project site's built environment do not appear to qualify as historical resources for the purposes of CEQA (PRC §21084.1).

References

Basin Research Associates
2004 *1881 Collier Canyon Road, Livermore (Collier Ranch) Eastern Dublin Properties Resource Management Plan (RMP) area Supplemental Cultural Resources Review - Built Environment City of Dublin, Alameda County (APN 905-0001-004-04)*. Basin Research Associates, San Leandro. On file at NWIC, Sonoma State University, Rohnert Park (S-30611).

LSA Associates
2021 *Historical Resource Evaluation of the Branaugh Property at 1881 Collier Canyon Road, Dublin, Alameda County, California*. LSa Associates, Point Richmond, California.

PaleoWest
2018 *Archaeological Survey Report for the Dublin Boulevard North Canyon Parkway Extension, Alameda County, California*. DPR 523 from record: 1881 Collier Canyon Road/PW-127-3. On File with Caltrans District 4, Oakland, California.

Recorded by: Michael Hibma, M.A., AICP **Date:** 11/1/21 ☐ Continuation **X** Update

L8a. Photographs (continued)

PW127-3. Barn building. South and east façades, view northwest. LSA photograph, 11/1/21.

PW127-3. Barn building. North façade, view south. LSA photograph, 11/1/21.

Recorded by: Michael Hibma, M.A., AICP **Date:** 11/1/21 ☐ Continuation **X** Update

L8a. Photographs (continued)

PW127-3. House 1. West and south façades, view northeast. LSA photograph, 11/1/21.

PW127-3. House 1. West and north façades, view southeast. LSA photograph, 11/1/21.

Resource Name: PW-127-3

Recorded by: Michael Hibma, M.A., AICP

Date: 11/1/21 ☐ Continuation **X** Update

L8a. Photographs (continued)

PW127-3. House 2. South and east façades, view northwest. LSA photograph, 11/1/21.

PW127-3. House 2. East and north façades, view southwest. LSA photograph, 11/1/21.

Recorded by: Michael Hibma, M.A., AICP **Date:** 11/1/21 ☐ Continuation **X** Update

L8a. Photographs (continued)

PW127-3. Shed. South and west façades, view northeast. LSA photograph, 11/1/21.

PW127-3. Shed. South and east façades, view northwest. LSA photograph, 11/1/21.

Recorded by: Michael Hibma, M.A., AICP **Date:** 11/1/21 ☐ Continuation **X** Update

L8a. Photographs (continued)

PW127-3. Chicken coop. North and west "façades", view southeast. LSA photograph, 11/1/21.

PW127-3. View southeast towards farm complex. Interstate 580 and Livermore Valley beyond. LSA photograph, 11/1/21.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code   Reviewer   Date

    *Resource Name or #: PW-127-3

P1. Other Identifier: N/A
***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted**   ***a. County:** Alameda
and (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Livermore, CA   **Date:** 1961 (1980) **T**; **R**; **¼ of ¼ of Sec ;** SB **B.M.**
c. Address: 1881 Collier Canyon Road   City: Livermore   Zip: 94551
d. UTM: Zone: 10; 602824 mE/ 4173568 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate): The property is located north of Collier Canyon Road and north of Interstate 580 at the base of the foothills on the northern edge of Amador Valley, within APN 905-01-004-04

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This resource is a historic-period farm complex on the northern edge of Amador Valley. It currently retains four buildings over 50 years in age: a ca. 1958 barn, two mid-20th-century single family residences, and a shed. A single-family residence constructed ca. 1980 is located on the northwest portion of the property. Modern modular sheds and containers associated with operation of the current business are also located on the property. The property also includes hardscaped such as paved areas and landscaped vegetation.

(See continuation sheet)

*P3b. Resource Attributes: **(List attributes and codes)** HP33. Farm/ ranch
***P4. Resources Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (

P5b. Description of Photo: (
View of barn, facing northwest, 11/16/18

***P6. Date Constructed/Age and Sources:**
■Historic
☐Prehistoric ☐Both
Ca. 1958 (Barn, Shed, House 1), ca. 1965 (House 2); ca. 1980 (House 3); Aerial photographs and maps

***P7. Owner and Address:**
Branaugh Robert D TR Trust

***P8. Recorded by:**
P. Zingerella
PaleoWest
1870 Olympic Boulevard
Walnut Creek, CA 94596

***P9. Date Recorded:** November 2018

***P10. Survey Type:** Intensive pedestrian

***P11. Report Citation:**
Wildt, Jennifer, and Evan Tudor Elliott. 2018. Archaeological Survey Report for the Dublin Boulevard North Canyon Parkway Extension, Alameda County, CA. On File with Caltrans District 4

***Attachments:** ☐NONE ■Location Map ■Sketch Map ■Continuation Sheet ■Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code:**

***Resource Name or #** (Assigned by recorder) PW-127-3

B1. Historic Name: N/A
B2. Common Name: 1881 Collier Canyon Road
B3. Original Use: Farm/ranch B4. Present Use: Landscaping business
***B5. Architectural Style:** Vernacular
***B6. Construction History:** (Construction date, alterations, and date of alterations)
Barn: constructed ca. 1958 (NETR Online 2018); Shed: constructed ca. 1958 (NETR Online 2018); House 1: constructed ca. 1958 (NETR Online 2018); House 2: constructed ca. 1965 (NETR Online 2018); House 3: constructed ca. 1980 (NETR Online 2018).

***B7. Moved?** ■**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A
***B8. Related Features:** N/A

B9a. Architect: Unknown b. Builder: Unknown
***B10. Significance: Theme:** **Area:**
Period of Significance: **Property Type:** **Applicable Criteria:**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

Owen R. Owen had purchased 320 acres north of Positas Creek from Church by 1878 (Thompson and West 1878). There are no structures or roads/trails depicted at the location of P-127-3 on the 1878 map, and no indication that Owen lived at this location on the property. Owen was a Welsh immigrant who began farming on the Doughtery Ranch near Dublin between 1863 and 1869. He married Mary E. Murphy, a native of Alvardo in Alameda County in 1878 and the pair had three sons, two of which were living in 1883 (Woods 1883:957). According to the 1870 United States Census records for Murray Township, O.W. Owen was a 30-year-old, Welsh-born laborer sharing a residence with 16 other male laborers between the ages of 23 and 38, born in Mexico, Ireland, Prussia, France, Scotland, and the United States. The residences enumerated before and after Owen's were both occupied by Chinese-born male laborers.

In 1900, the parcel belonged to R.S. Farrelly (Nusbaumer and Boardman 1900), and in 1910 to H. Farrelly (Haviland 1910). No buildings are depicted at this location on the 1906 USGS Pleasanton 15-minute topographic quadrangle. Robert S. And Henrietta Farrelly were childless, elderly Pennsylvania-born farmers and real estate investors who, in 1900, lived on San Leandro Road between San Leandro and Elmhurst. By 1910, the 72-year-old Henrietta Farrelly was widowed and living supported by her own income, some of which was drawn from renting or leasing properties like this property.
After her death in late 1927, her Murray Township property was put up for sale along with six other properties owned by Mrs. Farrelly (Oakland Tribune 25 March 1928). The subdivided property's new owner appears to have settled on the parcel, as at the time of 1939 and 1940 aerial photographs at least four buildings and at least two additional structures are present within what appear to be a small farm oriented toward Highway 50 to the south, with trails crossing the fields connecting to the nearby property at 1421 Collier Canyon Road to the southeast. Research has yielded no additional information regarding Owen, Murphey, the Farrellys, or any other owners or tenets on the property.

(See continuation sheet)

B11. Additional Resource Attributes: N/A

***B12. References:**
Refer to Continuation Sheet

B13. Remarks:
N/A

***B14. Evaluator:** J. Castells

***Date of Evaluation:** November 2018

(Sketch Map with north arrow required.)

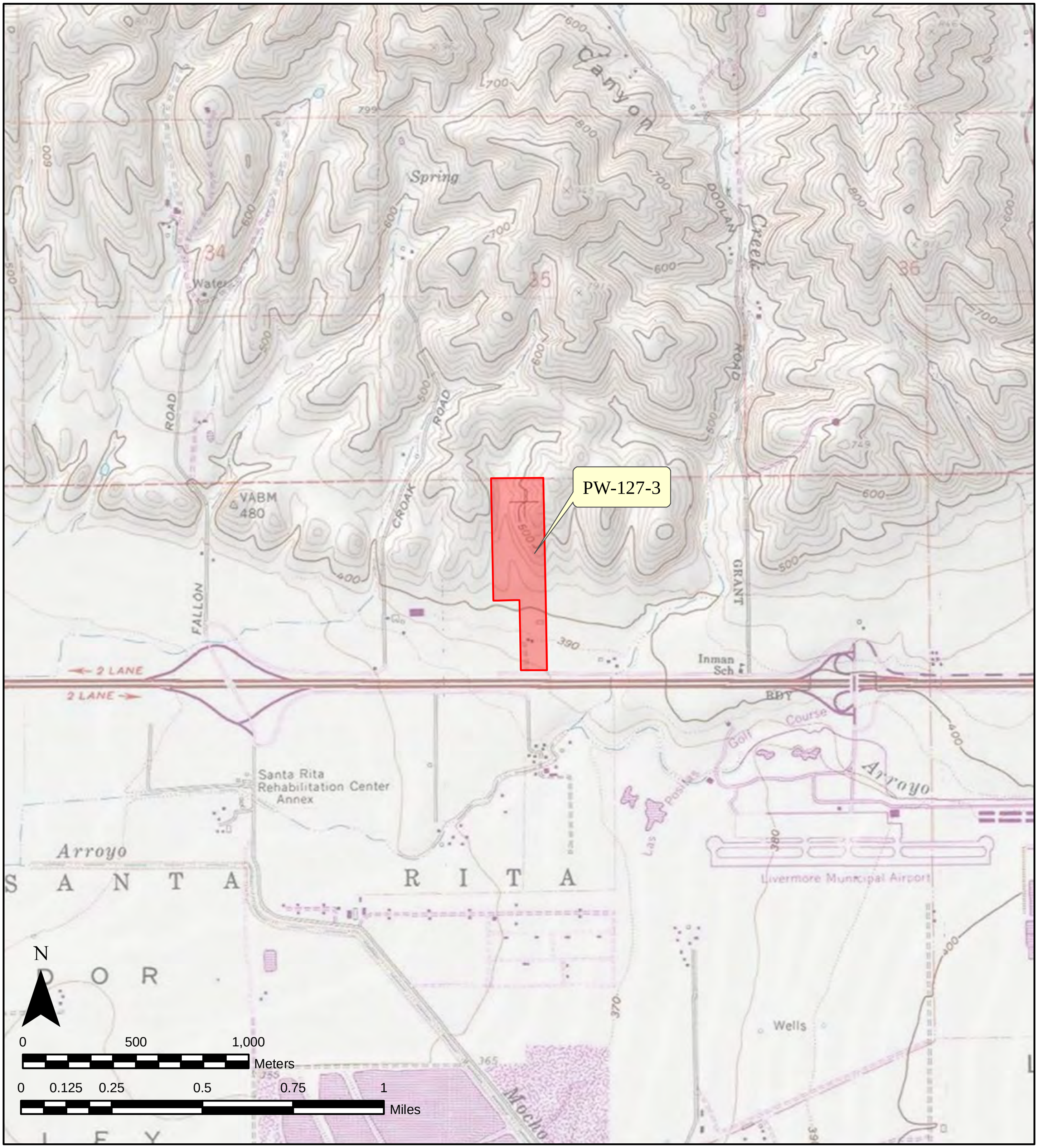
Please See Attached Sketch Map

State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI #
Trinomial:

Resource Name or # (Assigned by Recorder): PW-127-3

*Map Name: Livermore *Scale: 1:24000 *Date of MAP: 1981



State of California - The Resources Agency

DEPARTMENT OF PARKS AND RECREATION

SKETCH MAP

Primary #

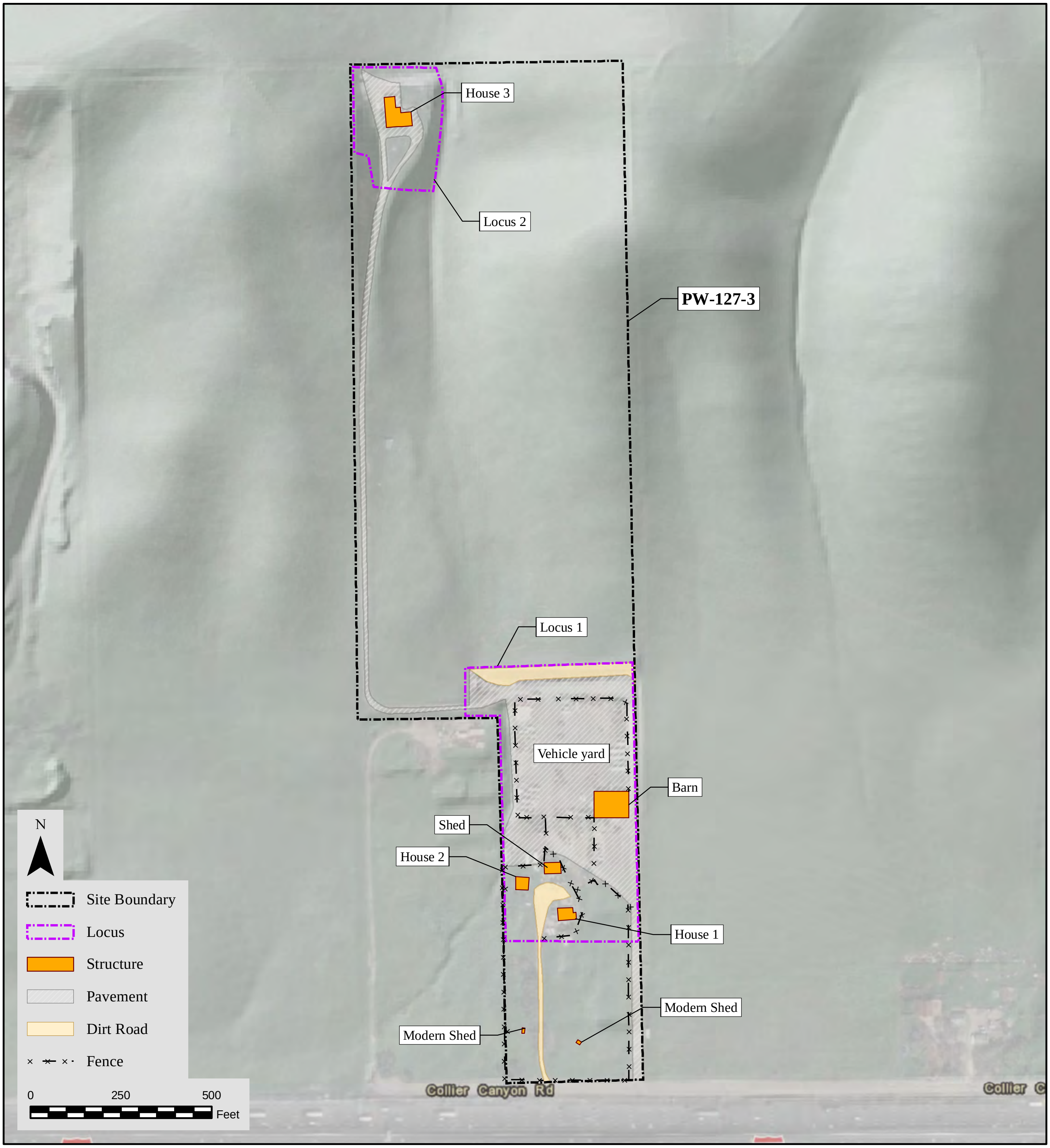
HRI #

Trinomial:

Resource Name or # (Assigned by Recorder): PW-127-3

*Drawn By: N.Fino

*Date: 5/17/2019



*Required Information

***P3a. Description:**

Barn: The barn, located in the northern portion of the property, retains the original structure of the three-bay barn constructed ca. 1958. The building has been significantly altered over time. It measures 85 feet east-west by 35 feet north-south. The central two-story section of the barn has east-facing loft doors and an extant pulley hanging from a beam extending from the east-west aligned roof ridge-line. There are single-story, shed-roofed bays on the north and south sides of this central portion. All roofing on the original portions of the barn is corrugated metal sheet. The south-facing side of the barn has been altered to provide an entrance to the business housed within the building. Reinforced barn- and garage-style doors, as well as modern French doors used for pedestrian access, have been installed near the eastern end of the south-facing side. Most windows on all sides of the barn are modern vinyl- and aluminum-frame sliding or double-hung replacements, framed by wide white-painted trim to evoke a historic barn look. The original barn doors on the west-facing side have been replaced by modern, roll-up utility doors. A large garage extension with roll-up utility doors on its west and north sides extends from the northern eave of the two-story central bay. The western two-thirds of this northern extension has a flat roof, while the eastern third slopes toward the east. Roofing on the extension is corrugated metal on the western portion, and what appears to be composition sheeting on the eastern portion. The building appears to be set on a concrete slab. The yard surrounding the barn has been paved with asphalt for use in vehicle loading and parking, and a modern modular building is located to the immediate west.

Shed: A single-story rectangular shed constructed ca. 1958. The building has horizontal wood siding exterior and tarpaper sheet roofing on its low-pitched single-gable roof, measuring 32 feet east-west by 30 feet north-south. It is located approximately 180 feet southwest of the barn. The shed has swinging double utility doors on the western portion of the south-facing side and a centrally-located single entrance door. A single-shed roofed storage area open on all sides and roofed with tarpaper extends from the eastern eave of the shed. A single window on the west-facing side has been partially boarded shut. Though much of the foundation is obscured by debris, the shed appears to sit on a combination of concrete foundation and concrete slab.

House 1: A single-story single-family residence located nearest the driveway leading from Collier Canyon Road constructed ca. 1958. House 1 is a rectangular, single-story building with stucco siding measuring 40 feet east-west by 35 feet north-south. It has a recessed entranceway on its south-facing side and relatively small, rectangular aluminum-frame windows on all sides. A sliding modern aluminum-frame patio door accesses a small landscaped yard area on the north side of the building, and a corrugated metal canopy supported by wood frame and posts shades a modern entrance door on the east side of the building. The shallow-pitched single-gable roof has composition sheet roofing. This building appears to be well-maintained and is currently occupied.

House 2: A single-story, rectangular single-family residence constructed ca. 1965. The building features vertical wood siding and a flat-peaked shallow-pitched tarpaper roof is located approximately 260 feet southeast of the barn, and 50 feet southeast of the shed. Systematically placed sections of 1x4 lumber have been attached to the roof and soffits to secure the tarpaper roofing. The south-facing entrance side of the house symmetrically placed wood-trimmed rectangular aluminum-frame slider windows flanking a modern entrance door. The north-facing rear side of the house has two aluminum-frame sliding patio doors opening to small, slightly elevated scrap-wood decks. A small lean-to utility shed has been constructed on the east-facing side below a small, aluminum-frame window.

House 3: House 3 is a one-story single-family residence constructed ca. 1980. The building had an L-shaped plan with a medium-pitched cross-gabled roof. The primary entrance is located on the eastern portion of the south elevation and is recessed under a portion of the roof that extends into a covered patio. A wraparound wooden deck extends from a portion of the south elevation, around the east elevation, and to a portion of the north elevation of the east-west oriented portion of the building. The east elevation of the east-west oriented portion of the building includes a row of large windows with fixed transoms centered on the elevation. Additional fenestration on the building includes sliding windows. A covered patio is located at the corner of the north elevation of the east-west oriented portion of the building and the east elevation of the north-south oriented portion of the building.

*Recorded by: P. Zingerella *Date: November 2018 ■Continuation ☐ Update

***B10. Significance (Continued):**

Though only two buildings are shown at this location on the 1953, 1961, 1968, and 1973 Livermore USGS topographic quadrangles, aerial photographs from 1939, 1940, 1950, 1958, and 1965 show a useful development sequence for the three remaining buildings (Aero Exploration Co. 1950; Cartwright Aerial Surveys 1965; Cartwright and Co. 1958; Fairchild Aerial Surveys 1939, 1940; USGS 2018). The east-west oriented barn currently standing at the northern end of the property was constructed at its current location between 1950 and 1958, replacing a smaller barn oriented north-south that appears to have been built between 1939 and 1940, but removed by the 1950 aerial photograph. House 1 and the shed are both depicted on the 1958 aerial and House 2 was constructed ca. 1965 (NETR Online 2018).

House 3 is located in the northern portion of the parcel but was constructed ca 1980, but there is no indication that it is directly associated with the historical uses of the property (NETR Online 2018).

The historical significance of PW-127-3 is evaluated here by applying the procedure and criteria for the National Register of Historic Places (NRHP). While there are multiple structures on the parcel, they represent an extended period of residential and agricultural development as a complex. The individual extant buildings that predate 1968, namely the Barn, House 1, House 2, and the Shed, are considered individually and the resource is also considered as a whole for NRHP eligibility.

Criterion A: This resource does not meet Criterion A for association with events that have made a significant contribution to the broad patterns of our history. The property represented a family farm or ranch from the early-mid 20th century and thus is associated more broadly with the mid-20th century agricultural of Amador Valley and the outskirts of Livermore. During the mid-20th century the dominant historical pattern was the expansion of suburbs into the formerly agricultural outskirts, rather than the development of agriculture itself (Corbett 2005). Agriculture was firmly established in the region at the time of the property's construction and there is no indication that this property was historically significant in establishing or growing the agricultural economy in the area. The resource could not be tied to any particular labor force or immigrant group. While certainly participating in a broader pattern of agricultural development, the property at PW-127-3 is not a particularly good representative of or directly associated with historical events or themes of local, state, or national significance. House 3 was constructed ca. 1980 and was constructed well after the period of historical use of the property. The building is not directly related to the potential historical significance of the property. It is recommended that PW-127-3 is not eligible for the NRHP under Criterion A.

Criterion B: This resource does not meet Criterion B for any direct association with lives of significant persons in our past. Archival research has provided little information regarding the lives of the previous owners and tenants on the property. The paucity of information regarding individuals specifically associated with the property is suggestive of the lack of historical significance of those individuals. Research yielded no indication of association between PW-127-3 or any of the individual buildings and any historically significant individuals or groups within the region, state, or nation. It is recommended that PW-127-3 is not eligible for listing on the NRHP under Criterion B.

Criterion C: This resource does not meet Criterion C for embodying the distinctive characteristics of a type, period, or method of construction; or as a representative work of a master; or for possessing high artistic values. The individual buildings on the property are common and unremarkable examples of these building types. Many barns, sheds, and single-family homes of similar construction and design were built throughout California and the United States during the 20th century and these building represent neither the oldest examples not the most distinctive examples of these property types. There is no indication that the layout of these buildings represents a master plan of development that would represent a departure from standard housing and farming practices in the region. House 3 was constructed ca. 1980 and was constructed well after the period of historical use of the property. The building is not directly related to the potential historical significance of the property. While the architect and builder of the buildings on the property was not identified, it is unlikely that these buildings represent the work of a master. Therefore, this resource and the buildings are recommended as not eligible for the NRHP under Criterion C.

(See continuation sheet)

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

 *Resource Name or # (Assigned by recorder) PW-127-3

*Recorded by: P. Zingerella *Date: November 2018 ■Continuation ☐ Update

*Recorded by: P. Zingerella *Date: November 2018 ■Continuation ☐ Update

***B10. Significance (Continued):**

Criterion D: The buildings located on the parcel at 1881 Collier Canyon Road has not and is not likely to yield important information that furthers our knowledge of prehistory or of the history of the community, state, or nation, and as such is not significant under NRHP Criterion D. This evaluation does not include any potential historical archaeological deposits that may be related to the property.

The integrity of the complex is generally retained in the aspects of location and setting, with little changing in the immediate landscape since 1968. However, the feeling and association have changed, as the complex is used for storage and for landscaping business rather than farming and ranching. The design of the complex has been significantly changed since the mid-20th century and the workmanship of the complex is generally not apparent. The materials are somewhat unchanged, although areas are paved when they were once pastures. The constituent buildings all appear to have been extensively modified over the last half century and only retain aspects of location, setting, and partially the aspects of workmanship and materials.

***B12. References (Continued):**

Aero Exploration Co. (AEC)

1950 Aerial Photograph, Flight BUT-1950, Frame 3G-117. Taken 3/12/1950 by Aero Exploration Co. for the USDA Agricultural Stabilization and Conservation Service. UCSB Map and Imagery Library's FrameFinder database on October 15, 2018. Available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/

Cartwright Aerial Surveys (CAS)

1965 Aerial Photograph, Flight CAS-65-130, Frame 13-151. 1:12,000 scale. Taken 3/12/1965 by Cartwright Aerial Surveys for the California Division of Highways. UCSB Map and Imagery Library's FrameFinder database on October 15, 2018. Available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

Cartwright and Co. (CAC)

1958 Aerial Photograph, Flight BUT-1958, Frame 2V-143. 1:12,000 scale. Taken 8/10/1958 by Cartwright and CO. for the USDA Agricultural Stabilization and Conservation Service. UCSB Map and Imagery Library's FrameFinder database on October 15, 2018. Available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/

Clerk-Recorder's Office, County of Alameda

1862 Deed from Samuel B. Martin to Owen P. Sutton, May 9 (recorded June 6). Microfilm book M, Page 266-267. County of Alameda Clerk-Recorder's Office, Oakland, CA.

1872 Deed from A.M. Church to Trustees of the Inman School District, May 18 (filed May 27). Microfilm book 84, Page 53. County of Alameda Clerk-Recorder's Office, Oakland, CA.

Fairchild Aerial Surveys (FAS)

1939 Aerial Photograph, Flight C-5750, Frame 288-54. 1:20,000 scale. Taken 8/02/1939 by Fairchild Aerial Surveys for the USDA Agricultural Adjustment Administration. UCSB Map and Imagery Library's FrameFinder database on October 15, 2018. Available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/.

1940 Aerial Photograph, Flight BUT-1940, Frame 341-58. 1:20,000 scale. Taken 6/08/1940 by Fairchild Aerial Surveys for the USDA Agricultural Adjustment Administration. UCSB Map and Imagery Library's FrameFinder database on October 15, 2018. Available at http://mil.library.ucsb.edu/ap_indexes/FrameFinder/

Finn, Richard

2018 Livermore City Historian. Personal conversation with Kari Lentz, December 19, 2018, at the History Center Museum.

H Haviland, P.A.

1910 Official Map of Alameda County, California. Tribune Publishing Company, Oakland, CA

(Continued).

***B12. References (Continued):**

La Croze, John
1860 Plat of the Santa Rita Rancho [Alameda County, Calif.] finally confirmed to John Yountz, administrator of estate of José Dolores Pacheco. Bancroft Library, Land Case Map E-346.

NETR Online
2018 Historic Aerial Photograph Database search for Livermore, CA. Accessed at: https://www.historicaerials.com

Nusbaumer, G. L. and W. F. Boardman
1900 The Official Map of Alameda County, California. Tribune Publishing Company, Oakland, CA.

Oakland Tribune
1928 Notice of Sale of Real Property, Estate of Henrietta Farrelly. Oakland Tribune. 25 March: Page M-5, C1. Oakland.

Thompson and West
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Wood, M.W.
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United States Geological Survey (USGS)
1906 USGS Pleasanton 1:62,500 scale topographic quadrangle.

Barn, south and east sides, facing northwest.

Barn with landscaping display, facing northeast.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary #
HRI#
Trinomial

*Resource Name or # **(Assigned by recorder)** PW-127-3

*Recorded by: P. Zingerella
*Date: November 2018 ■**Continuation** ☐ **Update**

Barn, rear side, facing southeast.


House 1, facing east-northeast.

Primary #
HRI#
Trinomial

 *Resource Name or # **(Assigned by recorder)** PW-127-3

*Recorded by: P. Zingerella *Date: November 2018 ■**Continuation** ☐ **Update**

House 1, rear side, facing southwest.

House 2, front and side, facing northwest.

House 2, facing northeast.

Shed, facing north.

*Resource Name or # **(Assigned by recorder)** PW-127-3
*Recorded by: P. Zingerella
*Date: November 2018 ■**Continuation** ☐ **Update**

Shed, facing northeast.

Modern chickencoup, facing northwest.

Appendix G

Branaugh Property Trip Generation Comparison Technical Memorandum

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Technical Memorandum

December 15, 2022

Project# 26585

To: Shanna Guiler, Associate/Environmental Planner
LSA
157 Park Place
Point Richmond, CA 94801

From: Aaron Elias

RE: Branaugh Property Trip Generation Comparison

This technical memorandum presents the vehicle trip generation for the proposed development of the parcel known as the Branaugh property, located north of I-580 in Dublin, California. Development of this property and its impact on the transportation system have been studied in previous Environmental Impact Reports (EIRs) in 1992, 2002, and 2005 – this technical memorandum is intended to provide a comparison between the trip generation assumed in the 2005 SEIR[1] document with the 2022 proposed development plan.

Branaugh Property

The property is located on an approximately 40-acre site designated as Medium Density Residential and Industrial Park by the City of Dublin's General Plan (2022) and Eastern Dublin Specific Plan (2022). The project site currently consists primarily of undeveloped grazing ranchland and open space, but also includes some rural residential development in the northwest and southern portion. This site is located north of I-580 and east of Fallon Road in Dublin, CA (parcel 905-0001-004-04)

2005 SEIR Assumptions

Based on Table 3 from the Initial Study contained in Appendix 8.1 of the 2005 SEIR, the Branaugh property would develop 9.7 acres as 97 medium density residential units and 30.5 acres as 372,000 square feet of general commercial/campus office. Since general commercial and campus office have different trip generating rates, the 372,000 square feet was divided into the component land uses.

Determination of the component land uses was based on the traffic study[2] completed for the 2005 SEIR. This traffic study assumed two types of land uses for the non-residential components of the project including retail and office. To split the 372,000 square feet into retail and office components, Kittelson reviewed the estimated employment numbers that were used in the travel demand model for the 2005 traffic study. The traffic analysis zones containing the Branaugh property (TAZ 50794 and TAZ 50789) were assumed to be about 37% retail and 63% office employees. Therefore, the 372,000 total square footage was proportioned based on these ratios resulting in 136,000 square feet (37%) being devoted to retail and 236,000 square feet (63%) to office.

[1] Fallon Village Project Supplemental Environmental Impact Report, 2005
[2] Fallon Village Traffic Study, August 2005 prepared by TJKM Transportation Consultants

2022 Proposed Project

The 2022 proposed project is proposing to use 30.29 acres of the Branaugh property for industrial warehousing with a floor area ratio of up to 0.4 and with no retail or office components. Based on a 0.4 FAR and a 30.29-acre site, the total building size could be up to 527,773 square feet. This is larger than the assumed 372,000 square feet from the 2005 SEIR but industrial land uses are a less intensive trip generator than office and retail land uses. The residential component of the project would remain the same as the SEIR with a total of 97 residential units but split into 69 single family homes and 28 multifamily units.

Trip Generation

Trip generation is a key factor in transportation analyses whether a level of service analysis or a vehicle miles traveled (VMT) analysis is being performed. This section compares the estimated daily trip generation for the Branaugh property in the 2005 SEIR with what the trip generation is estimated to be with the 2022 proposed project. A 2022 proposed project trip generation that is less than the 2005 SEIR trip generation would mean the 2022 proposed project fits within the trip generation envelope of what was studied in the 2005 SEIR and additional impacts not disclosed in the previous environmental document would be anticipated. A trip generation in 2022 higher than what was studied in the 2005 SEIR could potentially result in new impacts and would need to be studied in more detail.

2005 SEIR Trip Generation

The traffic study for the 2005 SEIR used the Institute of Transportation Engineers' (ITE) Trip Generation Manual 7th Edition to estimate trip generation for Fallon Village. The four land use categories used and the associated daily trip generation rate from the ITE Trip Generation Manual 7th Edition include:

- Single Family Residential (ITE Code 210 with a daily rate of 9.57 trips per dwelling unit)
- Multifamily Residential (ITE Code 220 with a daily rate of 6.72 trips per dwelling unit)
- Retail (ITE Code 820 with a daily rate of 42.94 trips per thousand square feet)
- Office/Service (ITE Code 710 with a daily rate of 11.01 trips per thousand square feet)

The residential component of the Branaugh property was listed as medium density residential (6.1 to 14 dwelling units per acre). This is most similar to the multifamily residential land use from the ITE Trip Generation Manual 7th Edition. For the non-residential portion of the property, 136,000 square feet was assumed to be retail and 236,000 square feet was assumed to be office as described in the previous section. Based on these land uses, the estimated daily trip generation for the Branaugh property in the 2005 SEIR is shown in Table 1. As shown, the Branaugh property is estimated[3] to have produced 9,091 daily vehicle trips in the 2005 SEIR.

Table 1: Estimated Trip Generation for the Branaugh Property Based on 2005 SEIR

	ITE Code	Amount	Unit	Daily Rate	Daily Trip Generation
Multifamily Residential	220	97	DU	6.72	652
Retail	820	136	KSF	42.94	5,840
Office	710	236	KSF	11.01	2,599
				Total:	9,091

Source: Kittelson & Associates, Inc. 2022
Daily Rate from ITE Trip Generation Manual 7th Edition
DU = Dwelling Unit
KSF = Thousand Square Feet

[3] The exact trip generation used is unknown since these documents analyzed overall trip generation of Fallon Village

2022 Proposed Project

The current 2022 proposal is more specific than the 2005 SEIR with a proposed residential component with 69 single family dwelling units, 28 multifamily dwelling units and about 528,000 square feet of industrial uses based on a 0.40 FAR. To estimate the trip generation of these land uses, Kittelson used the latest version of the ITE Trip Generation Manual which is the 11th Edition. The three land use categories used and the associated daily trip generation rate from the ITE Trip Generation Manual 11th Edition include:

- Single Family Residential (ITE Code 210 with a daily rate of 9.44 trips per dwelling unit)
- Multifamily Residential (ITE Code 220 with a daily rate of 7.32 trips per dwelling unit)
- Industrial (ITE Code 130 with a daily rate of 3.37 trips per thousand square feet)

Table 2 shows the resulting daily trip generation which was about 2,636 trips per day.

Table 2: Estimated Trip Generation for the Branaugh Property Based on 2022 Proposed Project

	ITE Code	Amount	Unit	Daily Rate[1]	Daily Trip Generation
Single Family Detached	210	69	DU	9.44	652
Multifamily	220	28	DU	7.32	205
Industrial	130	527.773	KSF	3.37	1,779
				Total:	2,636

Source: Kittelson & Associates, Inc. 2022
[1]Daily Rate from ITE Trip Generation Manual 11th Edition
DU = Dwelling Unit
KSF = Thousand Square Feet

Conclusion

This technical memorandum documented the trip generation for the Branaugh property studied as part of the 2005 SEIR for Fallon Village and the estimated trip generation for the same property based on the 2022 development plan. As shown in Table 1 and Table 2, the 2022 development plan generates 6,455 fewer daily vehicle trips compared to the assumptions from the 2005 SEIR. This results in the 2022 development plan fitting within the envelope of what was previously studied and no new transportation impacts not previously disclosed would be anticipated based on daily trip generation of the Branaugh property.