Appendix C: Ball Estates
Draft Environmental Impact Report

August 2018

DRAFT ENVIRONMENTAL IMPACT REPORT
BALL ESTATES PROJECT

County File Number: SD13-9338
State Clearinghouse Number: 2013082081

Prepared for
Contra Costa County
Department of Conservation and Development
30 Muir Road
Martinez, CA 94553

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1.0 INTRODUCTION

This draft environmental impact report (draft EIR) evaluates the potential impacts of the Ball Estates project (project), a proposed subdivision of an approximately 61-acre project site in Contra Costa County (County) in Alamo, an incorporated area of the County. The project applicant, Camille Avenue, LLC, and Camille Ironwood Properties, LLC, is requesting a vesting tentative map for 35 residential Lots located on approximately 20 acres in the lower northeastern portion of the project site. A staging (parking) area that would provide access to local trails is also proposed. The rest of the site, approximately 41 acres, would remain open space. The construction of roads, utilities, and ancillary services associated with the residential homes is considered as part of the project, as well as the removal of two existing residences, office building, and auxiliary structures.

The Contra Costa County Department of Conservation and Development is the Lead Agency for this environmental review. The County prepared this draft EIR to assess potential environmental impacts of the project and has prepared this draft EIR pursuant to the *2017 California Environmental Quality Act [CEQA] Statute and Guidelines*. CEQA requires all state and local government agencies to consider the environmental consequences of a project over which they have discretionary authority.

1.1 PURPOSE OF THE DRAFT EIR

The purpose of an EIR is "to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided" (Public Resources Code Section 21002.1[a]). An EIR does not recommend approval or denial of any particular project.

CEQA requires that all state and local government agencies consider the consequences to the natural and human environment before carrying out or approving any project. To that end, this draft EIR informs County decision makers, responsible agencies, and the public of the environmental consequences that could occur if the project were implemented. This draft EIR discloses the project's significant environmental impact and identifies:

- effects found not to be significant;
- mitigation measures to reduce significant impacts;
- significant impacts that cannot be avoided;
- growth-inducing impacts;
- cumulative impacts of the project in combination with past, present, and reasonably foreseeable future projects; and
- alternatives to the proposed project.

Pursuant to CEQA, the County will prepare a final EIR that will include responses to comments received on the draft EIR during public circulation, as well as any revisions to the draft EIR. The draft and final EIR documents, together with the administrative, record constitute a complete environmental review. In accordance with CEQA Guidelines Section 15090, the County must certify the final EIR before taking any action on a project and requested entitlements.

1.2 LEVEL OF ANALYSIS

This draft EIR provides a project level analysis. As noted in CEQA Guidelines Section 15146, the degree of specificity in an EIR will correspond to the degree of specificity in the underlying activity described in the EIR. Preliminary vesting tentative maps and detailed technical studies were reviewed to evaluate the project's potential environmental consequences. The level of analysis contained in this EIR will be sufficient to proceed with project implementation without further environmental review.

As described in CEQA Guidelines Section 15162, further environmental review could be required if subsequent development plans contain substantial changes to the project, or if other new information becomes available that would result in a new significant impact, a substantial change in mitigation measures, or a change in the level of significance of impacts identified in this draft EIR.

1.3 SCOPE OF THIS DRAFT EIR

Prior to the preparation of a draft EIR, the lead agency prepares and circulates a Notice of Preparation (NOP) for public comment. The purpose of the NOP is to determine the scope of the EIR through consultation with responsible agencies and other interested parties.

The County issued a NOP for the project on August 27, 2013. The NOP solicited comments on the scope and content of the EIR and announced a public scoping meeting, which the County convened on September 16, 2013. During the 30-day

comment period (ending September 26, 2013), the County received five comment letters regarding the scope and content of the draft EIR. All comments received during the comment period and scoping session were considered in the preparation of this draft EIR. **Appendix A** contains a copy of the NOP and the comments received in response to the NOP.

The draft EIR addresses the following topics in **Chapter 4.0, Environmental Analysis**:

- Aesthetics
- Agricultural and Forestry
- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services and Recreation
- Transportation and Traffic
- Utilities and Service Systems

1.4 REPORT ORGANIZATION

This draft EIR is organized into the following chapters:

Chapter 1.0, Introduction, describes the purpose of this draft EIR, the scope of topics addressed in this draft EIR, and provides an overview of the environmental review process.

Chapter 2.0, Executive Summary, summarizes environmental consequences that would potentially result from implementing the project, describes mitigation measures, and indicates the level of significance of impacts before and after mitigation. This section also introduces alternatives to the project.

Chapter 3.0, Project Description, provides detail regarding project location, proposed actions, objectives, and required approvals.

Chapter 4.0, Setting, Impacts, and Mitigation Measures, describes the environmental and regulatory setting for each resource topic, provides a brief description of the environmental effects that were found not to be significant, analyses potential environmental impacts of the project (including cumulative impacts), identifies mitigation measures to reduce significant impacts, and lists reference materials.

Chapter 5.0, Alternatives, identifies alternatives to the project and the comparative environmental consequences and benefits of each alternative.

Chapter 6.0, CEQA Required Discussion, discusses significant irreversible environmental changes and growth-inducing impacts that could be caused by project implementation.

Chapter 7.0, List of Preparers, identifies the lead agency and consultants involved in the preparation of this draft EIR.

Appendices to this draft EIR include the NOP and comment letters and technical reports prepared as part of the project.

1.5 ENVIRONMENTAL REVIEW PROCESS FOR THE DRAFT EIR

The draft EIR will be available for review by public and interested parties, agencies, and organizations for a review period of 45 days as required by California law. Although 45 days is the minimum time for public review circulation required by law, the County will circulate this draft EIR for 60 calendar days to allow for additional review time. In reviewing the EIR, reviewers should focus on the document's adequacy in identifying and analyzing significant effects on the environment and ways in which the significant effects of the project might be avoided or mitigated.

To ensure inclusion in the final EIR and full consideration by the lead agency, comments on the draft EIR must be received in writing during the 60-day public review period at the following address:

ATTN: Jennifer Cruz, Senior Planner
Contra Costa County
Department of Conservation & Development
Community Development Division
30 Muir Road
Martinez, CA 94553

Following the close of the public comment period, responses to public input will be prepared and published as a separate document. The draft EIR text and appendices, together with the response to comments document, will constitute the final EIR. The final EIR will be available to the public before the County considers certifying the document. The County will consider the certification of the EIR and approval of the project at a public hearing.

1.6 INCORPORATING BY REFERENCE

The documents and other sources that have been used in the preparation of this draft EIR are identified in at the end of each chapter and/or section. The CEQA Guidelines allow three methods to incorporate data from other sources:

Use of an EIR appendix (CEQA Guidelines Section 15148)

To achieve a balance between the technical analysis referenced in an EIR and an EIR's public information function, CEQA allow technical analyses to be appended to the main body of an EIR. Information in an EIR appendix may include summarized technical data, maps, plot plans, diagrams, and similar information in sufficient detail to permit the public and reviewing agencies to make full assessment of the project's significant environmental effects. The appendices are presented on a CD-ROM as Volume II to this draft EIR.

Incorporation by reference (CEQA Guidelines Section 15150)

Information incorporated by reference has been summarized in the appropriate section(s) of this draft EIR, as permitted in Section 15150 of the CEQA Guidelines.

Citation to technical information (CEQA Guidelines Section 15148)

Source documents that are not project-specific have been cited where appropriate in the draft EIR.

All documents referenced in the draft EIR are available at the Contra Costa County Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

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2.0 EXECUTIVE SUMMARY

2.1 PROJECT UNDER REVIEW

The Ball Estates project (project) is a proposed 35 single-family custom home development that would subdivide an existing approximately 61-acre site in Alamo, an unincorporated area of Contra Costa County (County). The project applicant, Camille Avenue, LLC, and Camille Ironwood Properties, LLC, is requesting a vesting tentative map, which includes a subdivision for 35 residential lots, a tree permit, a variance for an 8-foot fence, and an exception to the creek structure setback**.** The residential lots would be constructed on approximately 20 acres in the lower northeastern portion of the site. The rest of the site, approximately 41 acres, would remain open space. A staging (parking) area that would provide access to local trails is also proposed. The construction of roads, utilities, and ancillary services associated with the residential homes is considered as part of the project.

2.2 SUMMARY OF IMPACTS AND MITIGATION MEASURES

The California Environmental Quality Act (CEQA) requires the executive summary to include a discussion of: 1) potential areas of controversy; 2) significant impacts; 3) significant unavoidable impacts; and 4) alternatives to the project. Under CEQA, a significant impact on the environment is defined as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by a project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

Based on the analysis completed for this draft environmental impact report (draft EIR), impacts in the following resource areas would be considered significant without the implementation of mitigation measures:

- Aesthetics: New homes on the project site may conflict with the visual character in the area and produce new sources of light and glare.
- Agriculture and Forestry: The project would result in the loss of forest land at the project site.
- Air Quality: Site preparation and grading would temporarily generate fugitive dust.

- Biological Resources: Project construction may result in impacts to special-status wildlife, aquatic habitat, and protected trees.
- Cultural and Tribal Cultural Resources: Project construction may encounter previously undiscovered cultural resources.
- Geology and Soils: The project may be subject to geologic hazards.
- Greenhouse Gas Emissions: The project could conflict with the applicable Climate Action Plan.
- Hazards and Hazardous Materials: Project construction could mobilize residual agrichemicals or hazardous building materials.
- Noise: Sensitive receptors adjacent to the project site will be exposed to construction noise.

2.3 POTENTIAL AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

On August 27, 2013, the County filed a Notice of Preparation (NOP) with the Governor's Office of Planning and Research. During the 30-day comment period (ending September 26, 2013), written comments regarding the scope and content of this draft EIR were received from regulatory agencies and the public. Additionally, a scoping session on this draft EIR was held on September 16, 2013, at the County Department of Conservation and Development in Martinez, California. All written and oral comments received during the comment period and scoping session were considered in the preparation of this draft EIR. Potential areas of controversy identified during the scoping period and evaluated in **Chapter 4.0, Setting, Impacts, and Mitigation Measures**, of this draft EIR include:

- Adequate emergency vehicle access
- Loss of privacy resulting from the removal of exiting trees
- Maintenance of private streets and easement areas
- Impacts on the capacity and reliability of existing utilities and public services
- Construction-related noise and vibration impacts
- Impacts to sensitive biological resources and habitat, including wetlands and drainage areas on the project site
- Recreational access to the Las Trampas Regional Wilderness
- Increased traffic and illegal parking on Camille Avenue

- Pedestrian and bicyclist safety at the Iron Horse Trail crossing due to increased vehicle activity on Camille Avenue and Camille Lane
- Possible slope failure and stabilization
- Exposure to potential hazardous substances in soil and groundwater
- Impairment of solar access associated with new elevated structures.

2.4 SIGNIFICANT UNAVOIDABLE IMPACTS

There were no significant unavoidable impacts relating to any of the environmental topics evaluated in this draft EIR.

2.5 ALTERNATIVES TO THE PROJECT

2.5.1 ALTERNATIVE 1 — NO BUILD ALTERNATIVE

Under Alternative 1, the project site would remain in its current state and there would be no development of a residential subdivision. The existing structures on the site would remain, including the office building. Unstable fill slopes near the estate home and east of the office building would remain, and open space areas would remain in their current condition. No staging area to facilitate access to the Madrone Trail would be constructed and street parking along Camille Avenue for trail access would continue.

2.5.2 ALTERNATIVE 2 — WETLAND AVOIDANCE ALTERNATIVE

This alternative would completely avoid direct impacts to Wetlands 1, 2, and 3 (see **Figure 4.10-1** and **Section 4.4, Biological Resources**). Wetland 1 is an isolated feature located on the western portion of proposed Lot 9 and the adjacent proposed Parcel C. Wetlands 2 and 3 are located on the southeastern portion of the project site between proposed Lots 16, 17, 18, and 19. These wetlands are associated with culverted discharge from Drainage 2, which occupies a portion of proposed Lot 27. In total, Wetland 1 represents 0.62 acre of freshwater wetland habitat, and Wetlands 2 and 3 represent 0.173 acre of freshwater wetland habitat.

Alternative 2 proposes eliminating proposed Lots 16, 17, 18, and 19 to prevent fill within Wetlands 2 and 3. Proposed Lot 27 could be sited to avoid hydrologic modifications to Drainage 2 and Wetlands 2 and 3, and proposed Lot 9 would be modified to ensure Wetland 1 has an adequate buffer (typically 50 to 100 feet) from any new structure. With preservation of proposed Lots 16, 17, 18, 19 and portions

of proposed Lots 9 and 27, the remainder of the development area could be developed with 35 single-family homes to a density of approximately 2.0 dwelling units per acre. This density is compatible with the development area's Single Family Residential – Low Density land use designation, which allows up to 2.9 dwelling units per acre. Like the proposed project, this alternative would retain the Parcel D staging area.

2.5.3 ALTERNATIVE 3 - LOT 21 STAGING AREA

Under this alternative, a staging area site would be located on proposed Lot 21 instead of proposed Parcel D. Unrestricted access to the Lot 21 staging area would be provided at the Camille Avenue cul-de-sac, and the existing pedestrian trail along Camille Lane would provide hiker and equestrian access to Madrone Trail. Proposed Lot 28 would be split into two lots so the project site could still accommodate 35 dwelling units. Parcel D would remain undeveloped and would merge into the proposed Parcel C open space maintained by the homeowners association (HOA) or future property owners. In order to permit this option, an exception to the County Subdivision Ordinance would be needed, as the County ordinance require a 30-foot setback from the physical tops of creek banks, whereas the staging area footprint on Lot 21 would be located as close as 10 feet to one of the project site's drainages.

Table 2-1 Summary of Impacts and Mitigation Measures

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Aesthetics			
Impact AES-1: New homes on the project site could conflict with the character of existing residential neighborhoods in the area.	Significant	Mitigation Measure AES-1: Custom homes must undergo an administrative design review, as required by conditions of approval, to ensure consistency with the existing character of the surrounding area. This process would examine elements of each proposed custom home, including size, scale, massing, setback, and color. In addition, the HOA Design Review Guidelines and Landscape Design Plan will include specific provisions regarding setbacks, backyard structures, and vegetative buffers along the perimeter of Madrone Trail. Compliance with these procedures will be required by the project's covenants, conditions, and restrictions, which will be reviewed by the County.	Less than Significant
Impact AES-2: New exterior lighting from the project could adversely impact nighttime views in the area.	Significant	Mitigation Measure AES-2: A lighting plan for any proposed exterior lighting must be submitted to the Contra Costa County Department of Conservation and Development, Community Development Division for review and approval. Exterior lighting must be directed downward and away from adjacent properties and public/private right-of-way to prevent glare or excessive light spillover. Lighting bulbs must be limited to low intensity lights, including lighting for identification purposes. No free standing light poles will be allowed within the residential property. Landscaping lights must be limited ground-level for walking/safety purposes. If any lighting is proposed for the staging area, lighting must be also directed downward and away from adjacent properties. Lighting intensity may not be greater than what is reasonably required to safely illuminate the staging area.	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Agriculture and Forestry			
Impact AG-1: Implementation of the project would result in the loss of forest land at the project site and thus would conflict with forest land zoning as established by California Public Resources Code 12220(g).	Significant	See Mitigation Measure BIO-8	Less than Significant
Air Quality			
Impact AQ-1: Site preparation and grading would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$.	Significant	Mitigation Measure AQ-1: The contractor will adhere to the following best management practices during construction: ▪ All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. ▪ All haul trucks transporting soil, sand, or other loose material offsite shall be covered. ▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ▪ All vehicle speeds on unpaved roads shall be limited to 15 miles per hour. ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. ▪ Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		certified mechanic and determined to be running in proper condition prior to operation. ▪ Post a publicly visible sign with the telephone number and person to contact at the construction contractor's office regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.	
Biological Resources			
Impact BIO-1: Grading and construction of the project has the potential to result in harm or mortality to individual Alameda whipsnake, if present in woodpiles or under other debris along the western boundary of the project site.	Significant	Mitigation Measure BIO-1a: The project proponent shall consult with the USFWS and CDFW regarding potential impacts of the project on Alameda whipsnake, and shall obtain the appropriate take authorization (Section 7 Biological Opinion and/or 2081 permit or 2080.1 consistency determination) as specified by the USFWS and CDFW prior to initiation of construction activities. The project proponent shall comply with all terms of the endangered species permits, including any mitigation requirements, and provide evidence of compliance to the County prior to issuance of a grading permit. Mitigation Measure BIO-1b: In order to allow any snakes and lizards that currently use the small woodpiles west of the residence to seek alternative cover, the woodpiles shall be removed gradually and under the supervision of an agency-approved biologist prior to the start of construction. Depending upon the size of the woodpiles, a quarter to a third of the piles should be manually removed every five days. In addition, an agency-approved biologist shall monitor removal of the eucalyptus trees and construction of the wetland mitigation area in the western portion of the project site, if wetland restoration or tree removal in this area is conducted (see **Mitigation Measure BIO-6b)**. Mitigation Measure BIO-1c: A preconstruction survey for Alameda whipsnake shall be conducted by a 10(a)(1)(A)	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		permitted biologist not more than 24 hours prior to the start of any site disturbance activities. All suitable habitat features that may be used by Alameda whipsnake shall be identified, marked, and mapped during the preconstruction survey. The removal or destruction of suitable habitat features and all initial ground disturbances (e.g. clearing and grubbing) shall be conducted under the direct supervision of the agency approved biologist prior to the onset of site grading. If Alameda whipsnake are detected within the project work area, site disturbance shall be halted until the snake has been relocated by a 10(a)(1)(A) permitted biologist as approved and directed by the USFWS and CDFW. Terms of the salvage shall be established in consultation with USFWS and CDFW prior to initiation of construction activities, and approved relocation may be in suitable habitat in the open space and critical habitat area west of the project site. Mitigation Measure BIO-1d: Upon completion of the preconstruction survey, a snake exclusion fence not less than 4 feet in height with one-way exit funnels (to allow Alameda whipsnake to passively move out of the construction zone), and buried at least 4 inches in the ground shall be installed around the southern and western boundaries of the project development site. The fence shall be installed under the guidance of an agency approved biologist who is knowledgeable about Alameda whipsnake, and shall be maintained until all vegetation removal and earthwork for the project has been completed. The fence shall be inspected by the construction team on a daily basis (i.e., every workday), and repairs shall be made immediately if the integrity of the fence is compromised. Mitigation Measure BIO-1e: All construction personnel shall attend an informational training session conducted by an agency approved biologist prior to the start of any site disturbance activities, including demolition. This session will cover identification of the species and procedures to be followed if an individual is found onsite, as well as biology and	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		habitat needs of this species. Handouts will be provided and extra copies will be retained onsite. Construction workers shall sign a form stating that they attended the program and understand all protection measures for the Alameda whipsnake. Additional training sessions will be provided to construction new personnel during the course of construction. Mitigation Measure BIO-1f: Trenches or pits greater than 1 foot deep that are created during earthwork for the project shall be covered with plywood or an earthen ramp will be made each night after work so no organisms are trapped. Trenches and pits shall be inspected by a designated member of the construction team who has been trained by the agency-approved biologist prior to the start of earthwork each day. Any vertebrate organisms observed in such areas shall be allowed to escape to the safety of adjacent cover. Mitigation Measure BIO-1g: Best Management Practices shall be implemented to minimize the potential mortality, injury, or other impacts to Alameda whipsnake. Erosion control materials shall not include small-mesh plastic netting, which could result in entanglement and death. All food trash items shall be removed from the project site daily to reduce the potential for attracting predators of Alameda whipsnake which could scavenge uncovered snakes. Mitigation Measure BIO-1h: An agency approved biological monitor knowledgeable about Alameda whipsnake will be the point of contact for the construction team. The USFWS will be notified immediately if Alameda whipsnakes are detected within the project site. The CDFW will also be notified after contacting the USFWS.	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact BIO-2: Construction of the project during nesting season has the potential to result in a take of protected birds or create disturbance that could result in nest abandonment.	Significant	Mitigation Measure BIO-2: If construction-related site disturbance commences between February 1 and August 31, a qualified biologist shall conduct a pre-construction bird nesting survey. If nests of either migratory birds or birds of prey are detected on or adjacent to the site, a no-disturbance buffer (generally 50 feet for passerines, 0.5 mile for golden eagle, 1,000 feet for Swainson's hawk, and 300 feet for other raptors) in which no new site disturbance is permitted shall be observed up to August 31, or until the qualified biologist determines that the young are foraging independently. The size of the no-disturbance buffer shall be determined by a qualified biologist, and shall take into account local site features and existing sources of potential disturbance. If more than 15 days elapse between the survey and the start of construction, the survey shall be repeated. If vegetation removal, building demolition, or earthwork stages are phased over multiple years, the pre-construction survey and nest-avoidance measures described above would need to be repeated.	Less than Significant
Impact BIO-3: Building demolition and tree removal could result in a take of roosting bats, including a maternity colony, if present.	Significant	Mitigation Measure BIO-3a: A qualified biologist knowledgeable about local bat species and experienced with bat survey methods shall inspect all structures and trees that could support bats at the project site prior to the start of site disturbance (e.g., demolition, vegetation removal, and earthwork). Surveys should be conducted during appropriate weather to detect bats (i.e., not in high winds or during heavy rain events). One daytime and up to two nighttime surveys (starting at least 1 hour prior to dusk) should be conducted to determine if bats are present. If bats are detected, additional surveys utilizing acoustic monitoring or other methods may be necessary depending on the recommendations of the bat biologist. Mitigation Measure BIO-3b: Preconstruction surveys for bats should be conducted within two weeks prior to the removal of any trees or structures that are deemed to have potential bat	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		roosting habitat. If bats are detected on site and would be impacted by the project, then appropriate mitigation measures would be developed with approval from CDFW. Mitigation measures would include one or more of the following methods: using one-way doors to exclude non-breeding bats, opening up roof areas of structures to allow airflow that would deter bats from roosting, and taking individual trees down in sections to encourage bats to relocate to another roost site. Typically this work is conducted in the evening when bats are more active, and this work should be conducted under the guidance of an experienced bat biologist. Mitigation Measure BIO-3c: Mitigation for impacts to a maternity bat roost, if detected, would be determined through consultation with CDFW and may include construction of structures that provide suitable bat roosting habitat (i.e., bat houses, bat condos) for the particular species impacted.	
Impact BIO-4: Project construction activities (i.e., ground disturbance, vegetation removal, and earthwork) could result in the take of an active San Francisco dusky-footed wood rat lodge.	Significant	Mitigation Measure BIO-4: Not more than 30 days before initial ground disturbance, a qualified biologist shall conduct a survey of the project site to determine whether San Francisco dusky-footed woodrat lodges have been constructed within the work area. If no woodrat lodges are present within the work area, no further mitigation is required. If San Francisco dusky-footed woodrat lodges are observed within the area subject to ground disturbance, a woodrat mitigation plan describing habitat enhancement and relocation of the lodge(s) to an area not subject to site disturbance within the project site or the remainder parcel shall be prepared and submitted to CDFW for approval prior to the start of ground disturbance.	Less than Significant
Impact BIO-5: If American badger establishes dens within the project site, construction activities could result in the take of an active den.	Significant	Mitigation Measure BIO-5: A qualified biologist shall conduct a preconstruction survey for the American badger within 14 days prior to the start of construction. If no potential dens are found, no additional measures are required. If an active badger den is found, consultation with CDFW would be	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		required. Construction would be halted within 100 feet of the den during the breeding season (summer through early fall), and hand excavation of dens during the non-breeding period would be required subject to CDFW approval.	
Impact BIO-6: The project would require the filling and daylighting of drainages and seasonal wetlands onsite.	Significant	Mitigation Measure BIO-6a: The removal of riparian trees and shrubs will be avoided and minimized to the extent feasible. Hazard reduction associated with structurally unsound trees, and the risks of failure given proximity to improvements proposed in the project, shall be considered and addressed through tree removals and pruning specified by a certified arborist. Mitigation to compensate for the removal of riparian trees shall be accomplished through replacement plantings of locally native trees at not less than a 3:1 replacement to-loss-ratio within the project site or an alternative location approved by CDFW. With regards to riparian trees, this mitigation measure shall supersede other mitigation included in this draft EIR that prescribe tree replacement ratios to reduce other impacts. A riparian restoration plan detailing the following elements shall be prepared: ▪ The number, species, and location of riparian mitigation plantings that will be planted in the restoration area; ▪ Performance standards requiring a minimum 75 percent survival rate; average of good vigor and positive height growth of riparian mitigation trees after ten years; seasonal planting timing; and method of supplemental watering during the establishment period; ▪ The monitoring period, which shall be not less than 10 years for riparian restoration; ▪ Adaptive management procedures that may be employed as needed to ensure the success of the restoration project. These include, but are not limited to, exotic and invasive plant species control, the use of browse barriers to protect riparian plants from wildlife damage,	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		replacement plantings and management of the supplemental watering system to support the attainment of the foregoing performance standards; ▪ Management and maintenance activities, including weeding, supplemental irrigation, site protection; and ▪ Responsibility for maintaining, monitoring and ensuring the preservation of the mitigation site in perpetuity. In replacing riparian trees, the arborist shall review the final project grading plans to ensure that adequate tree preservation methods, guidelines, and conditions are in place. The arborist shall conduct pre-demolition site meetings with the contractor to determine clearance pruning, stump removal techniques, fencing placement and timing, and tree protection. The arborist shall have site meetings after demolition to review and confirm tree protection fencing position for the grading and construction portion of the subdivision. The arborist shall be guided by the standard protocols set forth in the American National Standards Institute (ANSI) A300 Standard, Part 5 (2005) and the International Society of Arboriculture's publication *Best Management Practices: Managing Trees During Construction* (2008). Mitigation Measure BIO-6b: The fill of jurisdictional wetlands and unvegetated other waters will be avoided and minimized to the extent feasible. Authorization for the fill of waters of the U.S. and State shall be obtained by the project proponent prior to the start of construction. Mitigation for the fill of wetlands and other waters shall be accomplished through the creation of seasonal freshwater wetlands and unvegetated other waters at a minimum 1:1 replacement ratio within the project site, at an approved wetland mitigation bank, or at another location within the Walnut Creek watershed approved of by the USACE, RWQCB, and CDFW. The mitigation goal shall be to create and enhance aquatic	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		habitats with habitat functions and values greater than or equal to those that will be impacted by the proposed project. Wetland mitigation within the project site or at another location within the Walnut Creek watershed would be described in a wetland mitigation plan that would: Be prepared consistent with the Final Regional Compensatory Mitigation and Monitoring Guidelines (USACE 2015) and the Compensatory Mitigation for Losses of Aquatic Resources: Final Rule (USACE 2008); Define the location of all restoration and creation activities; Describe measures that would ensure that adjacent land uses would not adversely affect the ecological functions and values of the wetland mitigation area, so as to ensure consistency with the foregoing federal guidelines and rules. Such measures may include the use of appropriately-sized buffers between the wetland mitigation area and any adjacent development, the use of fencing or walls to prevent unauthorized access, lighting in adjacent development designed to avoid light spillage into the wetland mitigation area, landscape-based Best Management Practices for adjacent development prior to discharge into the wetland mitigation area, and signage describing the sensitive nature of the wetland mitigation area. ▪ Provide evidence of a suitable water budget to support restored and created wetland habitats; ▪ Identify the species, quantity, and location of plants to be installed in the wetland habitats; ▪ Identify the time of year for planting and method for supplemental watering during the establishment period; ▪ Identify the monitoring so as to ensure consistency with the foregoing federal guidelines and rules, which shall be not less than five years for wetland restoration; ▪ Define success criteria that will be required for	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		restoration efforts to be deemed a success; ▪ Identify adaptive management procedures that may be employed as needed to ensure the success of the mitigation project and its consistency with the foregoing federal guidelines and rules. These include, but are not limited to, remedial measures to address exotic invasive species, insufficient hydrology to support the attainment of performance standards, and wildlife harm; ▪ Define management and maintenance activities, including weeding, supplemental irrigation, and site protection; and ▪ Define responsibility for maintaining, monitoring and ensuring the preservation of the mitigation site in perpetuity. The project applicant shall comply with all terms of the permits issued by these agencies, including mitigation requirements, and shall provide proof of compliance to the County prior to issuance of a grading permit.	
Impact BIO-7: The project could result in the degradation of water quality in the intermittent drainages and downstream waters.	Significant	Mitigation Measure BIO-7: Adverse impacts to water quality shall be avoided and minimized by implementing the following measures: ▪ Prior to the start of site disturbance activities, construction barrier fencing and silt fencing shall be installed around the perimeters of wetlands and drainages that are to be protected during construction of the project to prevent movement of sediments into these features. Any debris that is inadvertently deposited into these features during construction shall be removed in a manner that minimizes disturbance. ▪ All construction within jurisdictional features shall be conducted consistent with permits issued by USACE, RWQCB, and CDFW. Construction activities within these features shall be completed promptly to minimize their duration and resultant impacts.	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		▪ Contractors shall be required to implement a Stormwater Pollution Prevention Plan that describes BMPs including the conduct of all work according to site-specific construction plans that minimize the potential for sediment input to the aquatic system, avoiding impacts to areas outside the staked and fenced limits of construction, covering bare areas prior to storm events, and protecting disturbed areas with approved erosion control materials. ▪ Bioretention planters, vegetated swales, and other landscape-based BMPs to catch and filter runoff from impervious surfaces shall be implemented throughout the project site to protect water quality in receiving waters.	
Impact BIO-8: Several protected trees would be removed to allow for project construction.	Significant	Mitigation Measure BIO-8: A Tree Replacement Plan shall be submitted to and approved by the County prior to the removal of trees and/or prior to the issuance of a grading permit. The replacement ratio shall be 3:1 for trees that are removed within riparian corridors, 2:1 for drought tolerant trees, and 1:1 for non-drought tolerant trees. The Tree Replacement Plan shall identify the total number of trees to be replanted in accordance to the above discussed ratio. The Tree Replacement Plan shall designate the approximate location, number, and sizes of trees to be planted on each lot. In addition, prior to submittal of a building permit for each home, a licensed landscape architect shall submit a landscape plan designating the final location and species of trees in general conformance with the Tree Planting Plan. Trees shall be planted prior to final of building permit. Replacement plantings shall consist of locally appropriate native species and non-invasive species. Tree species identified as a pest species by the California Invasive Plant Council shall not be used as replacement plantings. In designing the Tree Replacement Plan, the arborist shall review the final project grading plans to ensure that adequate	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		tree preservation methods, guidelines, and conditions are in place. The project arborist shall host pre-demolition meetings with the general contractor and demolition contractor to determine clearance pruning, stump removal techniques, fencing placement and timing, and tree protection. The arborist shall conduct post-demolition meetings to review and confirm tree protection fencing for grading and construction. The arborist shall incorporate standard protocols set forth in the American National Standards Institute (ANSI) A300 Standard, Part 5 (2005) and the International Society of Arboriculture's *Best Management Practices: Managing Trees During Construction (2008).* The County will determine the number of replacement trees to be planted offsite if the project site cannot sustainably support the required number of replacement trees.	
Cultural and Tribal Resources			
Impact CUL-1: Construction of the project could potentially cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	Significant	Mitigation Measure CUL-1: Pursuant to CEQA Guidelines Section 15064.5, and other applicable law, in the event that any prehistoric, historic, archaeological, or paleontological resources are discovered during ground-disturbing activities, all work within 100 feet of the resources shall be halted and the proponent shall consult with the County and a qualified professional (historian, archaeologist, and/or paleontologist, as determined appropriate and approved by the County) to assess the significance of the find. If any find is determined to be significant, representatives of the County and the consulting professional shall determine, with the input of any affected California Native American tribe, the appropriate avoidance measures, such as planning greenspace, parks, or other open space around the resource to preserve it and/or its context (while protecting the confidentiality of its location to the extent feasible) or other appropriate mitigation, such as protecting the historical or cultural value of the resource through data recovery or	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		preservation. In considering any suggested mitigation proposed by the consulting professional to mitigate impacts to cultural resources, the County shall determine whether avoidance is feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures, such as data recovery, shall be instituted. The resource shall be treated with the appropriate dignity, taking into account the resource's historical or cultural value, meaning, and traditional use, as determined by a qualified professional or California Native American tribe, as is appropriate. Work may proceed on other parts of the project site while mitigation for cultural resources is carried out. All significant cultural materials recovered shall, at the discretion of the consulting professional, be subject to scientific analysis, professional museum curation, and documentation according to current professional standards. At the County's discretion, all work performed by the consulting professional shall be paid for by the proponent and at the County's discretion, the professional may work under contract with the County.	
Impact CUL-2: Construction of the project could potentially cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to Section 15064.5.	Significant	See Mitigation Measure CUL-1	Less than Significant
Impact CUL-3: Construction of the project potentially could directly or indirectly destroy a unique paleontological resource on site or unique geologic feature.	Significant	See Mitigation Measure CUL-1	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact CUL-4: Construction of the project could potentially disturb human remains, including those interred outside of formal cemeteries.	Significant	Mitigation Measure CUL-2: In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken: 1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: ▪ The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and ▪ If the coroner determines the remains to be Native American: o The coroner shall contact the Native American Heritage Commission within 24 hours; o The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American; o The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98; or 2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance: ▪ The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the Commission; ▪ The identified descendant fails to make a recommendation; or ▪ The landowner or his authorized representative rejects	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.	
Impact CUL-5: Construction of the project could potentially cause a substantial adverse change in the significance of an unknown tribal cultural resource.	Significant	See Mitigation Measures CUL-1 and CUL-1	Less than Significant
Energy			
There are no significant impacts to Energy			
Geology and Soils			
Impact GEO-1: The project could be subject to strong seismic shaking from regional geologic faults.	Significant	Mitigation Measure GEO-1: The project proponent shall design structures and foundations to withstand expected seismic sources in accordance with the current version of the California Building Code, as adopted by the County. Prior to the issuance of a building permit, the Contra Costa County Department of Conservation and Development shall verify that plans incorporate seismic site categorization and design coefficients in conformance with the most recent version of the California Building Code. The project sponsor shall be required to provide evidence that a qualified geotechnical engineer has reviewed final grading, drainage, and foundation plans for consistency with California Building Code and Uniform Building Code design standards, and verify that all pertinent recommendations of the geotechnical engineer are incorporated into final building plans (see Mitigation Measure GEO-2).	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Impact GEO-2: Soils on the project site are unstable and could experience soil failure or other geotechnical hazards.	Significant	Mitigation Measure GEO-2: A design-level geotechnical report shall provide recommendations to address soil stability on the project site. Performance measures shall include, but not be limited to, those described below. ▪ To reduce the potential for adverse settlement or stability problems, compressible native soils, artificial fill, and any compressible alluvium shall be replaced with engineered fill and/or improvements designed to accommodate the anticipated settlement. To reduce the expansion potential of the fill, moisture conditioning of clayey fill materials to above-optimum moisture content should be anticipated. Detailed fill placement recommendations will be provided based on laboratory testing and analysis performed in conjunction with the design-level geotechnical report. ▪ Depending on the location and characteristics of compressible native soils and artificial fill, some building pads may require drilled pier and grade beam foundations to achieve the desired level of structural support. This technique entails drilling pier holes below the depth of seasonal moisture changes and into more stable soils below. The pier holes are backfilled with concrete and reinforcing steel rebar, resulting in a structure with low movement risk. ▪ Most of the existing fill slope located along the rear of Lots 11 through 14 and Lots 18 through 20 will require corrective grading. For existing fills that remain in place, setbacks from the toe of the existing fill slope can be developed based on the findings of the design-level geotechnical exploration. In general, all proposed improvements should be set back from the toe of the slope a distance equal to, or greater than, the height of the existing fill slope. ▪ If after rough grading, testing of the pad soils determines that soils on the project site are corrosive, the project proponent will provide recommendation for foundations	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		that protect building materials (such as concrete and steel) in contact with the ground surface. ▪ The design-level geotechnical report will characterize shrink/swell properties of on-site soils. Design-level mitigation will be required to reduce the risk associated with expansive soils, which may include the following. o Excavate expansive soils and replace with non-expansive fill. o Avoid siting structures across soil materials of substantially different expansive properties. o Extend building foundations below the zone of seasonal moisture change. o Utilize pier and grade beam foundation system. o Utilize post-tensioned slabs o Prevent accumulation of surface water adjacent to or under foundations. ▪ Depending on the results of the design-level geotechnical report, the potential danger posed by liquefiable soils would be mitigated by appropriate soil and structural stabilization measures, such as compaction grouting and/or designing structures to accommodate anticipated settlement. ▪ Where development encroaches into the hilly, western areas of the project site, remedial grading will be required to reduce the potential for adverse impacts from slide movement and soil creep. Specific grading measures should be developed on a case-by-case basis where development encroaches into the mapped landslide areas. Measures may include: o Benching through the surficial soils during fill placement o Drilled pier and grade beam foundation systems to accommodate lateral loads from soil creep o Properly engineered cut and fill slopes o Stabilization of landslide areas o Creation of sufficient buffers between the identified landslide areas and development area	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		▪ Maintenance benches should be provided at the toe of major cut slopes (cut slopes higher than 10 feet) or natural slopes that extend upslope of the area of planned development. The width of the bench should be approximately 15 feet wide or as determined necessary by a licensed geotechnical engineer, depending on the height and steepness of the adjacent slope, to ensure compliance with applicable provisions of the California Building Code. ▪ A cut slope is planned on the upslope side of proposed Lot 29 that would be about 18 feet high and have a gradient of about 2:1. This proposed cut slope may encounter relatively shallow bedrock. Additional exploration must determine if a 2:1 slope is feasible in this location. If subsurface conditions are such that a 2:1 slope is not feasible, the slope should be flattened to a gradient no steeper than 2½:1, or reconstructed as an engineered fill slope with an appropriate keyway and subdrainage.	
Impact GEO-3: The project site could experience hazards related to liquefaction or other seismic-related ground failure.	Significant	See Mitigation Measures GEO-1 and GEO-2	Less than Significant
Impact GEO-4: Evidence of landslide areas in the hills west of the project site suggests that the area experienced landslides in the past.	Significant	See Mitigation Measures GEO-1 and GEO-2	Less than Significant
Impact GEO-5: The project site could be located on expansive soils.	Significant	See Mitigation Measures GEO-1 and GEO-2	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Greenhouse Gas Emissions			
Impact GHG-1: The project may conflict with the Contra Costa County Climate Action Plan.	Significant	Mitigation Measure GHG-1: The following improvements will be included as requirements for building permits for any applicable structure on the project site: ▪ The proposed project shall install high-efficiency kitchen and laundry appliances (e.g., Energy Star-rated appliances or equivalent). Tankless water heaters or a similar hot water energy-saving device or system shall be installed. ▪ The project proponent will develop a solar exposure study to determine which residences would benefit from solar energy. The solar study will be submitted prior to obtaining a building permit. Residences that would cost-effectively benefit from solar energy shall be wired to be solar ready, as defined by the California Building Standards Code. Residences that would not cost-effectively benefit from solar energy shall have the attic insulated with R-49 insulation batts to prepare for the statewide transition to zero net energy. ▪ The proposed project shall provide prewiring for electric vehicle charging stations for each residence.	Less than Significant
Hazards and Hazardous Materials			
Impact HAZ-1: Soils within portions of the project site may contain residual agrichemicals	Significant	Mitigation Measure HAZ-1: Prior to issuance of any demolition, grading, or building permit, a site evaluation will investigate for agrichemical contamination on portions of APN 198-170-008 proposed for residential development. Soil samples will be collected and tested for organochlorine pesticides, lead, and arsenic by a qualified professional to assess potential environmental impacts from past agricultural practices. Concentrations of agricultural contaminants will be compared to applicable U.S. Environmental Protection Agency screening levels for residential development. The project applicant shall submit a comprehensive report to the County, signed by a qualified environmental professional, documenting the presence or lack of agrichemicals on APN	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		198-170-008. If this assessment finds presence of such chemicals, the project applicant shall create and implement a remediation plan that ensures workers and future residents are not exposed to concentrations in excess of applicable EPA screening levels and risks associated with these agrichemicals. Potential safety measures could include soil removal and treatment or protective work attire requirements for construction workers.	
Impact HAZ-2: Demolition of existing structures on the site could result in the release of lead, asbestos, and other contaminants.	Significant	Mitigation Measure HAZ-2: Prior to issuance of any demolition, grading, or building permit, the project applicant shall submit a comprehensive report to the County, signed by a qualified environmental professional, documenting the presence or lack of asbestos, lead-based paint, and any other building materials or stored materials classified as hazardous waste by State or Federal law. If this assessment finds presence of such materials, the project applicant shall create and implement a health and safety plan to ensure workers are not exposed to contaminants in excess of OSHA and other applicable State and Federal standards and associated risks associated with hazardous materials during demolition, renovation of affected structures, transport, and disposal.	Less than Significant
Hydrology and Water Quality			
Impact HYD-1: Project construction activities could substantially alter the existing drainage pattern of the project site in a manner which would result in substantial offsite erosion or siltation.	Significant	See Mitigation Measure BIO-7	Less than Significant
Impact HYD-2: Construction activities could substantially degrade water quality.	Significant	See Mitigation Measures BIO-6b and BIO7	Less than Significant
Land Use and Planning			
There are no significant impacts to Land Use and Planning			

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Mineral Resources			
There are no significant impacts to Mineral Resources			
Noise			
Impact NOI-1: The project would substantially increase ambient noise levels in the project vicinity above existing levels.	Significant	Mitigation Measure NOI-1: Prior to the issuance of building permits, any outdoor mechanical equipment, air conditioning units, or pumps shall be selected and designed to reduce impacts on surrounding uses. A qualified acoustical consultant shall be retained by the project applicant to review mechanical noise as the equipment systems are selected in order to determine specific noise reduction measures necessary to reduce noise to 55 dBA DNL at the shared property line. Noise reduction measures could include, but are not limited to, locating equipment in shielded and/or less noise-sensitive areas, selection of equipment that emits low noise levels, and/or installation of noise barriers such as enclosures to block the line of sight between the noise source and the nearest receptors. Other feasible controls could include, but shall not be limited to, fan silencers, enclosures, and mechanical equipment screen walls.	Less than Significant
Impact NOI-2: Existing noise-sensitive land uses would be exposed to construction noise levels for over one year.	Significant	Mitigation Measure NOI-2: Abatement of excessive noise from off-road construction equipment would be accomplished by means of temporary acoustical screens of suitable height and extent. Such screens would completely interrupt the line-of-sight between the equipment and receptors of the noise and would have no gaps or openings. Efficacy would be maximized by placing screens as close to noise sources as possible. Sound screens will be approximately 12 feet in height and will provide approximately 8 decibels reduction in noise levels at the first and second stories of nearby homes. When construction noise impacts reach a level below 70	Less than Significant

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Ldn/CNEL at the nearest homes, the temporary screens can be removed. Construction is likely to be concentrated in one or a few contiguous areas at a time during each phase. Therefore, sound screens need not extend along the entire site perimeter at once, but could be shorter and moved folloing the work so as to provide shielding to one or more sensitive receptors near the work area. However, in order to maintain the full acoustic benefit, these screens will extend at least 1.5 times their height past each side of the area where construction equipment is to operate. This will minimize sound escaping around the ends of the screens. Mitigation Measure NOI-3: The applicant shall develop a construction mitigation plan with input from County staff to minimize construction noise disturbance. Considering the potential for substantial increases in noise at adjacent residences as a result of project construction, the following conditions shall be incorporated into contract agreements to reduce construction noise impacts: ▪ Restrict noise-generating activities including construction traffic at the construction site or in areas adjacent to the construction site to the hours of 8:00 a.m. to 5:30 p.m., Monday through Friday, with no construction allowed on Federal and State weekends and holidays. ▪ Potential contractors shall be requested to submit information on their noise management procedures and demonstrate a successful track record of construction noise management on prior projects. ▪ The selected contractor will equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		the equipment. ▪ The selected contractor will prohibit unnecessary idling of internal combustion engines. ▪ The selected contractor will locate stationary noise generating equipment, such as air compressors or portable power generators, as far as practical from sensitive receptors. ▪ The selected contractor will utilize "quiet" air compressors and other stationary noise sources where technology exists. ▪ The selected contractor shall limit the allowable hours for the delivery of materials or equipment to the site and truck traffic coming to and from the site for any purpose to Monday through Friday between 8:00 a.m. and 5:30 p.m. ▪ The selected contractor will establish construction staging areas and material stockpiles at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction as is feasible. ▪ During tree demolition, the woodchipper shall be located on Lot 30 to reduce the effect of noise levels to sensitive receptors. If the chipper is to be moved into other areas of the site, a qualified registered professional Noise Consultant shall determine the allowable distance from sensitive receptors so as to ensure consistency with the County's noise thresholds. A noise contour map will be provided defining the boundaries of the chipper access on the project. ▪ The selected contractor will route all construction traffic to and from the project site via designated truck routes where possible and prohibit construction related heavy	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		truck traffic in residential areas where feasible. ▪ The selected contractor will control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site. ▪ After grading is complete and during construction of site improvements, the contractor will limit use of the property a distance of 75 feet from adjacent neighbor's properties. Stockpiles and equipment storage shall be predominately on interior lots. ▪ The selected contractor will notify neighbors located adjacent to the construction site of the construction schedule in writing. ▪ The selected contractor will designate a project liaison that will be responsible for responding to noise complaints during the construction phase. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible. ▪ The selected contractor will hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed. ▪ Neighboring property owners within 300 feet of construction activity shall be notified in writing of the	

Environmental Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		construction schedule and at least 30 days prior to loud noise-generating activities. Notification will include the nature and estimated duration of the activity. ▪ A qualified acoustical professional shall be retained as needed to address neighbor complaints as they occur. If complaints occur, noise measurements could be conducted to determine if construction noise levels at adjacent property lines are within acceptable performance standards. Short-term construction noise monitoring could also be utilized to diagnose complaints and determine if additional reductionary measures are required for certain phases of construction. Additional measures might include temporary local barriers around specific construction equipment or property line barriers. The location, height, and extent of the barriers would be provided by the acoustical professional.	
Population and Housing			
There are no significant impacts to Population and Housing			
Public Services and Recreation			
There are no significant impacts to Public Services and Recreation			
Transportation and Traffic			
There are no significant impacts to Transportation and Traffic			
Utilities and Service Systems			
There are no significant impacts to Utilities and Service Systems			

3.0 PROJECT DESCRIPTION

3.1 INTRODUCTION

This draft environmental impact report (draft EIR) evaluates the potential impacts of the Ball Estates project (project), a proposed subdivision of the existing approximately 61-acre project site in the unincorporated Alamo area of Contra Costa County (County). The project applicant, Camille Avenue, LLC, and Camille Ironwood Properties, LLC, is requesting a vesting tentative map for 35 residential lots located on approximately 20 acres in the lower northeastern portion of the project site. A staging (parking) area that would provide access to local trails is also proposed. The rest of the site, approximately 41 acres, would remain open space. The construction of roads, utilities, and ancillary services associated with the residential homes is considered as part of the project, as well as the removal of the two existing residences, office building, and auxiliary structures.

The Contra Costa County Department of Conservation and Development is the Lead Agency for this environmental review. The County has prepared this draft EIR to assess potential environmental impacts of the project and has prepared this draft EIR pursuant to the *2017 California Environmental Quality Act [CEQA] Statute and Guidelines*. CEQA requires all state and local government agencies to consider the environmental consequences of a project over which they have discretionary authority.

3.2 LOCATION

As shown in **Figure 3-1**, the project site is located in the Alamo area west of Danville Boulevard. Entry to the project site is available from the western terminus of two public streets: Camille Avenue and Ironwood Place.

The project site is surrounded by single-family residential development to the northwest, northeast, and southeast. Las Trampas Regional Wilderness, owned and managed by the East Bay Regional Park District (EBRPD), borders the project site to the west and south. Camille Lane (a private street) forms the southeastern site boundary.

The property addresses are 300 and 333 Camille Avenue. The Assessor's Parcel Numbers (APN), currently shown on the County Assessor's map, are 198-170-006 and 198-170-008 (see **Figure 3-2**). Five legal parcels currently comprise the project site. The County Assessor's map is not updated to reflect the five legal parcels, but Certificates of Compliance have been issued by the County. The applicant owns all five parcels.

The *Contra Costa County General Plan 2005-2020* (General Plan) designates the eastern approximately 20 acres of the project site as Single-Family Residential – Low Density (SL), which allows 1.0 to 2.9 units per acre. The remainder of the project site is designated Open Space (OS). The County Zoning Map designates the entire project site as Single-Family Residential – Lot Size 20,000-square-foot minimum (R-20).

3.3 SITE CHARACTERISTICS

The approximately 61-acre project site currently contains a residential estate, caretaker living quarters buildings, a barn and horse pasture area, an office building, two non-producing and abandoned walnut orchards, open space, and paved driveways.

The estate area includes an 8,000-square-foot house, swimming pool, pool house, and landscaping of native and exotic trees and pasture, ornamental shrubs, lawn, and flower gardens. The estate home was constructed between 1912 and 1914 and has been remodeled and modified many times. The property was purchased by the Ball Family in 1946, and the family resided on the property until recently.

An approximately 20,700-square-foot office building was approved pursuant to a use permit in the 1970s. The office building is served by a parking lot with approximately 45 parking spaces. Occupancy at the office building varies over time in accordance with market demand.

The barn and horse pasture area include an approximately 900-square-foot caretaker living quarters with an approximately 700-square-foot carport. A non-producing walnut orchard is located at the northern portion of the project site, and a second non-producing walnut orchard is located at the southeastern portion of the project site. These orchards are maintained by mowing and disking, but are not commercially farmed and the walnut trees have been abandoned.

The western two-thirds of the project site are designated as open space in the General Plan. This undeveloped, hilly area consists of oak-bay woodland, minor drainages, bluegum eucalyptus (*Eucalyptus globulus*), non-native annual grassland, and scattered patches of chaparral. EBRPD lands are located west of this open space area, which are accessed by the EBRPD-managed Madrone Trail. This trail commences at the existing terminus of Camille Avenue and then skirts the southeastern property boundary until it reaches EBRPD property (see **Figure 3-3**).

The project site contains five seasonal freshwater wetlands and two intermittent drainages within the project site (see **Figure 4.10-1**). The drainages flow in an easterly direction, conveying runoff from open space land to the west to an offsite storm drainage system that ultimately drains to San Ramon Creek. Drainage 1 bisects the center of the project site, situated within the mature horticultural landscape south and east of the residence. Portions of Drainage 1 were relocated in the past. Drainage 2 travels along the southern boundary of the project site before dissipating into two seasonal wetlands.

Wetland 1 is located west of the estate residence, partially on proposed Lot 9 and proposed Parcel C, and may be associated with a seep and drainage on the upper hillside of the adjacent open space to the west. Wetlands 2 and 3 are located in the southeastern portion of the project site and are associated with culverted discharge from Drainage 2 and runoff from the parking lot and roof of the office buildings. Wetlands 4 and 5 are located on EBRPD property upstream of Drainage 2 (see **Section 4.4, Biological Resources**). Currently, stormwater runoff from the project site generally flows in an easterly direction to an offsite storm drain system that ultimately drains to San Ramon Creek. Approximately five percent of the existing site is considered impervious (paved and hardscaped areas that prevent rainwater from penetrating into the soil).

There are approximately 3,489 trees on the project site; approximately 2,754 in the upper open space areas and approximately 735 in the area proposed for development. Approximately 225 trees in the proposed development area are native species, such as blue oak (*Quercus douglasii*), California black oak (*Q. kelloggii*), coast live oak (*Q. agrifolia*), valley oak (*Q. lobata*), California bay laurel (*Umbellularia californica*), California buckeye (*Aesculus californica*), and western cottonwood (*Populus fremontii*). Remaining trees, including approximately 180 abandoned orchard trees, are not native to the Alamo area.

3.4 PROJECT COMPONENTS

As described below, the project would subdivide the approximately 61-acre site to create 35 residential lots (development area), open space divided into undeveloped parcels (Parcels A, B, and C), and one staging area (Parcel D) to be dedicated to an appropriate open space organization. **Figure 3-4** depicts the project site with the Parcel D staging area.

The project would be subject to covenants, conditions, and restrictions (CC&Rs) creating a common interest subdivision. The CC&Rs would provide for the creation of a Homeowners Association (HOA) charged with mowing, maintaining, repairing, and replacing the private streets, portions of the undeveloped area and wetland mitigation areas created on site. The CC&Rs would also establish an Architectural Review Committee for construction of improvements on the lots, as well as Design Review Guidelines, an overall landscape plan, and Landscape Design Guidelines. Each future lot owner would be required to be a member of the HOA. The project would be phased pursuant to a vesting tentative map, and the applicant is seeking a development agreement, which is currently under review with the County.

3.4.1 DEVELOPMENT AREA

As shown in **Figure 3-4**, the northeastern approximately 20 acres of the project site would be divided into 35 residential lots ranging from approximately 20,000 square feet to approximately 52,000 square feet in area. Development density on these

approximately 20 acres would be approximately 1.76 units per acre, which is consistent with the prevailing General Plan designation and zoning. This subdivision would allow for the construction of 35 new single-family custom homes and associated roads, utilities, and ancillary services. Throughout this draft EIR, this area is interchangeably referred to as the 'development area', 'lower portion of the project site', and 'proposed residential portions of the project site'.

Under the proposed development plan, the existing residential estate, barn, caretaker living quarters, associated landscaping, auxiliary structures, office building, and parking lot would be removed from the site. Slopes within the project site near proposed Lots 10-14 and 18-20 would be repaired or geotechnical setbacks for the proposed structures would be established. Retaining walls (1 to 3 feet tall) are proposed on Lots 23-26 and 28. A retaining wall up to 12 feet tall is proposed on Lot 29.

3.4.2 OPEN SPACE AREA

The remaining approximately 41 acres of the project site would be protected from future development. For the purposes of this draft EIR, these parcels will collectively be referred to as the "upper portion of the project site" or the "open space area."

Parcel A - The approximately 1-acre Parcel A would be designated with a Scenic Easement and maintained by adjacent lot owners within the proposed subdivision or the future HOA.

Parcel B - The 34.7-acre Parcel B would be maintained as open space by the future property owners or HOA, or dedicated to an appropriate land conservation organization.

Parcel C - The 3.9-acre Parcel C would be a 100-foot-wide buffer between the residential development and the Parcel B open space. This parcel would be owned and maintained by future property owners or the HOA.

The project sponsor will provide a hazardous fire mitigation plan to address the abatement of hazardous weeds and brush to minimize fire fuel build up for all adjacent open space areas. To maintain 100 feet of defensible space and thereby reduce the risk of wildfires consistent with California Public Resources Code 4291, vegetation management will be required. The HOA will be responsible for reducing the amount of fuel within 100 feet of structures through annual mowing, grazing, pruning lower limbs from trees and removing dead vegetation (with mowing permitted only insofar as the 100-foot buffer overlaps private backyards of project residents). The plan will be required to be reviewed by the San Ramon Valley Fire Protection District and a County appointed biologist to ensure fire abatement will avoid impacts to biologic resources. The plan will be included as part of the project Covenants, Conditions, & Restrictions.

Parcel D - The 0.52-acre Parcel D would include a staging area for public parking and access to the adjacent EBRPD property via the existing Madrone Trail (see **Figure 3-4**). This staging area would include 19 parking spaces and a restroom. Additionally, a trail and small pedestrian bridge crossing an existing drainage channel would be constructed on the

adjacent EBRPD property. This crossing is discussed further in **Section 4.4**, **Biological Resources**, and **Section 4.10**, **Hydrology and Water Quality**.

A new trail through the adjacent EBRPD property would connect the Parcel D staging area to the existing Madrone Trail. A 22-foot-wide roadway would provide vehicular access from B Lane to the staging area parking lot. The paved surface of the staging area would be approximately 9,800 square feet, with drainage constructed according to County and EBRPD standards. The area disturbed by grading for the staging area and access road would be approximately 25,000 square feet. The existing pedestrian trail along Camille Lane would continue to provide hiker and equestrian access to Madrone Trail.

An 8-foot wide connector trail would be constructed in accordance with EBRPD standards across adjacent property owned by EBRPD for a distance of approximately 100 feet to the existing EBRPD Madrone Trail. This connector trail would cross a small drainage with a pedestrian bridge. The area disturbed by grading for the connecting trail would be approximately 800 square feet. If EBRPD does not accept the staging area, these areas would remain undeveloped and be owned and maintained by the HOA.

3.4.3 CIRCULATION AND TRAFFIC

Access to the project site from public streets would be controlled by a gate, which would also allow access to the Parcel D staging area during daylight hours. Trail access to the undeveloped portions of the site would be afforded by existing public hiking and equestrian trails, and a new connecting trail.

As shown on **Figure 3-4**, the project would include the following circulation modifications:

- **Ironwood Place (private)**: Ironwood Place would be extended north and west, approximately 760 feet from its current terminus. The new road would be approximately 28 feet wide. A gate would be installed between Lots 1 and 14.
- **Turnaround on Ironwood Place (public)**: A turnaround would be constructed on Ironwood Place on the public side of the proposed gate. This improvement would occur outside of the project boundary and be dedicated to Contra Costa County. A lot line adjustment between three parcels (APN: 198-262-002; 198-262-003; and 198-262-004) would be filed separately to accommodate the turnaround.
- **Emergency Access Road (EVA)**: A 20-foot-wide paved EVA would be constructed between Lots 5 and 6, connecting the existing Ironwood Place (terminating at the northwest project site boundary) to the proposed extension of Ironwood Place. An eight-foot-tall EVA gate attached to an 8-foot fence would be installed on the common property line between the project and the existing Ironwood Place.
- **Turnaround on Camille Avenue (public)**: A turnaround would be constructed at the end of Camille Avenue located on the public side of the proposed gate that would be

installed between Lots 15 and 21. This improvement would occur mostly within and partly outside the project boundary, and would be dedicated to the County.

- **"A" Drive (private)**: A 28-foot-wide roadway would be constructed south of Camille Avenue. The new road would be approximately 420 feet in length. A gate would be installed at its entryway at the end of the proposed Camille Avenue turnaround.
- **"A" Court (private)**: A 28-foot-wide roadway would be constructed south of A Drive. The new road would be approximately 250 feet in length.
- **"B" Lane (private)**: A 20-foot-wide roadway would be constructed at the end of A Drive to the south. The new road would be approximately 140 feet in length.
- **"B" Court (private)**: A new roadway would be constructed at the end of A Drive to the north. The new road would be 20-to 28-feet wide and approximately 640 feet in length. The "B" Court alignment would have a 20-foot by 40-foot bridge over a drainage channel on the project site.
- **Access easement from "B" Court:** An easement from "B" court that extends over Lot 28 would provide access to the Parcel D staging area, and would be 22-feet wide and approximately 250 feet in length.
- **Parcel B and C Access Easements:** Two easements for emergency access and maintenance would be provided to parcels B and C from Ironwood Place and crosses over Lots 8 and 9.
- **EBRPD Trail Easement**: EBRPD would continue to maintain an existing 10-foot-wide trail easement along Camille Lane and Lots 15 through 18, 27, and 28.
- **Connector Trail**: The Parcel D staging area would include an 8-foot-wide, approximately 100-foot-long connector trail constructed from the staging area to the existing Madrone Trail. The connector trail would travel across property owned by EBRPD and include a pedestrian bridge to cross a small drainage.
- **Sidewalks:** Sidewalks will be installed on one side of the street from the two project entrances, extending through the project along A Drive, B Court, and Ironwood Place, and ending at the cul-de-sacs of B Court and Ironwood Place to provide safe pedestrian access within the project. Sidewalks will be 4.5 feet wide including curbs.

3.4.4 UTILITIES AND SERVICE SYSTEMS

The project would be served by extending existing utilities from the adjacent streets abutting the project site. East Bay Municipal Utilities District would deliver water to the project. Central Contra Costa Sanitary District would provide sewer services. Pacific Gas & Electric would provide electricity and gas. Garbage and recycling would be hauled by Allied Waste. A full discussion of these services can be found in **Section 4.17, Utilities and Service Systems**.

All existing and new utility distribution facilities (electric, communication, cable TV, etc.) will be required to be installed underground. This requirement would exclude transformers, terminal boxes, and meter cabinets, all of which PWD recommends placing outside any sidewalk area to the maximum extent feasible.

3.5 CONSTRUCTION

The applicant plans to phase the project and potentially file more than one final map. Construction would commence by establishing tree protection zones and fencing of the open spaces areas. Demolition activities would then remove the existing office building, barn, caretaker living quarters, auxiliary structures, and trees. After demolition, the proposed residential portions of the project site would be cleared and stripped of vegetation, trunks, rocks, sod, and other unwanted materials. Earthwork would commence following site clearance, leveling the project site for building lots, geotechnical stability features, drainage facilities, streets, and other infrastructure. Erosion control measures would also be installed during this phase. Creation of the wetland mitigation area would occur concurrent with, or prior to, filling of onsite wetlands. Portions of onsite drainages would also be relocated at this time. Underground utility lines would be installed after grading, followed by fine grading and paving of streets. Comprehensive site-wide improvements would be complete upon the outset of paving activities, and construction of the staging area and pedestrian bridge, connecting the proposed EBRPD staging area to Madrone Trail, would occur concurrent with the construction of paved access from Camille Avenue to the staging area (i.e., "A" Drive). Upon the completion of construction of the site-wide improvements, the individual building lots would be ready for home construction.

For the purposes of this draft EIR, project construction is conservatively assumed to occur over a 30-month period, which includes grading, infrastructure installation (including streets and storm drain facilities), and the construction of the residential homes. However, actual construction of the single-family homes would be market driven, and may extend over a 10-year period. When undeveloped, the prepared lots of any phase would be required to be maintained in accordance with an erosion control plan with best management practices and periodic inspections.

3.5.1 GRADING AND DRAINAGE

Construction of the project would involve earthmoving activities such as excavation, grading, soil stockpiling, and filling. Approximately 26,000 cubic yards of material would be excavated and balanced on site.

There are currently two creek drainages that convey seasonal runoff from open space land to the west through the project site. The project would fill approximately 223 linear feet of channel in these drainages, but would daylight (i.e., expose a previously covered

channel) approximately 295 linear feet of channel. Some of the vegetation lining the drainages would be removed to reduce safety hazards and facilitate construction, but the drainages would be enhanced with new native plantings. Refer to **Section 4.10, Hydrology and Water Quality**, for additional information regarding drainage modifications.

There are several areas of seasonal freshwater wetland within the project site; some of these areas would be filled to allow for development. Mitigation for the fill of wetlands will be accomplished through the creation of seasonal freshwater wetlands at a minimum 1:1 replacement ratio within the project site, at an approved wetland mitigation bank, or at another location within the Walnut Creek watershed approved by the appropriate regulatory agencies. Refer to **Section 4.4, Biological Resources**, for additional information regarding wetland mitigation.

The project would result in new impervious surfaces, including roadways, structures, and the EBRPD staging area, that would increase the amount of impervious surface on the project site from approximately 3.02 acres to approximately 6.55 acres. Stormwater runoff from the project site would be conveyed from new impervious surfaces (roadways, sidewalks, lots, and the staging area) to bioretention facilities. After detention and percolation, treated stormwater would be conveyed to a new underground stormwater system serving the project, which would ultimately intertie with existing stormwater facilities along Camille Avenue and Hemme Avenue.

Consistent with the above, new drainage modifications include:

- Rerouting water from the northern orchard to the existing Camille Avenue drainage system and to a catch basin at the end of Ironwood Place, where the existing runoff pattern is inadequate and floods through rear yards of the homes fronting both sides of Iron Gate Court.
- Rerouting water that currently flows into a small culvert under Camille Lane, which is inadequate and has a history of overflowing onto the road, into a catch basin and storm drain with adequate capacity.

For more information regarding drainage, refer to **Section 4.10, Hydrology and Water Quality**.

3.5.2 LANDSCAPING AND TREE REMOVAL

As indicated by the applicant's consulting arborist, approximately 469 trees would be removed from all roads, lots, the proposed wetland mitigation area, and the Parcel D staging area. Trees proposed for removal are falling; poorly formed; at risk of mechanical failure; crowding or interfering with the development of a healthier, more prominent tree; part of a declining, maladapted species; of a species generally unsuited to the Alamo climate; or must be removed for grading lots and constructing streets within the project site. Many trees proposed for removal would require mitigation under the arborist's recommendations; however, the County would ultimately determine adequate tree

replacement (see **Mitigation Measure BIO-8**). In addition, the project also proposes to slightly impact approximately 205 trees through pruning, hydrologic modification, or other disturbances that would not entail tree removal. Additional details regarding tree preservation and removal can be found in **Section 4.4, Biological Resources**.

Landscaping within the residential lots would be established once the properties are purchased and house footprints are proposed. Tree replacement would occur once street improvements and homes are constructed. The CC&Rs for the project will require landscape screening and tree replacement, preservation, and mitigation in accordance with a Landscape Design Plan to be developed by the applicant, as required by the County. The landscaping would be planted at the building permit stage for each lot as conditioned during the tentative map process.

3.6 INTENDED USES OF THIS EIR

This draft EIR does not recommend approval or denial of a project by any authorized entity. Instead, this document discloses information to the County and interested parties regarding the impacts of the project. The County is the Lead Agency under CEQA and is responsible for review and certification of this draft EIR. The Lead Agency is required to consider the information in this draft EIR, along with any other relevant information, when deliberating project approval. Other agencies may also use this draft EIR in their review and approval processes.

The applicant would use the analysis contained within this draft EIR to support the issuance of the following discretionary approvals:

- United States Army Corps of Engineers: 404 Clean Water Act – Nationwide Permit
- United States Fish and Wildlife Service: Section 7 Consultation
- California Department of Fish and Wildlife: 1602 Streambed Alteration Agreement
- Regional Water Quality Control Board: 401 Water Quality Certification
- Vesting Tentative Map
- Tree Removal Permit
- Exception to the Creek Structure Setback Line, reducing setback from 30 to 20 feet (Lots 21 and 22) and establishing setback line at the top of the creek bank in consideration of topography (Lots 23 and 24)
- Exceptions to structure setback requirements for project streets, including A Drive, A Lane, and B Court in consideration of preserving trees
- Exceptions to structure setback requirements for 2 project bridges, including A Lane and B Court in consideration of preserving the creeks and avoiding fill in the bed and banks of the stream

- Exception for length of cul-de-sac, allowing for 1,075-foot extension of Camille Avenue and an 800-foot extension of Ironwood Place with emergency vehicle access approved by the San Ramon Valley Fire Protection District
- Exception to radius of right-of-way of public cul-de-sac, allowing a 35-foot radius consistent with San Ramon Valley Fire Protection Agency standards, in consideration of preserving trees
- Exception to crown design at new Camille Avenue cul-de-sac in consideration of preserving trees and provide a better transition with existing Camille Lane.
- Exception from offsite collect and convey requirements (diversion of runoff) to avoid stormwater flows through inadequate systems on existing residential yards, improving existing conditions
- Exception to require sidewalks on one side of A Drive, B Court, and the extension of Ironwood Place, in consideration of preserving trees.
- Exception to the geometry for cul de sacs, to comply with the standards of the San Ramon Valley Fire Protection Agency (SRVFPD) for all cul de sacs within the project, and the two proposed public cul de sacs located at the two entrances to the project at the ends of Camille Avenue and Ironwood Place.
- Variance for an 8-foot fence along the property lines of Lot 5 and Lot 6 (across the width of Ironwood Place) with an 8-foot-high gate.
- Approval of lot line adjustments for three existing lots on Ironwood Place to allow construction of a public cul-de-sac on APN 198-262-002, 198-262-003, and 198-262-004

The environmental review and certification process includes:

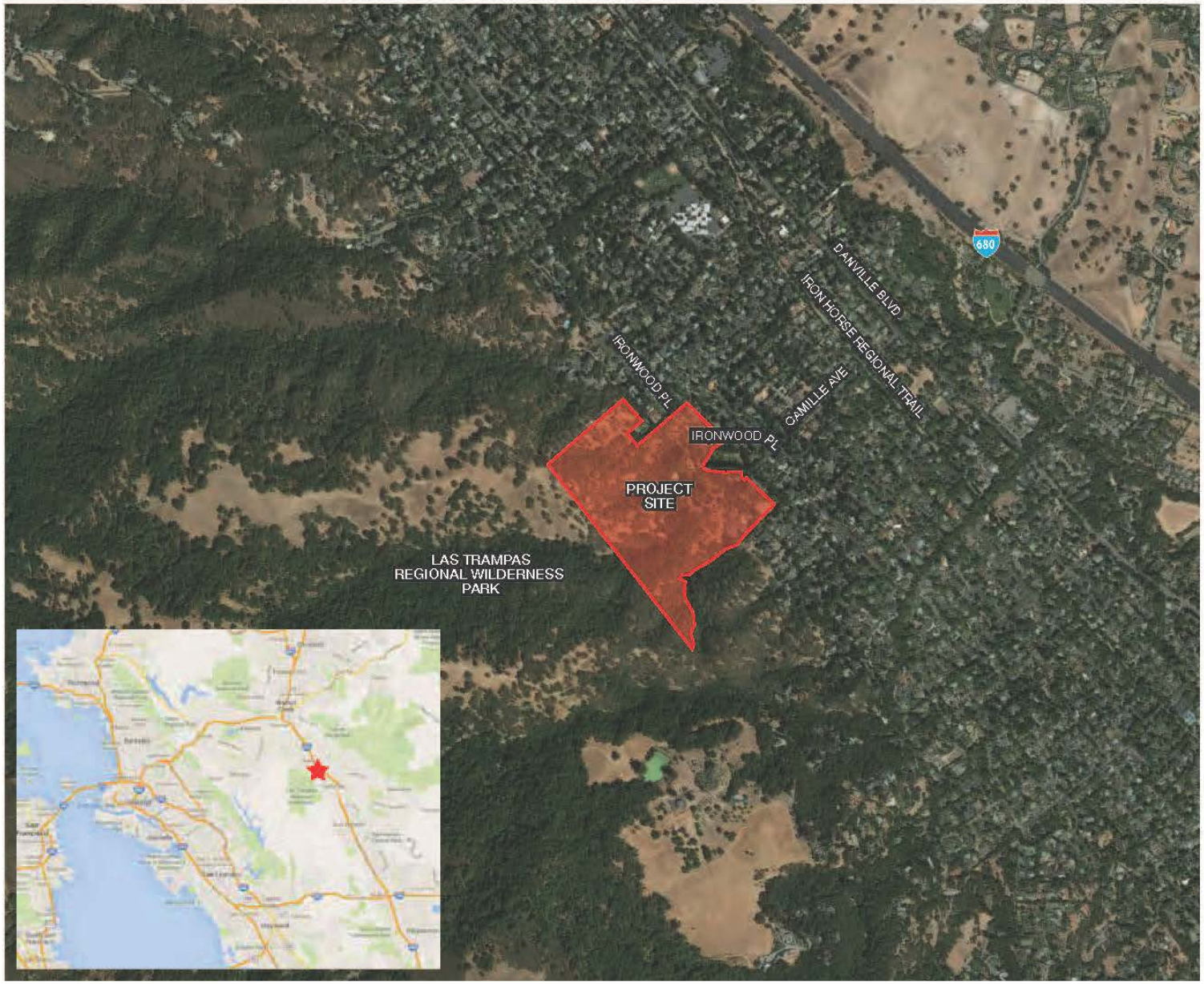
- Publication and circulation of this draft EIR for a 60-day public review period
- Preparation of a final EIR that includes written responses to comments received on the draft EIR and any errata or revisions to the draft EIR

The County must certify the final EIR before taking any action to approve or deny the project.

3.7 PROJECT OBJECTIVES

Section 15124(b) of the CEQA Guidelines requires that this project description include a statement of the project objectives. The applicant has identified the following objectives for the project:

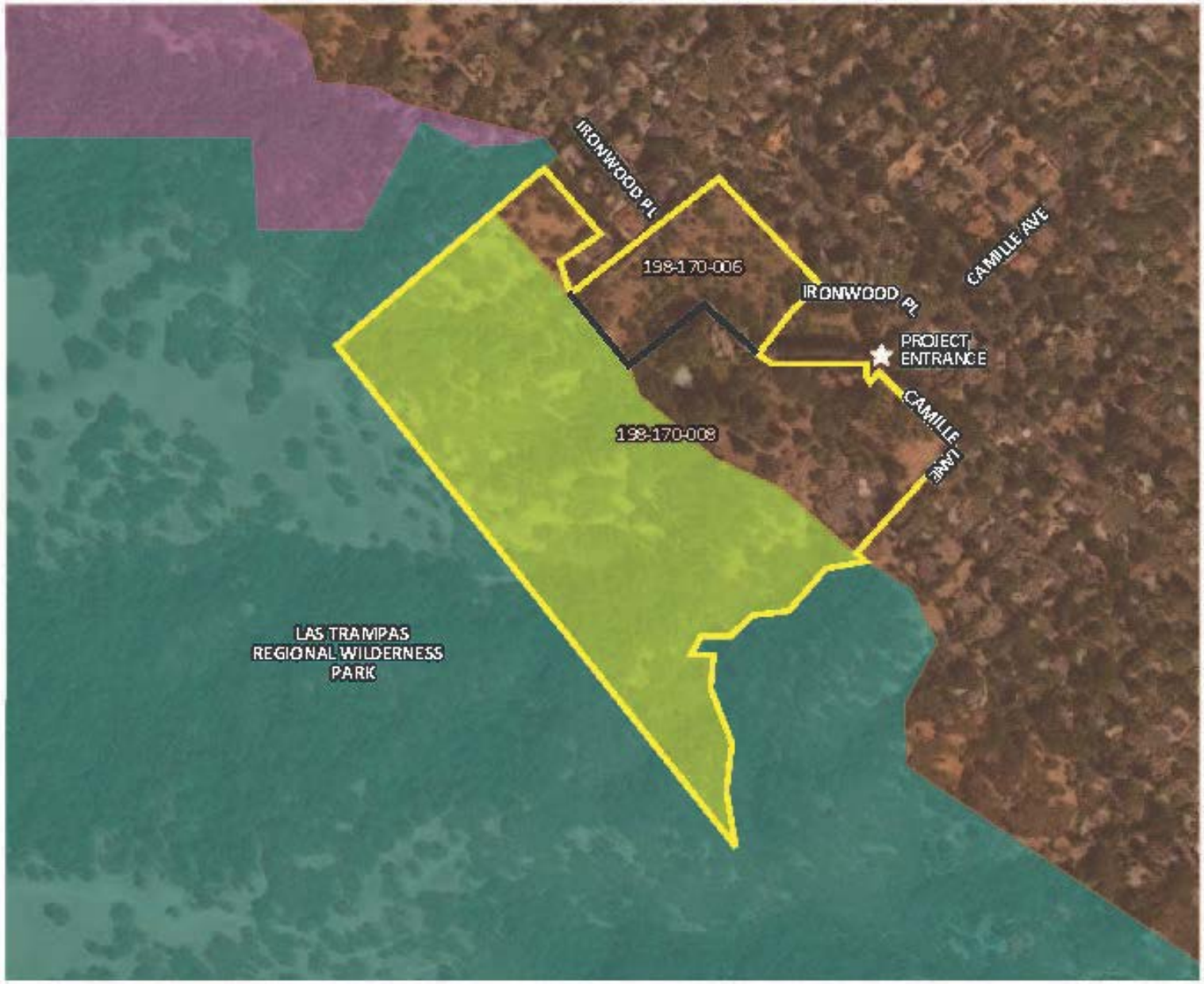
- **Develop the property consistent with the existing General Plan and Zoning.** The project as proposed would provide residential opportunities in accordance with the project site's existing Single Family Residential-Low Density General Plan land use designation and R-20 zoning designation. The open space area would be permanently restricted from development, except for the area being developed as a staging area (Parcel D).
- **Develop the property within the land use density of the General Plan.** The proposed density for the 35 new lots is 1.76 units per acre, within the 2.9 units per acre allowed in the General Plan.
- **Establish high-quality infill development.** Establish a high-quality, aesthetically pleasing infill residential development that is compatible with neighboring residential areas and creates a thoughtfully laid out and highly livable environment for future homeowners.
- **Maximize residential development potential to alleviate development pressures on more sensitive lands.** Maximize the residential development potential of the project site so as to alleviate development pressures on open space land and address housing needs in the County, while ensuring consistency with surrounding residential uses, avoiding to the extent feasible development on hillsides, and giving consideration to the environmental footprint of development.
- **Remove the commercial office building from a residential neighborhood.** The implementation of the project would remove the existing office building.
- **Preserve and enhance habitat.** Preserve the majority of the project site as open space to be used for the creation of wetlands, if feasible, as well as habitat enhancement and flood control. Grade the residential lots to a minimal level to preserve trees, with building areas established among them, generally conforming to the natural environment of the project site.
- **Repair unstable slopes within the project site.** Slopes at the rear of the proposed lots along the open space boundary are generally stable and do not require extensive slope repair. Slopes constructed with fill were placed near the estate home in the 1940s and east of the office building in the 1960s to provide a usable area for the estate development and parking for the office building. These slopes were not constructed with engineered fill and would be repaired.



Project Location

Figure 3-1

ce: Google Earth, 2014.



Legend

- Project Area
- Las Trampas regional Wilderness Area
- Residential
- OS Open Space
- AL Agricultural Lands

N

Assessor's Parcel Numbers and Surrounding Land Uses

Figure 3-2

Source: Google Earth, 2014; Circlepoint, 2016

Legend

- Project Site
- Hiker, Horse, Bike Paved Trail
- Hiker, Horse, Bike Unpaved Trail

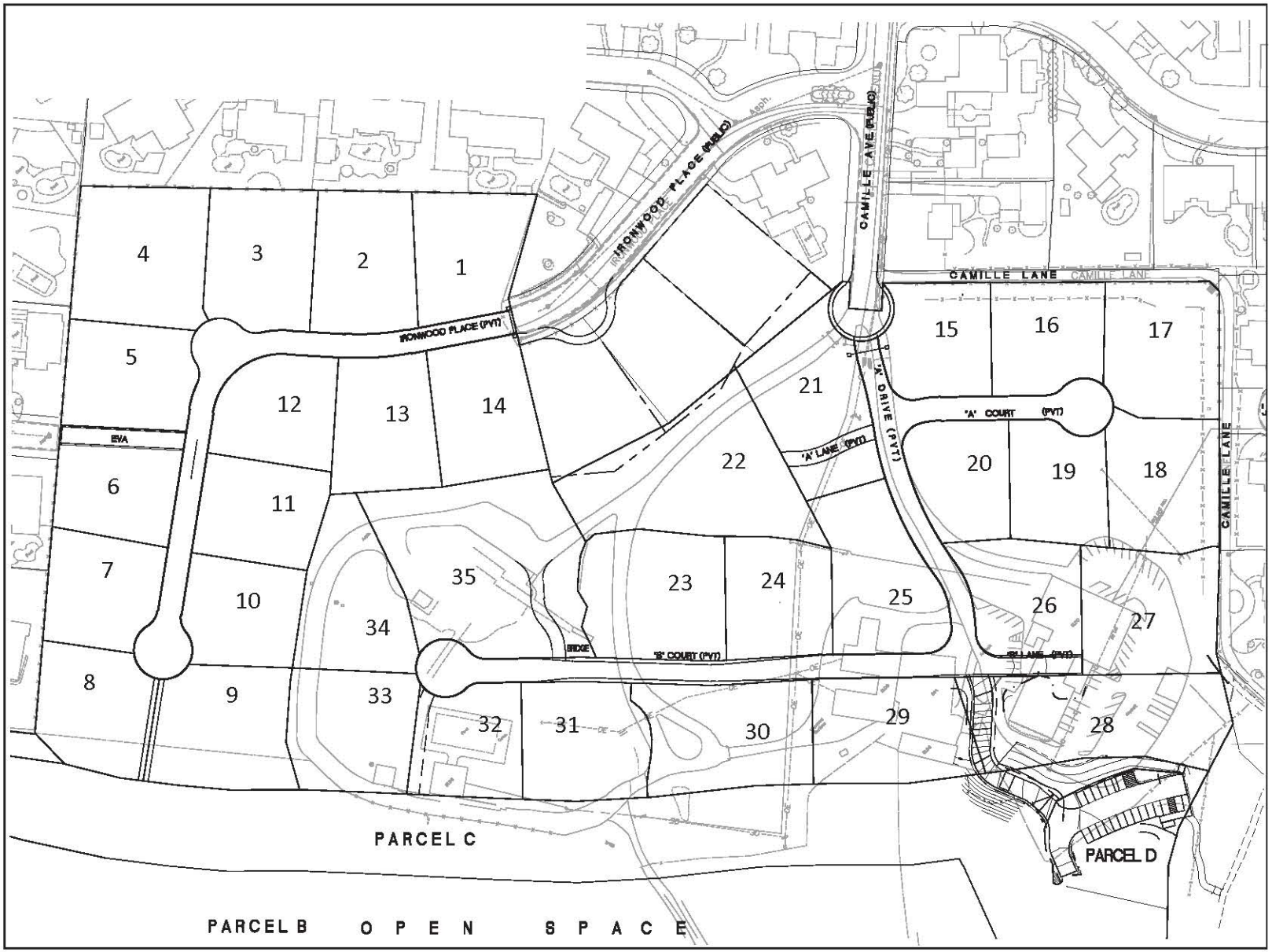
N

0 1/16 1/8 1/4 MILE

Regional Park and Trail Facilities

Figure 3-3

Source: East Bay Regional Park District, 2016.



Scale (in feet)
100 240

Ball Estates Site Plan - Parcel D Staging Area

Figure **3-4**

Source: Aliquot Associates, 2017

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4.0 SETTING, IMPACTS, AND MITIGATION MEASURES

This chapter describes existing conditions and evaluates potential environmental impacts that would occur with development of the Ball Estates project (project)**. Sections 4.1, Aesthetics**, through **4.17, Utilities and Service Systems**, analyze each resource topic that could be affected by the project. Each section describes the environmental setting as it relates to the specific resource, the impact that could result from implementation of the project, and mitigation measures that would avoid, reduce, or compensate for significant impacts.

TOPICS ADDRESSED IN THE DRAFT EIR

The following topics are addressed in this chapter:

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

FORMAT OF TOPIC SECTIONS

In general, the analysis of each environmental topic consists of five subsections: Existing Conditions, Regulatory Setting, Impacts and Mitigation Measures, Cumulative Impacts, and References. An overview of the information included in these sections is provided below.

Existing Conditions

According to Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines, existing conditions are the physical environmental conditions in the

vicinity of a project at the time the Notice of Preparation (NOP) is published. The NOP for this project was published on August 27, 2013. While the baseline condition for the project is the condition of the site at the time the NOP was issued (e.g., existing land uses, existing soil conditions, existing traffic conditions), given the amount of time that has passed since the publication of the NOP, some of these descriptions are updated to incorporate new relevant information.

Regulatory Setting

The regulatory setting section provides a description of the relevant regulations and guidelines that pertain to the topical area. This section could contain information from a variety of sources, such as the *Contra Costa County General Plan 2005-2020* (General Plan), or other local, regional, state, or federal agency guidelines or regulations. A policy consistency analysis is also included, providing a brief evaluation and conformity with the applicable policies and regulations. These discussions are intended to comply with Section 15125(d) of the CEQA Guidelines, which requires environmental impact reports (EIR) to include a discussion of any inconsistencies between a proposed project and any pertinent adopted plan. Inconsistency with such policies is not necessarily considered a physical environmental impact.

Impacts and Mitigation Measures

This subsection lists significance criteria used to evaluate impacts, followed by a discussion of the impacts that would result from implementation of the project. *Thresholds of Significance* subsections define and list specific criteria used to determine impact significance in accordance with adopted criteria.

Significance Criteria

Under CEQA Section 21068, a significant effect is defined as a substantial, or potentially substantial, adverse change in the environment. The CEQA Guidelines direct that this determination be based on scientific and factual data. Appendix G of the CEQA Guidelines is used as a foundation for the significance criteria used in this draft EIR, with some refinement based applicable Federal, State, and local guidelines and regulations.

Evaluation of Impacts

The evaluation of impacts considers the significance criteria and the level of environmental impact to determine the level of effect. Impacts are classified with three levels of intensity: (1) no impact, (2) a less-than-significant impact, and (3) a significant impact.

A “no impact” designation is used for an issue that would not be affected by project implementation. For example, since the project site is not located in an area

designated to have mineral resources, the project would not result in the loss of any known mineral resources. No impact would occur.

"Less-than-significant" impacts are project-related effects that would not reach or exceed a significance criteria. For example, project impacts to a sensitive biological species would be significant if there was a potential to harm members of the species or reduce habitat. Conversely, impacts would usually be considered less than significant if the habitats and species affected were widespread in the region and in the state and ample habitat remained.

A "significant" designation is used where the environmental impacts would meet or exceed one of the significance criteria.

Impacts are numbered and shown in bold type. For significant impacts, mitigation measures are provided that would reduce the effects of these impacts. Following the discussion of mitigation measures, there is an evaluation of the "Significance after Mitigation." This is the level of significance after implementation of the proposed mitigation measure(s).

Cumulative Impacts

CEQA requires an evaluation of a project's contribution to cumulative environmental impacts. According to Section 15355 of the CEQA Guidelines, cumulative impacts are defined as "two or more individual effects which, when taken together, are considerable, or which can compound or increase other environmental impacts." As stated in the CEQA Guidelines, an individual project may not have significant impacts; however, in combination with other related projects, these cumulative effects may be considerable. When evaluating cumulative impacts, CEQA recommends one of two methods:

1. Consider past, present, and probable future projects within the region that could result in related or cumulative environmental impacts, including projects outside the control of the lead agency; or
2. Consider projections contained in an adopted local, regional, or statewide plan, or use a prior environmental document which has been adopted or certified for such a plan.

For this draft EIR, the first method was used to identify regional projects for use in the cumulative analyses. Past, present, and probable future development projects within 1 mile of the project site were identified through discussions with the County and the Town of Danville. These projects are listed in **Table 4.1-1**. This cumulative projects list incorporates relevant, reasonably foreseeable projects and focuses on those that, when combined with the project, could contribute to cumulative impacts.

Table 4.0-1 Projects within 1 Mile of the Project Site

Project No.	Location	Project Description	Status	Distance from Project Site
LP12-2110	902 Danville Boulevard, Alamo	San Ramon Valley United Methodist Church Addition	Approved in 2014	2,500 feet
MS14-0004	512 Hemme Avenue, Alamo	Three Lot Subdivision	Approved in 2015 (subdivision approved in 2017)	1,000 feet
SD 9382	805/813 La Gonda Way, Danville	Five Lot Subdivision	Approved in 2015	3,700 feet

Source: Contra Costa County, 2017; Town of Danville, 2017.

The spatial boundary for the study of a project's cumulative impacts varies depending on the resource of concern. For example, impacts related to geology and archaeological resources are generally site specific, while air quality and noise impacts can encompass larger areas. Most of the project's impacts are limited in terms of geography, and would not compound impacts from past, existing, or future projects beyond the project area. In these circumstances, CEQA directs that it is not necessary to address in detail the impacts from other projects:

> "[w]here a lead agency is examining a project with an incremental effect that is not 'cumulatively considerable,' a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable" (CEQA Guidelines Section 15130 (a));
>
> and
>
> "[a]n EIR should not discuss impacts which do not result in part from the project evaluated in the EIR" (CEQA Guidelines Section 15130 (a)(1).

REFERENCES

Contra Costa County, 2017. *Department of Conservation and Development Projects List.* Available: http://www.co.contra-costa.ca.us/4263/Projects. Accessed July 5, 2017.

Town of Danville, 2017. *Development Activities*. Available: http://www.danville.ca.gov/Services/Planning-Services/Development-Activities/. Accessed July 5, 2017.

4.1 AESTHETICS

This section describes existing visual conditions in the project area and analyzes the effects of the project on visual character and scenic views. This section also evaluates new sources of light and glare. Information regarding aesthetics and visual quality was obtained from the following sources:

- Proposed Vesting Tentative Map for the project
- Proposed Project Photo simulations prepared by Square One Productions in 2015
- *The Contra Costa County General Plan 2005-2020* (General Plan)

These reports are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation for this draft environmental impact report, residents adjacent to the project site submitted comments regarding the project's visual impacts to the surrounding neighborhood and open space areas. Specifically, one commenter raised concerns about lingering effects of construction activities, citing an instance where the office building parking lot was used as a construction staging area but was not restored in a timely manner. Another commenter raised concerns about the visual impact of the new homes on Madrone Trail users, and suggested that all new structures should have adequate setbacks and softened buffers with vegetation rather than fencing. These comments are addressed in this section.

4.1.1 EXISTING CONDITIONS

Regional Setting

The project site is located in Contra Costa County in the unincorporated Alamo area (Alamo). Alamo lies within the San Ramon Valley, which is generally characterized by suburban development and Interstate 680 (I-680) corridor along the valley, and rural uses mixed with large tracts of open space in the surrounding hillsides.

Sensitive Visual Resources

According to the California Department of Transportation (Caltrans), I-680 is designated as a State Scenic Highway due to views of Mount Diablo to the northeast. Other prominent aesthetic features in the region include ridgelines and forested areas along the Las Trampas Range that are intermittently visible to the south and west.

The County has significant topographic variations which create features that provide a visual backdrop for the low-lying developed areas. The General Plan identifies ridges, hillsides, and rock outcroppings as primary scenic resources, along with the San Francisco Bay/Delta estuary system. Several designated scenic ridgeways circle the San Ramon Valley along Las Trampas Ridge to the west and the Mount Diablo range to the east. Furthermore, the County has many smaller, localized scenic resources such as isolated hilltops, mature stands of trees, and other natural features that can be considered aesthetic resources.

Project Site

The approximately 61-acre project site is composed of very-low-density development in the lower proposed residential portions and undeveloped open space in the upper portions.

The lower portion of the project site is approximately 15 percent developed with an existing residential estate house, barn, outbuildings, office complex, and paved areas. All of the existing structures are currently surrounded by mature trees and manicured landscaping (see **Figure 4.1-1a** and **Figure 4.1-1b**). The remainder of the lower portion of the project site is an undeveloped landscape featuring established woodlands, seasonal wetlands, non-native grassland, and formally cultivated walnut orchards. Many mature trees dominate the visual landscape. Deciduous species, such as valley oak (*Quercus lobata*), western sycamore (*Platanus racemosa*), and English walnut (*Juglans regia*) provide seasonal colors throughout the year. In the winter months, evergreen species like coast redwood (*Sequoia sempervirens*) and coast live oak (*Quercus agrifolia*) retain their leaves as the grassy understory turns from yellow to green. The walnut orchards also feature an understory of non-native grasses that change color during the winter rains, although this area receives routine mowing and disking (see **Figure 4.1-1c**).

Paved Driveway within Project Site

Existing Residence

Existing Visual Conditions

Figure 4.1-1a

Source: Ardepoint, 2013

Office Complex and Open Space

Barn and Horse Pasture

Existing Visual Conditions Figure **4.1-1b**

Source: Ordepoint, 2013

Orchard in the Spring/Summer

Orchard in the Fall/Winter

Existing Visual Conditions

Figure 4.1-1c

Source: Cardepoint, 2013; JRP, 2008

Drainage 1

Seasonal Wetland

Existing Visual Conditions

Figure 4.1-1d

Source: Circlepoint, 2013

A steep, hilly, open space encompasses the upper portions of the project site. This densely-forested area features oak-bay woodland with occasional clearings that reveal non-native grasslands and scattered patches of chaparral. Valley oak is the dominant tree species, which grow in continuous stands with a relatively sparse canopy. California bay laurel (*Umbellularia californica*), buckeye (*Aesculus californica*), coast live oak, and flowering plum (*Prunus* sp.) are also present in this area, providing a variety of colors and textures in the tree canopy. A eucalyptus grove with little understory growth is located in a ravine in the southern section of the open space.

Two intermittent drainages flow through the project site. Drainage 1 is situated within the mature horticultural landscape south and east of the existing estate residence, and is heavily altered from its natural condition (see **Figure 4.1-1d**). Drainage 2 is located near the southern boundary and dissipates into seasonal wetlands also located on this portion of the site (see **Figure 4.1-1d**). Both drainages are relatively small, but feature a variety of native and non-native riparian vegetation along the banks.

Surrounding Area

The project site is bordered by a low-density residential community to the north, east, and southeast. Structures in this single-family neighborhood are generally one- to three-story homes. Existing homes on the adjacent lots range from approximately 2,000 square feet to approximately 6,500 square feet and include landscaped yards, pools, and accessory structures. These architecturally modern structures reflect local building styles and trends of the past several decades.

Las Trampas Regional Wilderness lies to the south, west, and northwest of the project site. This rugged, 5,342-acre park generally remains in a natural state, with the exception of trail improvements for public access. The unpaved, multiple-use Madrone Trail provides access to Las Trampas Regional Wilderness. This trail begins at the terminus of Camille Avenue and runs past the project site along Camille Lane before winding up to Las Trampas Ridge.

As mentioned above, the General Plan Open Space Element identifies a number of scenic ridgelines surrounding the project site. These include several Las Trampas Ridge subridgelines located 0.9 mile to the northwest and rising to 800 feet above mean sea level (AMSL), and Alamo Ridge, located 0.9 mile to the east and rising to 720 feet AMSL (Topoquest, 2008).

Public Views of the Project Site

The project site is bordered by residential subdivisions to the north and east, and Las Trampas Regional Wilderness to the south and west. Public viewpoints of the project site from the north and east are only available from local roads. In general, these views are completely obscured by existing structures and associated

landscaping within the residential neighborhoods. Public viewpoints from the south and east from Las Trampas Regional Wilderness generally capture the mature trees and topographic features located in the open space areas. However, the western portions of the project site are visible from Madrone Trail as it runs along Camille Lane.

Four publicly accessible views of the project site were selected to represent public views from off-site locations. Two viewpoints were taken from local roads, and are displayed in **Figure 4.1-2** (Viewpoint A and Viewpoint B). Two more viewpoints were taken along the Madrone Trail, which parallels Camille Lane as it wraps around the western boundary of the project site (see **Figure 4.1-2b**). These viewpoints capture the existing visual charter and quality of the project area.

Viewpoint A - View of the Project Site from Underhill Drive

Underhill Drive terminates at the easternmost corner of the project site. Existing views of the project site from Underhill Drive reveal a natural, wooded area. Mature trees are planted along the edge of the project site, and dominate the foreground. Limited views of the sky and other vegetation further into the project site are available through the tree canopy. Viewpoint A (see **Figure 4.1-2a**) illustrates how dense vegetation obscures existing improvements on the project site, such as the office complex located approximately 250 feet west of this viewpoint.

Viewpoint B – View of the Project Site from Ironwood Place

Ironwood Place terminates along the northern boundary of the project site. Existing views of the project site from Ironwood Place reveal a natural, wooded area dominated by mature trees. The trees in this viewshed are not as large as those seen in Viewpoint A, and allow a longer sight distance into the project site. However, like Viewpoint A, Viewpoint B (see **Figure 4.1-2a**) illustrates how dense vegetation obscures any existing improvements on the project site, such as a residence located approximately 375 feet south of this viewpoint.

Viewpoints C & D – View of the Project Site from Madrone Trail

Madrone Trail runs parallel to Camille Lane along the eastern boundary of the project site. Views from this trail into the project site mostly include undisturbed natural areas and former walnut orchards (Viewpoint C). The office complex is also visible from segments of Madrone Trail (Viewpoint D).

Light and Glare

Sources of daytime glare can either be a direct source of light, or can be an object which reflects light from another source, such as windows. Existing sources of daytime glare in the project area include light reflected from buildings and car windows on and around the project site. External nighttime lighting from existing

structures on the project site and in the surrounding area contribute low levels of nighttime glare.

Lighting sources in the project vicinity are typical of a lower density residential area, with exterior residential lighting, cars, and streetlights generating relatively low levels of night lighting. Ambient light is produced by the residential neighborhood along the north, east, and southeast property boundary.

4.1.2 REGULATORY SETTING

State

California Scenic Highway Program

The intent of the California Scenic Highway Program is to protect and enhance California's natural beauty and to protect the social and economic values provided by the state's scenic resources. State scenic highways are officially designated by Scenic Highways Advisory Committee. I-680 is designated as a state scenic highway from the Alameda County line to State Route 24, primarily due to the views of Mount Diablo (Caltrans, 2015). Other ridgelines hillsides surrounding the San Ramon Valley are also visible from this roadway.

Project Consistency Analysis

The project site is located about 0.5 miles west from I-680. The lower portion of the project site that is proposed for development is visually separated from this State Scenic Highway by residential development and landscaping that contains mature trees. Furthermore, the lower portion of the site and the local stretch of 1-680 lie within the same elevation: I-680 from Alamo to Danville ranges from 270 feet AMSL to 400 feet AMSL, and the lower sections of the project site ranges from 370 feet AMSL to 400 feet AMSL (Contra Costa County, 2015). The upper portions of the project site, some of which may be visible from I-680, would not be developed and would retain their scenic visual character.

Local

Contra Costa County General Plan

The Open Space Element of the General Plan contains the following relevant policies related to visual resources and aesthetics:

Open Space Element

9-2: Historic and scenic features, watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced.

Viewpoint A - View of the Project Site from Underhill Drive

Viewpoint B - View of the Project Site from Ironwood Place

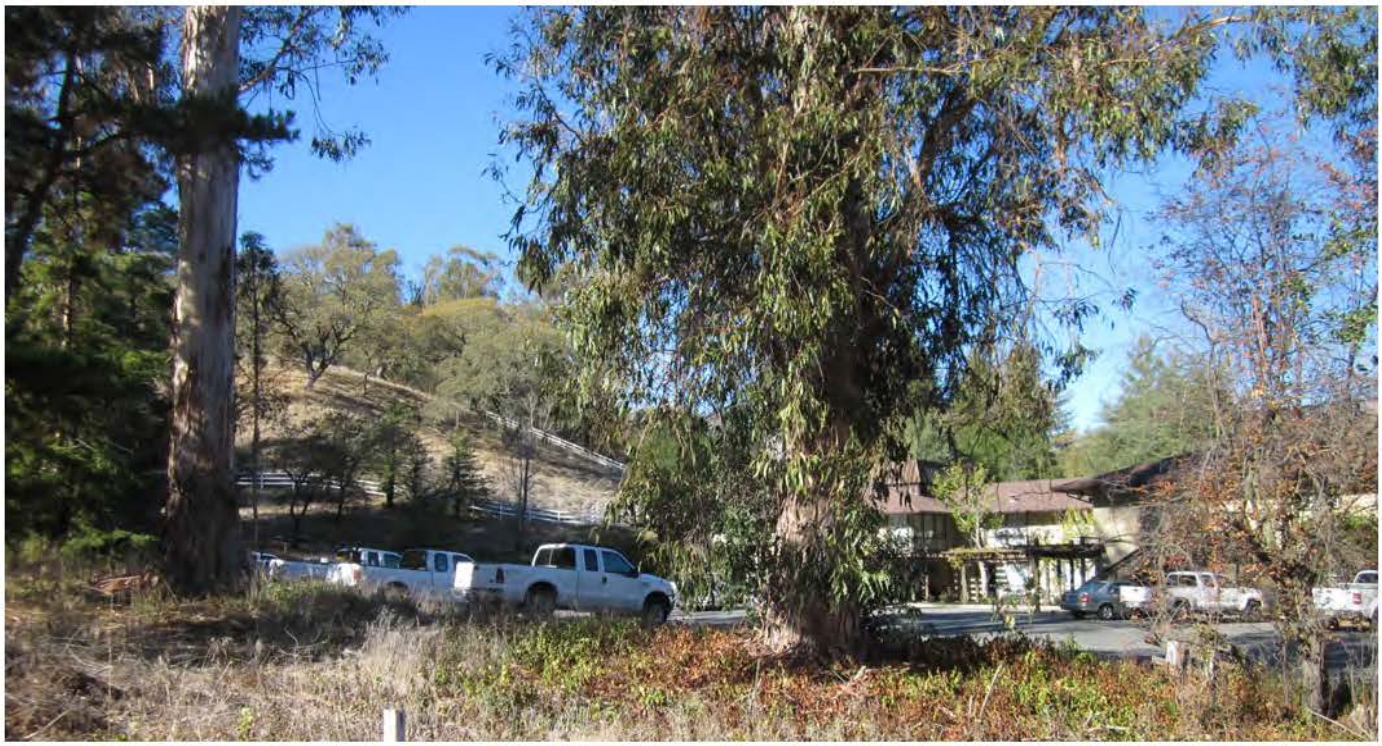
Location of Viewpoint A and Viewpoint B

Public Views of the Project Site

Figure 4.1-2a

Source: Square One Productions, 2015

Viewpoint C - Orchard Seen From Madrone Trail



Viewpoint D - Office Complex Seen From Madrone Trail

Public Views of the Project Site

Figure 4.1-2b

Source: Ordepoint, 2013

9-10: To preserve and protect areas of identified high scenic value, where practical, and in accordance with the Land Use Element map.

9-14: High quality engineering of slopes shall be required to avoid soil erosion, downstream flooding, slope failure, loss of vegetative cover, high maintenance costs, property damages and damages to visual quality. Particularly vulnerable areas should be avoided for urban development. Slopes of 26 percent or more should generally be protected and are generally not desirable for conventional cut-and-fill pad development. Development on open hillsides and significant ridgelines shall be restricted.

9-15: In order to conserve the scenic beauty of the County, developers shall be required to restore the natural contours and vegetation of the land after grading and other land disturbances. Public and private projects shall be designed to minimize damages to significant trees and other visual landmarks.

9-20: New power lines shall be located parallel to existing lines in order to minimize their visual impact.

9-24: Any new development shall be encouraged to generally conform with natural contours to avoid excessive grading.

9-25: All new land uses which are to be located below a major scenic ridge shall be reviewed with an emphasis on protecting the visual qualities of the ridge.

9-47: Recreational activity shall be allowed only in a manner which complements the natural features of the area, including the topography, waterways, vegetation and soil characteristics.

The General Plan does not clearly define “significant trees” or “significant natural vegetation” in terms of visual resources. While there is no comprehensive list of specific features that automatically qualify trees as scenic resources under CEQA, certain characteristics can be identified which contribute to the determination of a scenic resource. The following is a partial list of visual qualities and conditions which, if present, may indicate the presence of a scenic resource (California Department of Transportation, 2008):

- A tree that displays outstanding features of form or age.
- A landmark tree or a group of distinctive trees accented in a setting as a focus of attention.
- An unusual planting that has historical value.

Conversely, examples of features that lack the typical characteristics of a scenic resource include:

- Trees that are commonplace and repetitious, occurring frequently along a roadway.

- The fringe trees of a forest.
- Trees that are incompatible with their surroundings.

Project Consistency Analysis

Although the project would construct 35 new residential units, the lower portions of the project site have been previously developed with a family estate, office building, and ancillary structures, and is surrounded on its northern, northeastern, and eastern borders by residential development. Although the project would alter the project site's existing aesthetic, the new single-family units would conform to the adjacent residential neighborhood with respect to mass and land use. Visual resources would remain largely the same. The project would conform to General Plan policies 9-14, 9-15, and 9-24 by locating development in portions of the project site that require minimal grading. Additionally, slopes located on the upper approximately 41 acres of the property would remain open space, thus conforming to policies 9-2, 9-10, and 9-47.

The project would require the removal of approximately 469 trees across the project site, many of which are nonnative, unsuitable for the regional climate, exhibit signs of poor health or structural form, or negatively affect the long-term sustainability of more suitable trees. As discussed **Section 4.4, Biological Resources**, the project would implement an onsite tree-planting plan to comply with a replacement ratio established by the County.

4.1.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Discussion of No Impacts

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

As discussed above, I-680 is classified as a State Scenic Highway and is located approximately 0.5 mile east of the project site. However, the structures resulting from the project would be constructed on the lower section of the project site. This flat area is visually separated from this interstate by substantial residential development, mature landscaping, and topographic variations, and would not obstruct the viewshed from I-680. The upper portions of the project site, some of which may be visible from I-680, would not be developed and would retain their scenic visual character. No impact would occur.

Discussion of Less-than-Significant Impacts

Would the project have a substantial adverse effect on a scenic vista?

As discussed above, the project is located within 1 mile of several designated scenic ridgelines, including Las Trampas Ridge. However, due to the flat topography in the proposed residential portions of the project site, public views of scenic ridges looking west from Camille Lane and Ironwood Place west are almost entirely obscured by existing vegetation and structures.

Though Las Trampas Regional Wilderness and associated trail systems (including Madrone Trail) encircles the northwestern, western, and southern portions of the project site, these areas are flat and lack the panoramic perspective that characterize scenic vistas.[1] Though public vistas looking east towards the project site are available from ridgelines and outcrops within Las Trampas Regional Wilderness, these views would be unaffected because the proposed development would be visually separated from these viewsheds by topography and existing trees. This impact would be less than significant.

Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

The lower portions of the project site generally have low visibility from public vantage points due to flat topography and visual barriers. Public views of the project site are available from Madrone Trail and local roadways, including the Ironwood Place cul-de-sacs, Camille Lane, and Camille Avenue. As shown in **Figure 4.1-3a** and **Figure 4.1-3b** existing fences, structures, and vegetation screen views

[1] Other aesthetic impacts (i.e. those unrelated to scenic vistas) to viewers along Madrone Trail system are evaluated below in this section.

from local roadways. A majority of the mature trees along the northern and eastern perimeters of the project site would be retained through a Tree Preservation Plan.

The southeast corner of the project site is highly visible from a portion of Madrone Trail. Daytime recreationalists along the trail segment travel along the project perimeter for approximately 850 linear feet before entering Las Trampas Regional Wilderness. This portion of Madrone Trail travels parallel to Camille Lane through existing single-family subdivisions and currently exhibits a suburban characteristic. Furthermore, the existing office building is visible from a large portion of this trail segment (Viewpoint D).

Construction

Construction activities would alter views of the project site. The most dramatic visual change would occur during the initial site-wide preparations, such as demolition, clearing, grubbing, earthworks, utility installation, and street paving. Visual impacts associated with the construction activities would include exposed pads and staging areas for grading and construction equipment. In addition, temporary structures, material storage areas, and debris piles could be located within the project site during various stages of demolition and construction. Tree removal throughout the project site during the initial construction phase would transform the visual character of the portions of the project site proposed for development. Trees could also potentially be cleared from the upper open space areas to create a wetland mitigation area, staging area, and connector trail to Madrone Trail. However, this area represents one percent of the open space area, which would predominantly retain its natural character.

Demolition, clearing, grubbing, and mass-grading activities are anticipated to occur over a 5-month period, after which heavy-duty construction equipment would be removed from the project site. Construction would transition to lot-by-lot homebuilding and landscaping for up to ten years or until every lot is occupied with single-family homes. Prepared lots would remain vacant until sold and developed, but would be maintained through the stipulations of a construction-period stormwater pollution prevention plan and an erosion control plan. The project's Tree Preservation Plan would also retain a perimeter of trees around the development site, which would help screen construction activities.

Furthermore, public views of the lower approximately 20 acres of the project site are generally obscured by local topography and landscaping. One notable exception is the Madrone Trail, which offers public views of proposed Lots 15, 16, 17, 18, and 27 as it wraps around the western boundary of the project site. Although trail users will see construction equipment and activities, this would represent a temporary visual impact. Development of the proposed residential lots would only occur in the

lower portions of the project site, while the upper open space areas would mostly remain in a natural state.[2]

Given the temporary duration of major construction activities (i.e. earthwork and paving), the limited public visibility of the project site, and surrounding suburban character, project construction would not substantially degrade the area's existing visual quality.

Operation

Impact AES-1: New homes on the project site could conflict with the character of existing residential neighborhoods in the area (Less than Significant with Mitigation).

Upon operation, the developed portions of the project site would resemble the surrounding low-density residential neighborhoods, and visual resources would predominately remain the same. **Figure 4.1-3** (Viewpoint A2 and Viewpoint B2) depicts views of the project site from Underhill Drive, Ironwood Place, and Madrone Trail under pre-project and post-project conditions. These images simulate mature vegetation to be retained under the Tree Preservation Plan while illustrating the approximate scale of the proposed structures on the project site.

Viewpoint A2 - Proposed Visual Conditions from Underhill Drive

Viewpoint A2 captures a dense grove of mature trees located on the property boundary. Most of these trees would be retained as identified in the Tree Preservation Plan, and would visually obscure proposed structures on the project site from Underhill Drive. Viewpoint A2 offers limited views of two proposed structures, but views of the project site from this public road would generally retain their existing wooded characteristic.

Viewpoint B2 – Proposed Visual Conditions from Ironwood Place

The trees in Viewpoint B2 (see **Figure 4.1-3b**) are not as dense as those in Viewpoint A2, and allow a longer sight distance into the project site. As such, the proposed custom home located near the property boundary is highly visible from Ironwood Place. However, **Mitigation Measure AES-1** would ensure that the mass and scale of this structure does not conflict with the current visual character of the existing adjacent neighborhoods. Other proposed structures located deeper in the project site are more visually obscured by trees that would be retained as part of the Tree Preservation Plan, although several visible trees are proposed for removal. The proposed Emergency Vehicle Access gate and wall would extend slightly higher than the existing fence, but would not dramatically impact this viewpoint.

[2] Trees could potentially be cleared from the upper open space areas to create a wetland mitigation area, staging area, and connector trail to Madrone Trail. However, this area represents 1 percent of the open space area, which would predominantly retain its natural character.

The potential exists for new custom homes on the project site to conflict with the existing character of the surrounding neighborhoods, which would degrade the visual quality of the project area. This potentially significant impact would be reduced with implementation of **Mitigation Measure AES-1**.

> ***Mitigation Measure AES-1:*** Custom homes must undergo an administrative design review, as required by conditions of approval, to ensure consistency with the existing character of the surrounding area. This process would examine elements of each proposed custom home, including size, scale, massing, setback, and color. In addition, the HOA Design Review Guidelines and Landscape Design Plan will include specific provisions regarding setbacks, backyard structures, and vegetative buffers along the perimeter of Madrone Trail. Compliance with these procedures will be required by the project's covenants, conditions, and restrictions, which will be reviewed by the County.

Significance after Mitigation: Mitigation Measure AES-1 will ensure compliance with the project's architectural and landscaping design guidelines, reducing this potential impact to a less-than-significant level.

Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Impact AES-2: New exterior lighting from the project could adversely impact nighttime views in the area.

The project would add 35 new custom homes to a predominately vacant site, clustered adjacent to existing single-family homes. Daytime glare would occur when sunlight reflects off rooftops, windows, and other surfaces of the proposed structures. Nighttime light would be produced from exterior houselights and vehicles traveling to, from, and within the project site. Therefore, the project may increase the amount of daytime glare and nighttime light in the vicinity.

As discussed above, the project site generally has low visibility from public viewpoints. Mature trees retained around the project perimeter would screen and diffuse much of the glare produced by the project. With respect to daytime glare, residential glass typically has a low reflectivity rate. Insofar as glare may also occur from on-site vehicles, glare from parked vehicles would primarily affect future project users and, with respect to mobile vehicles, such glare would be transient, depending upon the time of day and location of the vehicle. This increase in glare would be virtually unnoticeable given the surrounding residential development.

With respect to new sources of automobile lights, traffic levels would be few during peak hours, and very few during nighttime hours, as established in **Chapter 4.16, Transportation and Traffic**. Lights from headlights would represent a minor contribution to existing nighttime lighting in the surrounding residential area. Trips associated with new development under the project would be similar with trips to

and from surrounding neighborhoods, and would not result in light beyond levels generated by these existing residences

Development of 35 new residential homes in a currently undeveloped area could increase lighting above existing levels. Implementation of **Mitigation Measure AES-2** would minimize this impact.

> ***Mitigation Measure AES-2:*** A lighting plan for any proposed exterior lighting must be submitted to the Contra Costa County Department of Conservation and Development, Community Development Division for review and approval.
>
> Exterior lighting must be directed downward and away from adjacent properties and public/private right-of-way to prevent glare or excessive light spillover. Lighting bulbs must be limited to low intensity lights, including lighting for identification purposes.
>
> No free standing light poles will be allowed within the residential property. Landscaping lights must be limited to ground-level for walking/safety purposes.
>
> If any lighting is proposed for the staging area, lighting must be also directed downward and away from adjacent properties. Lighting intensity may not be greater than what is reasonably required to safely illuminate the staging area.

Significance after Mitigation: Mitigation Measure AES-2 would reduce lighting impacts associated with the project to a less-than-significant level.

Viewpoint A1 - Existing Visual Conditions from Underhill Drive

Viewpoint A2 - Proposed Visual Conditions from Underhill Drive

Location of Viewpoint A

Simulations of Propsed Visual Conditions

Figure 4.1-3a

Source: Square One Productions, 2015

Viewpoint B1 - Existing Visual Conditions from Ironwood Place

Viewpoint B2 - Proposed Visual Conditions from Ironwood Place

Location of Viewpoint B

Simulations of Proposed Visual Conditions

Figure 4.1-3b

Source: Square One Productions, 2015

4.1.4 CUMULATIVE IMPACTS

The recent, current, and foreseeable future projects listed in **Chapter 4.0, Setting, Impacts, and Mitigation Measures**, could cumulatively impact the County's scenic quality in the following ways:

- Loss of visual resources within a state scenic highway
- Loss of scenic vistas, such as hillsides, ridges, and the Bay and Delta shoreline
- New sources of excessive light or glare
- Degradation of the County's visual quality

As discussed in this section, project is not within a state scenic highway, and would not develop on or within the viewshed of hillsides, ridgelines, or other scenic vistas. The project, along with recent, current, and foreseeable future projects, is located within developed portions of the County. These 'infill' developments are similar in type, density, and quality to the surrounding urban/suburban context, and would not generate excessive sources of light or glare or significantly degrade the County's visual quality.[3] No cumulative impact would occur.

4.1.5 REFERENCES

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California Department of Transportation, 2015. California Scenic Highway Mapping System. Last Revised: September 7, 2011. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/. Accessed: November 4, 2015.

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[3] As discussed in **Section 4.11, Land Use and Planning**, the project is considered infill development because it is located within the County's Urban Limit Line.

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4.2 AGRICULTURE AND FORESTRY

4.2.1 INTRODUCTION

This section evaluates impacts to agricultural and forest resources within the project site and its vicinity. This analysis is based on the following information:

- Proposed Vesting Tentative Map
- The *Contra Costa County General Plan 2005-2020* (General Plan)
- The Contra Costa County Important Farmland 2014 Map
- Agricultural classifications as reported by the California Department of Conservation (DOC) and by the U.S. Department of Agriculture National Resources Conservation Service
- Tree Survey Report prepared by Joseph McNeil (December 2016)

These documents are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

No comments regarding agricultural and forest resources were submitted in response to the Notice of Preparation for this draft environmental impact report.

Farmland Classification

The DOC administers California's statewide agricultural inventory, called the Farmland Mapping and Monitoring Program (FMMP). Four farmland classifications are considered valuable by DOC, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Any conversion of land within these categories is typically considered a significant impact. Other categories of land not protected by the DOC include Grazing Land, Urban and Built Up Land, and Other Land. Topography, climate, soil quality, and available irrigation water all factor into the FMMP farmland classifications.

The 2014 Important Farmland Map for Contra Costa County designates the lower approximately 20 acres of the project site as "Urban and Built-up Land," and the remaining approximately 41 acres of the site as "Other Land." The FMMP defines these lands as follows:

Urban and Built-up Land

Urban and Built-up Land is land that is occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities,

cemeteries, airports, golf courses, sanitary landfills, sewage treatment, and water control structures.

Other Land

Other Land is 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 waterbodies smaller than 40 acres.

4.2.2 EXISTING CONDITIONS

Regional Agricultural Resources

Urbanization in the County began in the 1940s. Today, 35 percent of the County is now considered urbanized and within the Urban Limit Line (ULL), an area delineated by the General Plan as land in which development and urbanization is permitted. The remaining 65 percent of the County that lies outside of the ULL is comprised of agricultural, open space, and rural residential lots.

Within California, prime locations for agricultural land are contingent on the quality of the soil and the irrigation status of the land. High-quality soils on irrigated lands, for example, would be considered an attractive location for agricultural purposes. According to a 2014 inventory conducted by the DOC, the County contained 88,867 acres of Important Farmland; 25,502 acres of which are Prime Farmland, 7,436 acres of Farmland of Statewide Importance, 3,543 acres of Unique Farmland, and 52,431 acres of Farmland of Local Importance (DOC, 2014). Between 2012 and 2014, the County experienced a net gain of 45 acres of Important Farmland (**Table 4.2-1**).

According to the General Plan, remaining agricultural land is designated as Agricultural Core (AC), and is predominantly located in eastern portions of the County outside of the ULL.

Table 4.2-1 **Contra Costa County Farmland Conversion**

Important Farmland	Total Acreage (2012)	**Total Acreage (2012)**	**Acreage Converted (2012-2014)**
Prime Farmland	25,601	25,502	-99
Farmland of Statewide Importance	7,348	7,436	88
Unique Farmland	3,011	3,543	532
Farmland of Local Importance	52,907	52,431	-476
Important Farmland Total	88,867	88,912	1,795

Source: California Department of Conservation, 2014.

Local Agricultural Resources

The project site is located in Alamo, an unincorporated area of Contra Costa County, west of Danville Boulevard. The project site lies within the County's ULL. The closest incorporated city is Danville, which lies 2.6 miles southeast of the project site. The unincorporated land that lies between the project site and the Town of Danville is designated primarily as Single-Family Residential – Low Density (SL) with small pockets of Open Space (OS); however, there is no agricultural land east of the Las Trampas Wilderness Trail between Alamo and Danville, as the area lies within the ULL.

The approximately 61-acre project site has historically been used for agricultural production. The most recent agricultural production, prior to the 1992, has been the operation of walnut orchards. Currently, the property is not irrigated for commercial agricultural activities and no agricultural production occurs on the site.

As described in **Subsection 4.2.1, Introduction**, the 2014 FMMP for the County designates the lower portion of the project site as "Urban and Built-up Land," and the upper portion of the site as "Other Land."

Forest Land Resources

None of the lands within the project site—or the County at large—are used for timber harvesting.

In accordance with the definition under California Public Resources Code Sections 12220(g) and 51104(g), "Forest land" is land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits, while a Timberland Production Zone (TPZ) is an area which "been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible use".

The area of the project site designated as open space currently supports more than 10 percent native tree cover; therefore, the project site meets the definition of "Forest land" under Section 12220(g).The project site is not considered a TPZ as classified by Sections 51112 and 51113 of the California Government Code, as the project site is not "devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible use."

4.2.3 REGULATORY SETTING

State

Williamson Act

The California Land Conservation Act, also known as the Williamson Act, was adopted in 1965 in order to encourage the preservation of the State's agricultural lands and to prevent its conversion to urban uses. In order to preserve these uses, this Act established an agricultural preserve contract procedure by which the landowners pay State taxes at a lower rate using a scale based on the actual use of the land for agricultural or open space purposes, as opposed to its unrestricted market value.

Project Consistency Analysis

The project site is not covered by a Williamson Act contract and therefore would not conflict with any Williamson Act contract (County, 2015).

Farmland Mapping and Monitoring Program

In 1982, the FMMP was established by the California Department of Conservation, Division of Land Resources Protection. The FMMP provides a consistent and impartial analysis of agricultural land use and land use changes throughout California, and produces Important Farmland Maps by county every two years.

The FMMP farmland classifications are further described below in order of productivity, from the most productive to the least productive.

Prime Farmland

Prime Farmland is land with the best combination of physical and chemical features to sustain the long-term production of agricultural crops. These lands have the soil quality, growing season, and moisture supply necessary to produce sustained high yields. Soil must meet the physical and chemical criteria determined by the National Resources Conservation Service.

Farmland of Statewide Importance

Farmland of Statewide Importance is similar to Prime Farmland, but with minor differences, such as greater slopes or a lesser ability of the soil to store moisture.

Unique Farmland

Unique Farmland is used for the production of the State's leading agricultural crops but may contain lesser quality soils that Prime Farmland or Farmland of Statewide Importance. These lands are usually irrigated but may include non-irrigated orchards or vineyards found in some climatic zones in California.

Farmland of Local Importance

Farmland of Local Importance holds a different definition within each county in California. According to the FMMP inventory, the County contained 52,431 acres of Farmland of Local Importance in 2014 (DOC, 2014).

Project Consistency Analysis

The project site is not designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance.

Local

Contra Costa County General Plan

The Land Use and Conservation Elements of the General Plan contain the following policies related to agricultural and forest resources.

Land Use Element

3-11: Urban uses shall be expanded only inside the Urban Limit Line where conflicts with the agricultural economy will be minimal.

3-12: Preservation and buffering of agricultural land should be encouraged as it is critical to maintaining a healthy and competitive agricultural economy and assuring a balance of land uses. Preservation and conservation of open space, wetlands, parks, hillsides, and ridgelines should be encouraged as it is crucial to preserve the continued availability of unique habitats for wildlife and plants, to protect unique scenery, and provide a wide range of recreational opportunities for County residents.

3-14: Protect prime productive agricultural land from inappropriate subdivisions.

Conservation Element

8-12: Natural woodlands shall be preserved to the maximum extent possible in the course of land development.

8-29: Large continuous areas of the County should be encouraged to remain in agricultural production, as long as economically viable.

8-30: In order to reduce adverse impacts on agricultural and environmental values, and to reduce urban costs to taxpayers, the County shall not designate land located outside of the ULL for an urban land use.

8-31: Urban development in the future shall take place within the Urban Limit Line and areas designated by this plan for urban growth.

8-32: Agriculture shall be protected to assure a balance in land use. The policies of Measure C-1990 shall be enforced.

8-33: The County shall encourage agriculture to continue operating adjacent to developing urban areas.

8-38: Agricultural operations shall be protected and enhanced through encouragement of Williamson Act contracts to retain designated areas in agricultural use.

In addition to the above-mentioned policies, the County enacted the 65/35 Land Preservation Standard as part of Measure C-1990, which calls for the preservation of at least 65 percent of the land in the County for agriculture, open space, wetlands, parks, and other non-urban uses. Measure C-1990 also established the ULL, which was extended to 2026 by the passage of Measure L in 2006. Inside the ULL there are approximately 144,018 acres designated as Urban Use, including the approximately 61-acre project site. In fulfillment of a Measure L requirement, the ULL was reviewed on February 2, 2016 to determine if the line needed to be expanded due to land use plans and employment and housing needs. The County's Board of Supervisors accepted and approved the proposed approach and schedule for the ULL Mid-term Review required under Measure L – 2006 and directed staff to consult with the Local Agency Formation Commission (LAFCO), BIA/Bay Area, East Bay Leadership Council and the East Bay Economic Development Alliance for data gathering purposes, and include business and community stakeholders at the public meetings.

Project Consistency Analysis

The project would be consistent with the General Plan policies related to agricultural resources. The project area is within the ULL and therefore in compliance with General Plan policies 3-11, 8-30, and 8-31. The project lands are not held in Williamson Act contracts, and are not considered Prime Farmland, and thus the project would not conflict with General Plan policy 3-14 or 8-38. In reference to General Plan policies 8-29, 8-32, and 8-33, the project site is surrounded by existing or planned residential development, and is not part of a larger agricultural production area that would be subdivided by the project. As project consistency pertains to General Plan policy 8-12, natural woodlands would be preserved to the maximum extent possible; however, in the incidence of forest land removal for project buildout, sufficient mitigation will be implemented to replace the native trees potentially proposed for removed (see **Mitigation Measure BIO-8**).

Contra Costa County General Plan and Zoning Designations

The General Plan designates the project site as Single-Family Residential-Low Density (SL), and Open Space (OS). The current site zoning is Single-Family Residential (R-20), which allows the following uses:

1. A detached single-family dwelling on each lot and the accessory structures and uses normally auxiliary to it;

2. Crop and tree farming, and horticulture;
3. A temporary stand for the sale of agricultural products grown on the premises, with two and one-half acres per stand, set back at least thirty-five feet from the front property line, and operated not more than three months in any calendar year;
4. Small farming; including the raising of poultry and rabbits or other grain-fed rodents, primarily for home consumption thereon;
5. Keeping livestock on lots forty thousand or more square feet in area (with at least forty thousand square feet for each two head of livestock) and all contiguous and in one fee ownership;
6. Publicly owned parks and playgrounds;
7. A residential care facility for the elderly, operated by a person with all required state and local agency approvals or licenses, where not more than six persons reside or receive care, not including the licensee or members of the licensee's family or persons employed as facility staff;
8. A family day care home where care, protection and supervision of twelve or fewer children in the provider's own home are provided for periods of less than twenty-four hours per day, while the parents or guardians are away;
9. Aviaries, which shall be not over twelve feet high nor exceeding one square foot in area for each fifty square feet of net land area per lot, and unless otherwise provided herein, shall be set back at least twenty-five feet from the front property line or any street line and at least ten feet from any side or rear property line, and shall be maintained in a sanitary manner as determined by the county health department.

Project Consistency Analysis

The project is proposing 35 residential lots within an area zoned as R-20. Detached single-family dwellings are allowable under this zoning designation. As discussed in **Section 4.11, Land Use and Planning**, the project would comply with the current land use designations.

4.2.4 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]).
- Result in the loss of forest land or conversion of forest land to non-forest use.
- 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.
- Conflict with existing zoning for agricultural use or a Williamson Act contract.

Discussion of No Impacts

Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

The project site does not contain farmland designated Prime, Unique, of Statewide Importance, or of Local Importance. Furthermore, the project site does not contain prime agricultural land as defined in Section 56064 of the California Government Code. No impact would occur.

Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?

The site is not under Williamson Act contract. Though small-scale agricultural uses are allowable under the R-20 zoning designation, this designation also allows for single-family residences. Therefore, the project would not conflict with existing zoning, and no impact would occur.

Discussion of Significant Impacts

Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

and

Would the project result in the loss of forest land or conversion of forest land to non-forest use?

and

Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Impact AG-1: Implementation of the project would result in the loss of forest land at the project site and thus would conflict with forest land zoning as established by California Public Resources Code 12220(g) (Less than Significant with Mitigation).

The project site is not currently used for agricultural production. Development of the project would therefore not result in conversion of Farmland to non-agricultural use. The project site is surrounded by urban development on its northern, northeastern, and southeastern borders. Additionally, the project would retain approximately 41 acres of open space.

The project site is located within the ULL designated by the General Plan. Development in this area would conform to the General Plan's policies 3-12 and 8-12 regarding the protection of forest resources. However, as described above, forest resources exist on the site and the removal of trees could significantly affect such resources.

The project site contains approximately 3,489 trees, including approximately 469 trees proposed for removal for in the development area. Many of these trees are proposed for removal due to unsuitability factors such as poor health, mechanical failure, crowding or interfering with the development of a healthier tree, a maladapted species, or of a species generally unsuited to the Alamo climate.

As discussed **Section 4.4, Biological Resources**, the project arborist recommended replacement requirements, which would be subject to the County's approval. Additionally, **Mitigation Measure BIO-8** requires arborist consultation throughout the construction period to ensure appropriate tree preservation and removal practices. With adherence to General Plan policies 3-12 and 8-12, continued

consultation with the arborist, and implementation of **Mitigation Measure BIO-8**, the project would have a less-than-significant impact to forest resources.

4.2.5 CUMULATIVE IMPACTS

The cumulative setting for agricultural and forest resources is the County, the project site, and the three proposed developments within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**). Buildout of these developments, when considered cumulatively, would not have a significant cumulative impact on agricultural and forest resources.

Agricultural Resources

The *Contra Costa County General Plan EIR Impacts and Mitigation Summary* (General Plan EIR) noted that build-out of the General Plan would result in land use and other conflicts between agricultural and urban uses. The General Plan update concluded that the conversion of these agricultural lands to urban uses is a significant cumulative impact. The County adopted overriding considerations as part of the adoption of the General Plan, and the General Plan EIR notes the following two reasons as a basis for this consideration:

1. The County is required by State Law to provide for its fair share of the regional housing need, as determined by ABAG, and to do so, the County must designate a certain amount of land for residential uses; and
2. The economic welfare of the County, and its continued ability to provide for the employment needs of its residents, would allow this conversion to occur.

All four of the projects that comprise the cumulative setting are within the ULL, and are developed under existing conditions. There are no designated agricultural resources on or within the vicinity of the proposed developments. Additionally, as discussed in this section, the project site is currently designated for Single-Family Residential-Low (SL) and Open Space (OS) land uses. The project site is not designated for agricultural land uses, and the project would not result in the conversion of agricultural land to non-agricultural uses. Therefore, the project would have a less than significant contribution to the cumulative impacts on agricultural resources within the County.

Forest Resources

The three additional developments comprising the cumulative scenario are within the ULL, and entirely developed under existing conditions, and thus would not conflict with forest land zoning. As stated above, implementation of the Ball Estates project would result in the loss of forest land at the project site and thus would conflict with forest land zoning as established by California Public Resources Code 12220(g). However, the project site is located within the ULL designated by the General Plan. Development in this area would conform to the General Plan policies

3-12 and 8-12 regarding the protection of forest resources. With implementation of **Mitigation Measure BIO-8**, the project's contribution to the cumulative impacts to forest resources would be reduced and the project would not result in a considerable contribution to a cumulative impact. None of the land within the County is used for timber harvesting; therefore, the project in combination with the other development within the County, would not result in cumulative impacts to forest resources.

4.2.6 REFERENCES

California Department of Conservation, 2014. *Table A-5 2012-2014 Land Use Conversion*.

California Department of Conservation, 2015. Williamson Act Program. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Documents/2014%20LCA%20Status%20Report_March_2015.pdf. Accessed August 31, 2015.

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4.3 AIR QUALITY

This section describes and evaluates the effects the project would have on local and regional air quality. The information in this section was obtained from the following sources:

- The Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Guidelines, adopted in May 2012
- U.S. Environmental Protection Agency (U.S. EPA)
- California Environmental Protection Agency Air Resources Board (ARB)
- The Air Quality and Greenhouse Gas Emissions Assessment prepared for the project by Illingworth & Rodkin, Inc., July 2017 (see **Appendix B**)
- The *Contra Costa County General Plan 2005-2020* (General Plan)
- The *Contra Costa County Climate Action Plan* (CCCCAP), 2015

These documents are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

No comments regarding air quality were submitted in response to the Notice of Preparation for this draft environmental impact report.

4.3.1 EXISTING CONDITIONS

Physical Setting

The potential for high pollutant concentrations developing at a given location depends on the quantity of pollutants emitted into the atmosphere in the surrounding area or upwind, and the ability of the atmosphere to disperse the contaminated air. The atmospheric pollution potential, as the term is used here, is independent of the location of emission sources, and is instead a function of factors such as topography and meteorology.

The San Francisco Air Basin experiences a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During the fall and winter months, the high pressure condition over the interior regions of the United States (known as the Great Basin High) can produce extended periods of light winds and low-level temperature inversions. This condition is frequently characterized by poor

atmospheric mixing resulting in degraded regional air quality. Ozone (O_3) pollution typically occurs when this condition occurs during the warmer months of the year.

The air pollution potential is lowest in regions closest to the San Francisco Bay, due largely to good ventilation and less influx of pollutants from upwind sources. Light winds in the evenings and early mornings occasionally result in elevated pollutant levels. Wind flow patterns are controlled by air circulation in the atmosphere, which is affected by air pressure and the variable topography of the coastal areas adjacent to the only sea-level gap between the San Francisco Bay and Central Valley - the Carquinez Strait. During the summer and fall months, high pressure offshore coupled with low pressure in the Central Valley causes marine air to flow eastward through the Carquinez Strait.

The air flowing from the coast to the Central Valley, called the sea breeze, begins developing at or near ground level along the coast in late morning or early afternoon. As the day progresses, the sea breeze layer deepens and increases in velocity while spreading inland. The depth of the sea breeze depends in large part upon the height and strength of the inversion. If the inversion is low and strong, and hence stable, the flow of the sea breeze will be inhibited and stagnant conditions are likely to result. Low wind speed contributes to the buildup of air pollution. Light winds occur most frequently during periods of low sun (i.e., fall and winter, and early morning) and at night.

The project site is located in the eastern region of the Bay Area Air District, and air quality information for this section was gathered from the nearest monitoring station, located in Concord.

Criteria Air Pollutants and Effects

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: carbon monoxide (CO), ground-level O_3, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and suspended particulate matter, specifically PM_{10} and $PM_{2.5}$. In the County, O_3 and particulate matter are the pollutants of greatest concern, as measured air pollution levels show high concentrations of these pollutants at times.

Ambient Air Quality Conditions

Air quality is described by the concentration of various pollutants in the atmosphere. The ambient air quality in a given area depends on the quantities of pollutants emitted within the area, transport of pollutants to and from surrounding areas, local and regional meteorological conditions, and the topography of the air basin. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). State and Federal air quality standards have been set up to define the allowable pollutant concentrations in a given air basin. These standards are designed to ensure that public health and welfare are

protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population. California Ambient Air Quality Standards (CAAQS) are presented in **Table 4.3-1**.

Air Monitoring Data

BAAQMD is primarily responsible for assuring that the national and State standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties, and monitors air quality conditions at more than 30 locations throughout the Bay Area. The closest multi-pollutant monitoring station to the project site is in Concord, which is approximately 9 miles northwest of the project site (BAAQMD, 2015).

Attainment Status

Areas that violate standards are considered to be in "nonattainment." Areas that do not violate standards are considered to be in "attainment." Federal regulations also include a designation known as "unclassified," which identifies areas where data are incomplete and do not support a designation of attainment or nonattainment. **Table 4.3-2** shows the number of days per year that air pollutant levels exceeded State or Federal standards from 2012 to 2014.[1]

- O_3: The Bay Area as a whole is in nonattainment for ground level O_3, according to State and Federal standards. The Bay Area also is classified as marginally nonattainment according to the National Ambient Air Quality Standards (NAAQS) 2005 8-hour O_3 standard.
- CO: The Bay Area has met the CO standards for over a decade and is classified as being in attainment by the U.S. EPA.
- PM_{10} and $PM_{2.5}$: The Bay Area is classified as nonattainment for PM_{10} and $PM_{2.5}$ according to CAAQS standards, which are more stringent. The U.S. EPA grades region as nonattainment for the new 2012 $PM_{2.5}$ standard. This EPA designation was effective April 15, 2015.

The U.S. EPA and the State grade the region "in attainment" or "unclassified" for all other air pollutants.

[1] Information in Table 4.2-3 is the most recent published data as of January 13, 2016.

Table 4.3-1 California Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	California Standards	Form
Carbon Monoxide		primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	20 ppm	
Lead		primary and secondary	Rolling 3 month average	1.5 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide		primary	1-hour	0.18 ppm	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	Annual mean	0.30 ppm (2)	Annual Mean
Ozone		primary and secondary	8-hour	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
		Primary and secondary	1-hour	0.09 ppm	-
Particle Matter	$PM_{2.5}$	primary	Annual	12 µg/m^3	annual mean, averaged over 3 years
		secondary	Annual	15 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24-hour	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24-hour	50 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide		primary	1-hour	0.25 ppm (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

Source: Illingworth and Rodkin, 2017.

Notes: (1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Standards shown are National standards. Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

ppm = parts per million, µg/m3 = micrograms per cubic meter

Sensitive Receptors

Sensitive receptors include individuals and locations with individuals who are particularly susceptible to the adverse effects of air pollution. The California ARB has identified sensitive receptors to include children under 14, persons over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that contain a high concentration of these sensitive population groups include residential neighborhoods, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Both CAAQS and NAAQS were developed with the intent to protect sensitive receptors from the adverse impacts of air pollution.

Sensitive receptors within close proximity to the project site include residents in the neighborhoods to the north, northeast, and east of the project site. The nearest residences to the project site are located as close as 40 feet from the shared property lines. Nearby sensitive receptors also include users of Madrone Trail, which begins at the end of Camille Avenue near the project site's eastern property boundary.

Table 4.3-2 Annual Number of Days Exceeding Ambient Air Quality Standards

Pollutant	Standards	Monitoring Station	Days Exceeding Standard		
			2012	2013	2014
Ozone (O_3)	NAAQS 8-hr	Concord	2	0	2
		Bay Area	4	3	5
	CAAQS 1-hr	Concord	0	0	1
		Bay Area	3	3	3
	CAAQS 8-hr	Concord	3	0	2
		Bay Area	8	3	10
Coarse Particulate Matter (PM_{10})	CAAQS 24-hr	Concord	0	1	0
		Bay Area	2	6	2
	NAAQS 24-hr	Concord	0	0	0
		Bay Area	0	0	0
Fine Particulate Matter ($PM_{2.5}$)	NAAQS 24-hr	Concord	0	1	0
		Bay Area	3	13	3
All Other	All Other	Concord	0	0	0
		Bay Area	1(1)	0	0

Source: BAAQMD, 2012-2014.

Notes: [1] In 2012, there was 1 day when Nitrogen Dioxide (NO_2) exceeded the Federal 1-hour NO_2 standard.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and

commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, State, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three quarters of the cancer risk from TACs (based on the San Francisco Bay Area average). According to the ARB, diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the ARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Odors

Offensive odors can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and BAAQMD. Offensive odors are typically associated with wastewater treatment plants, sanitary landfills, feedlots and dairies, and industrial facilities. The occurrence and severity of odor problems depends on numerous factors, including the nature, frequency, and intensity of the source, wind speed, and direction, and the sensitivity of the receptor(s). BAAQMD Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds.

4.3.2 REGULATORY SETTING

Federal

United States Environmental Protection Agency

The U.S. EPA is responsible for enforcing the Federal Clean Air Act (CAA). The U.S. EPA is also responsible for establishing the NAAQS. The U.S. EPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by ARB.

Project Consistency Analysis

The project would be required to comply with Federal regulations and standards set by the U.S. EPA.

State

California Air Resources Board (CARB)

ARB, part of the CalEPA, is responsible for meeting the State requirements of the Federal CAA, administering the California Clean Air Act (CCAA), and establishing the CAAQS. The California CAA requires all air districts in the State to endeavor to achieve and maintain CAAQS. CARB regulates mobile air pollution sources, such as motor vehicles, and is responsible for setting emission standards for vehicles sold in California for other emission sources, such as consumer products, and for certain off-road equipment. ARB has established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn prepare air quality attainment plans at the regional level. ARB also conducts or supports research into the effects of air pollution on the public and develops innovative approaches to reduce air pollutant emissions.

CARB Regulations of Construction Vehicles

On July 26, 2007, CARB adopted new regulations intended to reduce emissions of PM_{10} and $PM_{2.5}$ and NO_x from certain diesel-powered vehicles by requiring businesses to retrofit or "turnover" their fleets over time (13 California Code of Regulations [CCR] Section 2449). The regulations apply to any person, business or government agency that owns or operates any diesel-powered off-road vehicle in California with 25 or greater horsepower, including vehicles used in construction (i.e., backhoes, tractors).

The emission requirements are intended to require fleets to apply exhaust retrofits that capture pollutants before they are emitted, and to accelerate turnover of fleets to newer, less-polluting engines. “Turnover” means retrofitting an engine to capture pollutants, replacing a dirty engine with a clean engine, retiring a dirty vehicle, replacing a vehicle with a new or used piece, or re-designating a vehicle as “low-use.” “Low-use” vehicles (which operate for less than 100 hours per year) are exempt from emission requirements, but still must be properly labeled and reported to CARB.

The requirements and deadlines for compliance vary depending on fleet size. As of December 2011 the Office of Administrative Law approved an amendment that delayed the initial compliance date for all fleets by four years. For small fleets, which include small businesses or municipalities with a combined horsepower of 2,500 or less, implementation does not begin until 2019. Medium fleets, with 2,501 to 5,000 horsepower, have until 2017, while large fleets, with over 5,000 horsepower, must begin complying in 2014. State and Federally owned fleets are considered "large fleets" without regard to total horsepower. Affected vehicles include bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The regulations also include standards regarding

the use of gasoline-powered vehicles to replace diesel vehicles (Illingworth and Rodkin, 2017).

ARB expects the new regulations will result in a 92 percent reduction of diesel PM and a 32 percent reduction of NO_x from 2000 emissions by 2020. Other new ARB regulations and amendments to existing regulations include:

- Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (12 CCR, Section 2485): reduces public exposure to diesel particulate matter and other air contaminants by establishing idling restrictions, emission standards, and other requirements for heavy duty diesel engines and alternative idle reduction technologies to limit the idling of diesel-fueled commercial motor vehicles.
- Final Regulation Order requirements to reduce idling emissions from new and in-use trucks, beginning in 2008, which includes amendments and updates to the following sections of 13 CCR: Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Year Heavy-Duty Engines and Vehicles (§ 1956.8); Emission Control Labels and Consumer Information – 1995 and Later Small Off-Road Engines (§ 2404); Emission Control Labels – 1996 and Later Off-Road Compression-Ignition Engines (§ 2424); Defects Warranty Requirements for 1996 and Later Off-Road Compression-Ignition Engines (§ 2425); Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (§ 2485).
- Final Regulation Order for In-Use Off-Road Diesel Vehicles which adds Section 2449 General Requirements for In-Use Off-Road Diesel-Fueled Fleets, 2449.1 NOx Performance Requirements, 2449.2 PM Performance Requirements, 2449.3 Surplus Off-Road Opt-In for NOx (SOON) Program 2008 California Statewide Truck and Bus Rule: requires all heavy-duty diesel trucks and buses that operate in California to retrofit or replace engines in order to reduce diesel emissions.

Project Consistency Analysis

The project would be required to comply with State regulations pertaining to emissions of air pollutant during construction and operation of the project.

Bay Area Air Quality Management District

BAAQMD is primarily responsible for assuring that the national and State ambient air quality standards are attained and maintained in the Bay Area. BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. BAAQMD has jurisdiction over much of the nine-county Bay Area counties, including the County.

Clean Air Plans

To achieve the CAAQS, BAAQMD develops air quality plans addressing the California CAA and updates them approximately every three years. The most recent air quality plan was adopted on April 19, 2017, entitled *Spare the Air, Cool the Climate* (2017 CAP). The plan includes 85 distinct control measures to help reduce air pollutants and has a long-term strategic vision, which forecasts what a clean air Bay Area will look like in the year 2050.

BAAQMD CEQA Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in the Air District's updated CEQA Guidelines (updated May 2017). The significance thresholds identified by BAAQMD and used in this analysis are summarized in **Table 4.3-3**.

BAAQMD's adoption of significance thresholds was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order required BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project?

Table 4.3-3 BAAQMD Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	>10 per one million		
Chronic or Acute Hazard Index	>1.0		
Incremental annual average $PM_{2.5}$	>0.3 µg/m^3		
Health Risks and Hazards for Sensitive Receptors (Cumulative from all sources within 1,000 foot zone of influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	>100 per one million		
Chronic Hazard Index	>10.0		
Annual Average $PM_{2.5}$	>0.8 µg/m^3		
Greenhouse Gas Emissions			
GHG Annual Emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons or 4.6 metric tons per capita		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; and GHG = greenhouse gas.

In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling. Though not necessarily a CEQA issue, the effect of existing TAC sources on future project receptors (residences) is analyzed to comply with the 2017 CAP key goal of reducing population TAC exposure and protecting public health in the Bay Area.

Project Consistency Analysis

The project would be required to comply with BAAQMD standards and regulations regarding air pollutant emissions during project construction and operation. This section was prepared following BAAQMD CEQA Guidelines, and the project's air quality effects were analyzed against the 2017 CEQA Air Quality Guidelines to provide a conservative assessment of potential impacts. A discussion of project consistency with BAAQMD air quality plans and regulations is provided in **Subsection 4.3.3**.

Local

Contra Costa County

The County has no direct responsibility or authority to regulate air quality. However, as the CEQA lead agency, the County is responsible for assessing the air quality impacts of proposed developments, and when necessary, adopting measures to mitigate those impacts to less than significant levels.

Contra Costa County General Plan

The Conservation Element of the General Plan contains the following relevant policies related air quality.

Conservation Element

8-99: The free flow of vehicular traffic shall be facilitated on major arterials.

8-100: Vehicular emissions shall be reduced throughout the County.

8-101: A safe, convenient, and effective bicycle and trail system shall be created and maintained to encourage increased bicycle use and walking as alternatives to driving.

8-102: A safe and convenient pedestrian system shall be created and maintained in order to encourage walking as an alternative to driving.

8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

8-105: Land uses which are sensitive to air pollution shall be separated from sources of air pollution.

8-106: Air quality planning efforts shall be coordinated with other local, regional, and State agencies.

8-107: New housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Project Consistency Analysis

As part of the environmental review period, and in compliance with policies 8-103, 8-104, and 8-106, the project would be required to comply with State and Federal air quality plans, incorporating mitigation measures where applicable. The project would not result in an increase in local roadways, aside from an additional emergency vehicle access route. The project would not impede or congest the roadways to the extent that it would substantially increase vehicular traffic, in compliance with policies 8-99 and 8-100. Refer to **Section 4.16, Transportation and Traffic**, for a discussion of project generated-traffic.

In response to policies 8-101 and 8-102, roadways and sidewalks would be constructed to provide public and private pedestrian and trail access. The project site is surrounded by residential development and open space. Specifically, the development is in compliance with policy 8-107 as it is an infill site that is adjacent to existing residential development, and is also in compliance with policy 8-105 as it is not located near a land use identified as a significant source of air pollution.

Contra Costa County Climate Action Plan

On December 15, 2015, the CCCCAP was approved by the Board of Supervisors. The CCCCAP outlines how the County will achieve the 15 percent below baseline levels by 2020, as per the AB 32 GHG emissions reduction target. Additionally, the CCCCAP aims to support other public health, energy efficiency, water conservation, and air quality goals identified in the County's General Plan and other policy documents.

Project Consistency Analysis

The proposed project would not conflict with the CCCCAP planning efforts since the project would have emissions well below BAAQMD thresholds, as discussed in **Subsection 4.3.3**. The CCCCAP is a tiered document, which relies on the CEQA and BAAQMD's guidelines for air quality standards, and GHG reduction strategies. Therefore, the project is consistent with the policies established in the CCCCAP, as described below**.**

4.3.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Result in a community risk due to an increased cancer risk of greater than 10 people in a million, an increased non-cancer risk of greater than 1.0 Hazard Index, or increased $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) if the project is within 1,000 feet from a TAC source.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Create objectionable odors affecting a substantial number of people.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is classified as non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Conflict with or obstruct implementation of the applicable air quality plan.
- Expose sensitive receptors to substantial pollutant concentrations.

BAAQMD CEQA Guidelines, adopted May 2012, were used to evaluate the environmental air quality impacts of the project as follows:

- The operational thresholds of significance for ROG and NO_x are 54 pounds per day and 10 tons per year.
- The PM_{10} operational threshold is 82 pounds per day or 15 tons per year, considering only exhaust emissions.
- The $PM_{2.5}$ operational threshold is 54 pounds per day or 10 tons per year (exhaust emissions).
- The construction thresholds of significance are equivalent to the operational thresholds and are based on averaged daily emissions.

Discussion of Less-than-Significant Impacts

Would the project create objectionable odors affecting a substantial number of people?

Facilities such as wastewater treatment plants, landfills, refineries, and manufacturing plants are types of land uses that emit objectionable odors. Activities associated with residential construction and operation do not typically

result in the creation of objectionable odors affecting a substantial number of people.

Project construction would generate localized diesel odors during the construction, period. These emissions may be occasionally noticeable when heavy construction equipment operates directly adjacent to nearby homes, but will diffuse and become imperceptible as construction equipment moves away from shared property boundaries. Odors associated with diesel emissions will be temporary, localized, and typical of odors associated with construction.

The only potential source of odor associated with project operation would be the garbage or waste associated with land uses proposed onsite. Any garbage or waste generated by the residential uses would be collected and disposed of according to policies found in the County Code Chapter 418: Refuse. Proper collection and disposal of generated waste would avoid the creation of objectionable odors affecting residents of the project or surrounding neighborhoods.

Given the above, this impact would be less than significant.

Would the project conflict with or obstruct implementation of the applicable air quality plan?

The most recent clean air plan is the 2017 CAP that was adopted by BAAQMD in April 2017. The project would not conflict with the 2017 CAP since the project would comply with applicable land use designations, would have emissions well below BAAQMD thresholds (see **Table 4.3-4**) and, as discussed below, would not contribute to an air quality violation. Since the project does not exceed BAAQMD pollutant significance thresholds, it would not be required to incorporate project-specific transportation control measures listed in the 2017 CAP. This impact would be less than significant.

Would the project expose sensitive receptors to substantial pollutant concentrations?

and

Would the project result in a community risk due to an increased cancer risk of greater than 10 people in a million, an increased non-cancer risk of greater than 1.0 Hazard Index, or increased $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) if the project is within 1,000 feet from a TAC source?

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor (such as a residence) near an existing source of TACs, or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors. According to BAAQMD, sources of TACs generally freeways and high volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities.

Construction

For the purpose of this analysis, the project schedule conservatively assumes that the project would be built out over a period of approximately 30 months, or 660 construction workdays (based on an average of 22 workdays per month). Average daily emissions were computed by dividing the total construction emissions by the number of construction days.

The project includes 35 single-family dwelling units on approximately 20 acres. It was estimated that the project would require up to 125,000 square feet of building and pavement demolition, in addition to approximately 1,800 one-way trips of concrete trucks during the building construction phase, and 1,000 cubic yards of asphalt and concrete during the paving phase.

Construction activity would generate two TACs – $PM_{2.5}$ and DPM – that could temporarily affect nearby sensitive receptors. Construction equipment and heavy-duty truck traffic generate DPM, which is identified by California as a toxic air contaminant due to the potential to cause cancer. $PM_{2.5}$ is generated by construction equipment exhaust and fugitive dust. While not a TAC, $PM_{2.5}$ has been identified by BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under CEQA. For projects involving construction, $PM_{2.5}$ impacts include those from construction equipment/vehicle exhaust in addition to fugitive dust impacts. When considering $PM_{2.5}$ impacts, the contribution from sources such as construction equipment, vehicle exhaust, and fugitive dust were included.

A community risk assessment was conducted to evaluate potential health effects to nearby sensitive receptors from DPM and $PM_{2.5}$ during the construction period (see **Appendix B**). Maximum DPM and $PM_{2.5}$ concentrations were compared to BAAQMD exposure thresholds. According to this assessment, the maximum annual $PM_{2.5}$ concentration was 0.1 $\mu g/m^3$, well below BAAQMD's corresponding 0.3 $\mu g/m^3$ exposure threshold. Maximum annual DPM concentrations were 0.0329 $\mu g/m^3$, below BAAQMD's corresponding 5 $\mu g/m^3$ exposure threshold.

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer-causing TACs. Given the projected construction emissions, the Office of Environmental Health Hazard Assessment (OEHHA) guidelines and newly recommended BAAQMD exposure parameters were used to calculate the potential increased cancer risk associated with project implementation. The maximum-modeled DPM and $PM_{2.5}$ concentrations occurred in the residential area southeast of the project site on Underhill Drive for the maximally exposed individual (MEI; see **Appendix B**). Using the maximum annual modeled DPM concentration, the maximum increased cancer risk was calculated. Results of the assessment for project construction indicate the maximum excess residential infant cancer risk would be 8.1 in one million and the residential adult

incremental cancer risk would be 0.2 in one million. Therefore, excess cancer risk at off-site residential receptors would be below BAAQMD significance threshold of 10 in one million, and construction-related impacts that could increase community risk would be less than significant.

Operation

BAAQMD CEQA Air Quality Guidelines describe the potential for significant community risk impacts to occur when new sensitive receptors are located near sources of TAC and/or $PM_{2.5}$ emissions. Common sources include high-volume roadways such as freeways, stationary combustions sources permitted by BAAQMD, and gasoline stations. BAAQMD recommends that these types of sources within 1,000 feet of a project with sensitive receptors be assessed to evaluate potential impacts. There are no existing TAC sources within 1,000 feet of the project site. Additionally, no stationary sources of TACs, such as generators, are proposed as part of the project.

The project would introduce new sensitive receptors to the area in the form of future residences. However, there are no existing TAC sources (e.g., high-volume roadways or highways, emergency back-up generators, and gas stations) within 1,000 feet of the project.

Foreseeable construction projects within 1,000 feet of the project site include a three-lot subdivision at 512 Hemme Avenue, Alamo (see **Section 4.0, Setting, Impacts, and Mitigation Measures**). Construction of this project could generate dust during ground disturbance activities that could potential expose future project residents to concentrations of DPM and $PM_{2.5}$ (County, 2015). However, construction-period DPM and $PM_{2.5}$ represents a temporary impact, and the 512 Hemme Avenue project would implement mitigation measures to reduce construction dust and exhaust, which would limit potential impacts to future project residents.

Given the above, this impact would be less than significant.

Discussion of Significant Impacts

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or Federal ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

and

Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The Bay Area is also considered nonattainment for PM_{10} under the California Clean Air Act. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, BAAQMD established thresholds of significance for these air pollutants and their precursors (see **Table 4.3-4**). These thresholds are for ozone precursor pollutants (ROG and NO_x), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Intersections with large traffic volumes can cause localized concentrations of CO. For land-use projects, BAAQMD 2017 CEQA Air Quality Guidelines state that a proposed project would result in a less-than-significant impact to localized CO concentrations if the project would not increase traffic by over 44,000 vehicles per hour at affected intersections. Project construction would not generate 44,000 trips per hour and, according to the traffic report, project operation would generate approximately 32 AM peak hour trips and 43 PM peak hour trips (see **Section 4.16, Transportation and Traffic**). Therefore, intersections affected by the project, individually and cumulatively, would have traffic volumes less than BAAQMD screening criteria and, thus, would have a less-than-significant CO contribution.

Construction

Construction Emissions

The project consists of 35 units, which is well under BAAQMD construction-related screening size of 114 dwelling units. Nevertheless, modeling was conservatively undertaken to evaluate the project's construction-related emissions. The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict construction emissions using project type, size, and schedule assumptions (see **Appendix B**). For modelling purposes, the project's inputs assumed 35 single-family dwelling units on approximately 20 acres, 125,000 square feet of building and pavement demolition, approximately 1,800 one-way trips for concrete trucks during the building construction phase, and 1,000 cubic yards of asphalt and concrete during the paving phase. The project schedule assumes that the project

construction would be built out over a period of approximately 30 months beginning in spring 2019.

Table 4.3-4 shows the projected average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during the construction period. As indicated in **Table 4.3-4**, predicted project construction-related missions would not exceed BAAQMD significance thresholds.

Table 4.3-4 Project Construction Period Emissions

Scenario	ROG	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction emissions (tons)	0.68 tons	2.20 tons	0.11 tons	0.11 tons
Average daily emissions (pounds)[1]	2.1 lbs	6.7 lbs	0.3 lbs	0.3 lbs
BAAQMD Thresholds (pounds per day)	54 lbs/day	54 lbs/day	82 lbs/day	54 lbs/day
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: Illingworth and Rodkin, 2017.
Notes: [1]Assumes 660 workdays, or approximately 30 months based on an average of 22 workdays per month.

Fugitive Dust

Impact AQ-1: Site preparation and grading would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$ (Less than Significant with Mitigation).

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust include disturbed soils at the construction site, trucks carrying uncovered loads of soils, and mud deposited on local streets that can dry and become airborne. As analyzed above, the project would not generate significant emissions when compared to BAAQMD thresholds. Nevertheless, BAAQMD CEQA Air Quality Guidelines states that the implementation of best management practices, listed below in **Mitigation Measure AQ-1**, would reduce fugitive dust emissions to a less-than-significant level.

Mitigation Measure AQ-1: The contractor will adhere to the following best management practices during construction:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the construction contractor's office regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Significance after Mitigation: Mitigation Measure AQ-1 would implement BMPs to reduce fugitive dust levels to a less-than-significant level.

Operation

In the 2017 update to the CEQA Air Quality Guidelines, BAAQMD identifies screening criteria for land use projects that could result in significant air pollutant emissions. For operational impacts, the screening project size is identified at 325 dwelling units. Single family housing projects of smaller size would be expected to have less-than-significant impacts with respect to operational-period emissions. Since the project proposes to develop up to 35 dwelling units, project emissions would be below BAAQMD significance thresholds for the operational period. Furthermore, stationary sources of air pollution (e.g., back-up generators) are not proposed under the project.

4.3.4 CUMULATIVE IMPACTS

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is not considerable, then the project's impact on air quality would be considered less than significant.

As discussed above, the project may produce PM_{10} and $PM_{2.5}$ in the form of fugitive dust during construction. The Bay Area is considered a non-attainment area $PM_{2.5}$ under both the CAA and the CCAA, and nonattainment for PM_{10} under the CCAA. However, with implementation of **Mitigation Measure AQ-1**, the increase of fugitive dust generated during project construction would not be cumulatively considerable, and the project would not contribute to air quality violations related to PM_{10} and/or $PM_{2.5}$.

With regards to cumulative health hazards, a project would have a significant cumulative impact if the total of all past, present, and foreseeable future TAC sources within 1,000 feet of the project exceeds 0.8 $\mu g/m^3$ annual average $PM_{2.5}$, a 100 in a million cancer risk, or a 10.0 Hazard Index. As discussed above, there are no existing TAC sources within 1,000 feet of the project area. A three-lot subdivision located at 512 Hemme Avenue, Alamo could be constructed approximately 1,000 feet from the project site. This project is well below BAAQMD air quality impact thresholds, so health risks associated with construction and operation of 512 Hemme Avenue would be negligible, and, when combined with the project's health risks would not result in an exceedance of an applicable thresholds of significance.

With respect to odors, there is no foreseeable odor-generating project within 1,000 feet of the project site, and thus no potential for a cumulative odor impact.

4.3.5 REFERENCES

Bay Area Air Quality Management District, 2012-2014. *Air Quality Summary Reports*. Available: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed September 1, 2015.

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Bay Area Air Quality Management District, 2015. District Air Monitor Sites. Available at: http://hank.baaqmd.gov/tec/maps/dam_sites.htm#. Last accessed: January 7, 2016.

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Contra Costa County, Department of Conservation and Development, 2015. *County Zoning Administrator Monday, March 16 Staff Report.*

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4.4 BIOLOGICAL RESOURCES

This section describes existing biotic habitats and special-status species on the project site and identifies potential impacts on biological resources from implementation of the project. Information in this section is primarily drawn from the following sources:

- Biological Resources Report prepared by Mosaic Associates in April 2016 and revised in June 2016 (see **Appendix C**)
- Trees Survey and Report prepared by Joseph McNeil in December 2016 (see **Appendix D**)
- Wetland Delineation prepared by Mosaic Associates in April 2012 and revised June 2014 (see **Appendix E**)
- Preliminary Jurisdictional Determination prepared by the U.S. Army Corps of Engineers (USACOE) in December 2015 (see **Appendix E**)
- The *Contra Costa County General Plan 2005-2020* (General Plan)

These reports are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

Comments related to biological resources were received in response to the Notice of Preparation for this draft environmental impact report. The East Bay Regional Park District (EBRPD) and California Department of Fish and Wildlife (CDFW) submitted comment letters conveying concerns associated with tree removal on site and potential impacts to special-status species, nesting birds, migratory birds, and other wildlife in the area. This section addresses these comments.

4.4.1 EXISTING CONDITIONS

Habitat Types

Habitats and plant communities found at the project site include developed/orchard, eucalyptus woodland, intermittent drainage/seasonal wetland, and valley oak woodland/savanna (see **Figure 4.4-1**). The open space west of the project site supports blue oak woodland, patches of annual grassland, and scattered patches of chaparral. Habitat types present at the project site are summarized in **Table 4.4-1** and described below. **Figure 4.4-1** and **Table 4.4-1** include the areas of habitats in the EBRPD property on which the Parcel D trail would be constructed and

the potential wetland mitigation area in the open space west along Drainage 1 (see discussion of wetland mitigation in **Subsection 4.4.2**).

Table 4.4-1 Habitats Present within the Project Site

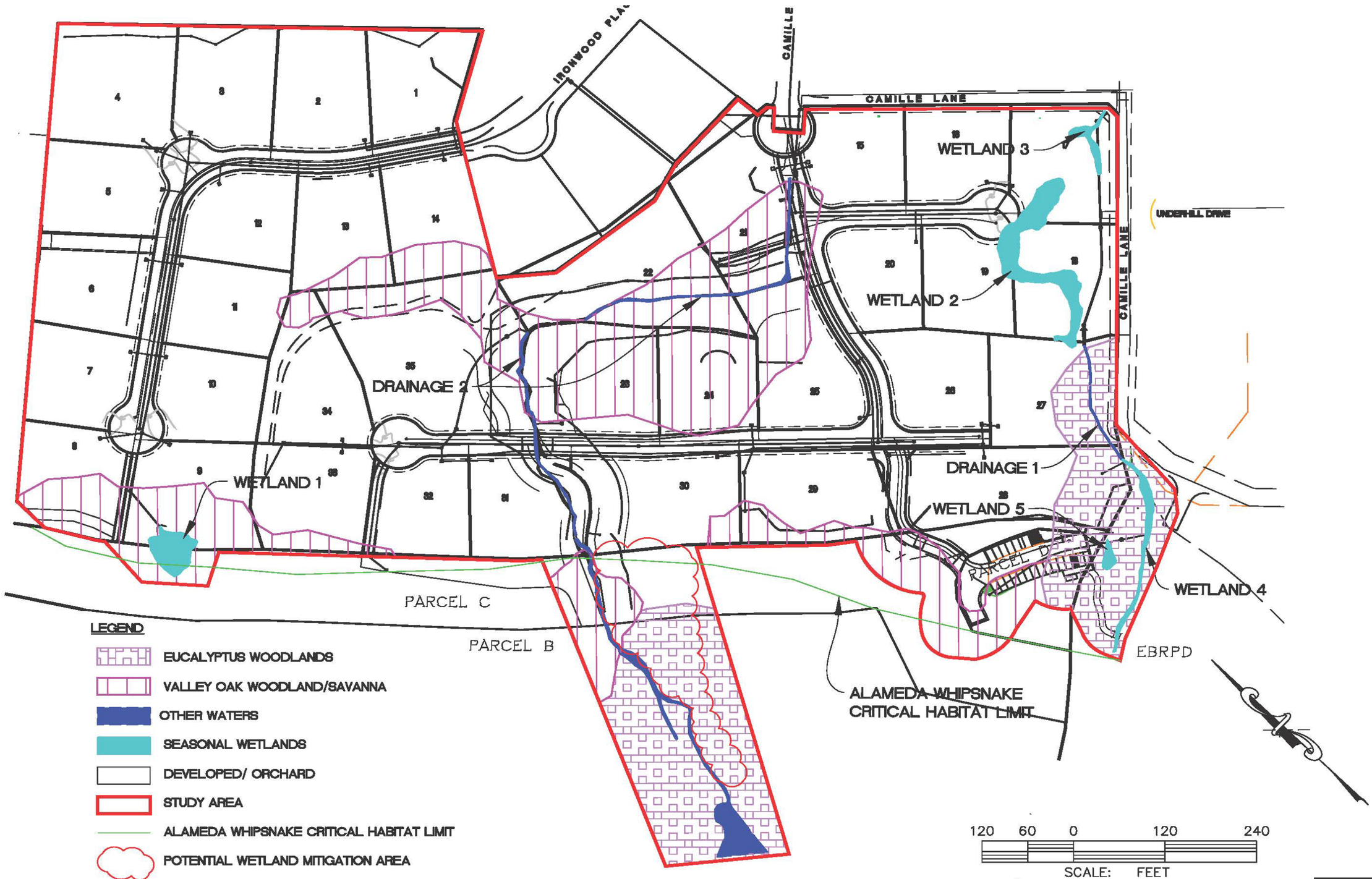
Habitat Type	Acres
Developed/orchard	16.81
Eucalyptus woodland	2.25
Freshwater seasonal wetland (potentially jurisdictional)	0.28
Intermittent drainage (other waters)	0.18
Valley oak woodland/savanna	4.11
Total	**23.63**

Source: Mosaic Associates, 2016.

Note: A preliminary jurisdictional determination on the extent and location of wetlands and waters of the U.S. was issued by the U.S. Army Corps of Engineers on 12/28/2015 (see **Appendix E**).

Developed/Remnant Orchard

Due to past development, developed/remnant orchard habitat comprises approximately 71 percent of the project site. Developed portions of the project site include the residence, office, barn complex, horse paddocks, landscaping, and paved driveways. Large portions of the project site contain formerly cultivated lands that had been planted as a walnut orchard. Native coast live oaks (*Quercus agrifolia*) are located around the eastern perimeter of the project site, and other native trees are found in low numbers throughout this portion of the project site. Mature landscaping surrounds the single residence, located west of the entry drive, the barn complex in the center of the property, and the office building in the southeast corner of the project site. The landscaped areas surrounding the residence and the driveways receive regular maintenance, watering, and weeding. Vegetation in the former orchards is mowed or disced routinely. Dominant trees in the landscaped areas are London plane (*Platanus acerifolia*), coast redwood (*Sequoia sempervirens*), and valley oak (*Quercus lobata*). English walnut (*Juglans regia*) is present in the orchard on both sides of the entry drive. While ornamental species dominate the actively maintained landscape, non-native ruderal species tolerant of periodic mowing and discing including wild oats (*Avena fatua*), ripgut brome (*Bromus*



Existing Drainages, Wetlands, and Natural Features

Figure 4.4-1

Source: Alquist, 2017

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diandrus), Italian ryegrass (*Lolium multiflorum*), cutleaf geranium (*Geranium dissectum*), vetch (*Vicia sativa*), and mustard (*Hischfeldia incana*) are present in the orchard. Himalaya blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), and photinia (*Photinia* sp.) are present along the fence lines on the northern and southern boundaries of the project site.

Landscaped areas and the remnant orchard provide habitat for a number of common wildlife species, including raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), opossum (*Didelphis virginiana*), and black-tailed deer (*Odocoileus hemionus columbianus*), as well as foraging and nesting habitat for numerous bird species, including scrub jay (*Aphelocoma californica*), lesser goldfinch (*Carduelis psaltria*), house finch (*Carpodacus mexicanus*), western bluebird (*Sialia mexicana*), and dark-eyed junco (*Junco hyemalis*). Avian diversity is higher within the project site than is commonly found in a developed, suburban landscape due to the structural diversity and extensive cover in the mature landscape, the mix of trees, and the location of the project site adjacent to extensive open space to the west.

The barn and outbuildings within the project site provide suitable roosting habitat for several common and rare species of bats, including Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat (*Antrozous pallidus*).

Eucalyptus Woodland

A grove of mature blue-gum eucalyptus trees (*Eucalyptus globulus*) is located along an intermittent drainage in the southwest portion of the project site, and additional eucalyptus trees are located east of the office building (see **Figure 4.4-1**). Understory vegetation in the eucalyptus grove is sparse to non-existent. Scattered shrubs and vines of poison oak (*Toxicodendron diversilobum*) and small-stature California buckeye (*Aesculus californica*) are present, and the ground is heavily littered with large to small limbs, exfoliated bark, and leaves. The eucalyptus east of the office building are confined to a smaller area, and do not form a dense grove.

Birds expected to frequent the eucalyptus grove include red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), yellow-rumped warbler (*Dendroica coronata*), rubycrowned kinglet (*Regulus calendula*), and chestnut backed chickadee (*Poecile rufescens*).

Valley Oak Woodland/Savanna

Valley oak woodland is present on the hillslopes north of the residence, barn complex, and office building as well as the steep hillside west of the developed portion of the project site. In addition to valley oak, California bay laurel (*Umbellularia californica*), buckeye, coast live oak, and flowering plum (*Prunus* sp.) contribute to the overstory in this type. The understory contains the native species toyon (*Heteromeles arbutifolia*) and poison oak, non-native English ivy and

periwinkle (*Vinca major*), and an assortment of non-native grasses. Much of the tree canopy on the slopes surrounding the developed portions of the project site would conform most closely to the Valley Oak Woodland (*Quercus lobata* Woodland Alliance). Within the project site, this woodland is distinguished from the surrounding developed/orchard type due to the dominant cover of valley oaks and other native tree species.

Valley oak woodland provides foraging and nesting habitat for many species of birds, including acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), scrub jay, oak titmouse (*Baeolophus inornatus*), chestnut backed chickadee, spotted towhee (*Pipilo maculatus*) , and white-breasted nuthatch (*Sitta carolinenis*). Cavities in the larger valley oaks provide roost habitat for several species of bats, including pallid bat and Townsend's big-eared bat. More densely vegetated portions of the wooded slope in the western portion of the project site also provide suitable foraging and denning habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), although no stick lodges were observed during the surveys conducted for this report. Woody debris, rocks, and damp leaf litter in less disturbed areas provide cover for the California slender salamander (*Batrachoseps attenuatus*).

Water Features

Based on a preliminary wetland delineation conducted in March 2012, and revised in 2014, there are five areas of seasonal freshwater wetland and two intermittent drainages within the project site (see **Appendix E**). The revised delineation was submitted to the United States Army Corps of Engineers (USACE) in June 2014, and the USACE issued a preliminary jurisdictional determination on the extent and location of wetlands and other waters of the U.S. that may be subject to the regulatory authority of the USACE on December 28, 2015. The areas shown in **Table 4.4-1** are consistent with the areas shown on the preliminary jurisdictional determination map by the USACE for the area subject to project development.

Intermittent Drainages

Two intermittent drainages flow through the project site in an easterly direction, conveying runoff seasonally from open space land to the west to the offsite storm drain system, which ultimately drains to San Ramon Creek. Drainage 1 is the larger of the two drainages on site, and bisects the center of the project site. Portions of this feature were relocated in the past to skirt the entry drive and orchard. Much of it is lined with rock and is situated within the mature horticultural landscape south and east of the residence. The channel is shallow and lacks pools. Drainage 2 is located near the southern boundary of the project site. Drainage 2 is smaller and less distinct than Drainage 1; it disappears in the old orchard at the east side of the property, and is associated with seasonal Wetlands 2, 3, 4, and 5 (described below).

These intermittent drainages provide very limited habitat value, given their location in a developed setting. Surface flow in the drainages is too episodic to provide habitat for aquatic species. The same wildlife species using other habitats within the project site would also be expected to use these drainages.

Seasonal Freshwater Wetlands

- There are five areas of seasonal freshwater wetland within the project site:
- Wetland 1 is located west of the residence, and appears to be isolated. The dominant plant in Wetland 1 is spreading rush (*Juncus patens*).
- Wetland 2 is located in the eastern portion of the project site, and is associated with runoff from the office building, parking lot and irrigated landscape as well as runoff from Drainage 2. Dominant plants in Wetland 2 include umbrella sedge (Cyperus eragrostis), spiny cocklebur (Xanthium spinosum), and Mediterranean barley (*Hordeum marinum*).
- Wetland 3 is located just east of Wetland 2, and is situated in a low-lying portion of the project site next to a culvert that conveys runoff from this area into stormwater system beneath Camille Lane. Wetland 3 is fed by runoff from Wetland 2 and Drainage 2. Dominant plants in Wetland 3 are Italian ryegrass (Lolium multiflorum) and Mediterranean barley (Hordeum marinum).
- Wetland 4 is located on EBRPD property, immediately upstream and in the same channel as Drainage 2. Italian ryegrass is the dominant species in this feature.
- Wetland 5 is located on EBRPD property in an opening surrounded by eucalyptus trees. Spreading rush is the dominant plant in Wetland 5.

Following an above-normal rainy season in 2011, the landowners excavated a shallow swale through the orchard in the western portion of the project site to convey sheet flow runoff away from the neighboring residences to the north. This excavated feature was examined during the preliminary wetland delineation and was determined to be an upland area that lacked wetland vegetation, hydrology, or soils.

The seasonal wetlands provide very limited habitat value, given their location in a developed setting. Surface flow into the wetlands is too episodic to provide habitat for aquatic species. The same wildlife species using other habitats within the project site would also be expected to use the seasonal wetlands drainages.

Special-Status Species and Natural Communities

Several species of plants and animals within California have low populations, limited distributions, or both. Such species may be considered “rare” and are vulnerable to extirpation as the State’s human population grows and encroaches upon special-

status species habitat. Several special-status plants and animals have potential to occur on or in the vicinity of the project site. Lists of these species are found in **Appendix C**. Special-status species with habitat requirements not met on the project site or vicinity were eliminated from further consideration.

Special-Status Plants

The biological resource report evaluated 71 special-status plant species with potential to occur within the project site vicinity due to known occurrences within the region. Thirty-three plant species were eliminated from further consideration due to lack of suitable habitat within the project site. Focused botanical surveys for the remaining target species were conducted on April 16, May 24, and September 28, 2012; May 10, 2013; and April 14 and July 28, 2015. The northern California black walnut (*Juglans californica var. hindsii*) was the only special-status plant species present on site; however, this plant grew from grafted rootstock associated with the old English walnut orchard. Northern California black walnut was widely used as the cultivated rootstock for English walnut, with which it readily hybridizes. Trees that germinated before the European introduction of English walnut in 1840 are considered native by the California Native Plant Society because they could not have hybridized with English walnut. Because the black walnut on site grew from grafted rootstock that was commercially produced long after 1840, the northern California black walnut on site is highly unlikely to be native and is most certainly not a remnant of an historic population. The black walnut present on site would therefore not be considered as a rare plant by the California Native Plant Society.

Special-Status Plant Communities

Special-status natural communities are those that are considered rare in the region, support special-status plant, or wildlife species, or receive regulatory protection (i.e., Sections 404 and 401 of the Clean Water Act (CWA), CDFW Section 1600 et seq. of the California Fish and Game Code, and/or the Porter-Cologne Act). In addition, the CNDDB has designated a number of communities as rare; these communities are given the highest inventory priority.

While three special-status natural communities occur within the nine-quad region surrounding the project site, including Northern Coastal Salt Marsh, Northern Maritime Chaparral and Serpentine Bunchgrass, none of these communities are present within the project site.

Special-Status Animals

The Biological Resource Report evaluated 54 special-status wildlife species with potential to occur within the project site vicinity due to known occurrences within the region. Of these, 45 species were determined to have no or unlikely potential to occur due to the lack of suitable habitat within the project site. Nine special-status

wildlife species are considered to have at least a low potential to occur within the project site, including Alameda whipsnake (*Masticophis lateralis euryxanthus,* pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii townsendii*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), American badger (*Taxidea taxus*), great blue heron (*Ardea herodias*), sharp-shinned hawk (*Accipiter striatus,* nesting), Cooper's hawk (*Accipiter cooperii*), and the Bridges' Coast Range shoulderband (*Helminthoglypta nickliniana bridgesi*). Information on these species, including protected status and habitat requirements, is summarized in **Table 4.4-2** and described below and in **Appendix C**.

The grassland, shrubs, and trees on the project site also provide nesting habitat for a variety of birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. The large trees in the open space west of the project site as well as the mixed woodland and grassland in Las Trampas Regional Park to the west provide suitable nesting habitat for the golden eagle (*Aquila chrysaetos*) and the state-threatened Swainson's hawk (*Buteo swainsoni*), although neither species is likely to nest within the project site.

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Table 4.4-2 Special-Status Wildlife Known to Occur in the Project Vicinity

Species	Status (Federal/ State)	Habitat Requirements	Potential for Occurrence on Project Site
Reptiles and Amphibians			
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT / ST/SSC	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices, or abundant rodent burrows, where shrubs form a portion of the cover.	Low potential to occur. The project site is located adjacent to critical habitat and is composed of landscaped and urbanized habitats not utilized by this species.
Coast horned lizard *Phrynosoma coronatum*	SSC	Frequents a wide variety of habitats, but most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other native insects.	Not expected to occur due to the absence of suitable habitat; site is apparently outside the historic range of the species in Contra Costa County.
California red-legged frog *Rana draytonii*	FT / CDFW:SS	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to standing water every couple of days to hydrate and requires aestivation habitat in riparian zones not subject to flood events.	Not expected to occur on site. No suitable aquatic habitat in project site and it is physiologically impossible for frogs to reach the project site from the nearest known aquatic habitats off site.
California Tiger Salamander *Ambystoma californiense*	FT / ST	Needs underground refuges, especially pocket gopher and ground squirrel burrows for juveniles and adult; and vernal pools or other seasonal water sources for breeding.	Not expected to occur on site due to absence of suitable aquatic breeding habitat. Site is apparently outside the historical known range for the species in Contra Costa County.
Invertebrates			
Bridges' Coast Range shoulderband snail *Helminthoglypta nickliniana bridgesii*	CDFW SA G3T1, S1	Inhabits open hillsides of Alameda and Contra Costa Counties. Tends to colonize under tall grasses and weeds.	May be present: Suitable habitat is present in the grassy area in the far west corner of the project site.

Species	Status (Federal/ State)	Habitat Requirements	Potential for Occurrence on Project Site
Birds			
Cooper's hawk (nesting) *Accipiter cooperii*	State WL	Inhabits woodland, chiefly of open, interrupted, or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	Moderate potential to occur on site. Suitable nesting and foraging habitat is present in and adjacent to project site.
Sharp-shinned hawk (nesting) *Accipiter striatus*	State WL	Ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. Prefers riparian areas. North- facing slopes with plucking perches are critical requirements. Nests usually within 275 feet of water.	Low. Potential foraging and atypical nesting habitat present.
Golden eagle (nesting and wintering) *Aquila chrysaetos*	USFWS: BAGEPA	Rolling foothills, mountain areas, sage juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not expected to occur on site, but may occur adjacent to project site.
Bald eagle (nesting and wintering) *Haliaeetus leucocephalus*	USFWS: BAGEPA	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree w/open branches, especially Ponderosa pine. Roosts communally in winter.	Not expected to occur on site due to absence of large bodies of water on site or in the project vicinity. Site is greater than 1 mile from suitable aquatic foraging habitat.
Ferruginous hawk (wintering) *Buteo regalis*	G4, S3/S4	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Unlikely: Limited prey and relatively dense vegetation limit suitability of site for winter use. No observations of ferruginous hawk in vicinity of project site were reported in eBird (accessed 1/12/16).
Swainson's hawk (nesting) *Buteo swainsoni*	CT/USFWS BCC	Ranges typically in Central Valley, including eastern Contra Costa County. Suitable habitat consists of suitable nest trees (typically riparian, or remnant thereof) and access to high-quality foraging habitat (open habitat in grasslands or agricultural fields). May nest in valley oak trees or eucalyptus.	Unlikely. Project site is outside of typical range of species. Potentially suitable nest trees in valley oaks and eucalyptus in vicinity of the project site. Potential foraging habitat in open grasslands in Las Trampas Regional Wilderness west of the project site.

Species	Status (Federal/ State)	Habitat Requirements	Potential for Occurrence on Project Site
Great blue heron (nesting colonies) *Ardea herodias*	CDFS	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	The upper third of the nest tree that supported active nests in 2012 within the project site was removed in late 2012 due to hazardous conditions and proximity to public trail. Potential for future nesting is low.
Mammals			
Western mastiff bat *Eumops perotis californicus*	SSC	Many open, semiarid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels. Distribution is likely geomorphically determined with the species present only where there are significant rock features offering suitable roosting habitat.	Not likely to occur on site due to absence of suitable habitat (i.e. significant rock features offering suitable roosting habitat).
Pallid bat *Antrozous pallidus*	SSC	Inhabits deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low. Suitable habitat is present in project site, but this species is highly sensitive to disturbance. Frequency of ongoing disturbance makes it unlikely that this species would occur on site.
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	SSC	Roosts in a wide variety of sites; most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Extremely sensitive to disturbance.	Low. Suitable habitat is present in project site, but this species is highly sensitive to disturbance. Frequency of ongoing disturbance makes it unlikely that this species would occur on site.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Inhabits forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, sticks and branches, and other material. May be limited by availability of nest-building materials.	Low potential to occur on site. Suitable habitat is present in the woodland in west side of the project site, and species is known to construct nests in close proximity to humans, but no nests were detected during reconnaissance-level surveys.
American badger *Taxidea taxus*	SSC	Inhabits open areas with grasslands and brush habitat where a high supply of rodent prey exists. Typically burrow for concealment.	Low potential to occur on site. Suitable habitat located adjacent to, and west of, the project site in open oak woodland.

Source: Mosaic Associates, 2016.

Notes: *FT: Federally Threatened*

SSC: California Species of Special Concern
CDFW:SSC California Department of Fish and Game Species of Special Concern
ST: California State Threatened
State WL: Watch List
CDFW SA: California Department of Fish and Wildlife "Special Animal"
CDF S: California Department of Forestry "Sensitive" warranting special protection during timber operations
USFWS: BAGEPA: Unites States Fish and Wildlife Services: Bald and Golden Eagle Protection Act
G4 and S3/S4 are rankings used by NatureServe according to the following system: G = Global rank indicator, based on worldwide distribution at the species level; T = Global trinomial rank indicator, based on worldwide distribution at the infraspecific level; S = State rank indicator, based on distribution within the State at the lowest taxonomic level; 1 = Critically imperiled due to extreme rarity, imminent threats, and/or biological factors; 2 = Imperiled due to rarity and/or other demonstrable factors; 3 = Rare and local throughout its range, or with very restricted range, or otherwise vulnerable to extinction; 4 = Apparently secure, though frequently quite rare in parts of its range, especially at its periphery; 5 = Demonstrably secure, though frequently quite rare in parts of its range, especially at its periphery; R = Reported from the State, awaiting firm documentation ; U = Unrankable; present and possibly in peril, but not enough data yet to estimate rank; ? = Not yet ranked at the scale indicated (G, T, or S); B = Breeding status within the State; rank for breeding occurrences only; N = Non-breeding status within the State; rank for non-breeding occurrences only; OCC = species occurrence was determined from a source other than NatureServe.

Alameda Whipsnake (AWS)

The AWS is Federally and State-listed as a Threatened species. Based on a review of the most recent California Natural Diversity Database files information provided by California Natural Diversity Data Base (CNDDB), there are 22 AWS occurrences located within a five-mile radius of the project site, including seven within two miles of the site. The closest AWS occurrences are in the adjacent Las Trampas Regional Wilderness. Critical Habitat for this species was designated by USFWS on October 2, 2006 on open space land west of the existing development (see **Figure 4.4-1**).

The AWS is Federally- and State-listed as a Threatened species. Like all species within the genus Masticophis, it is a timid, fast moving, diurnal snake with large eyes and a high metabolism. It measures from three to five feet in length, with a fairly wide head and a slender neck. Unlike the other nominal subspecies, which ranges from northern California, west of the Sierra-Nevada crest, to Central Baja California, this sub-species is restricted to Alameda and Contra Costa counties, with additional occurrence records in San Joaquin and Santa Clara counties. This regional restriction corresponds to the distribution of coastal scrub and chaparral within the area. This habitat restriction may reflect the subspecies preference for friable, well-drained soils.

Primary habitats for AWS include east, southeast, south and southwest facing slopes containing coastal scrub and chaparral, with rock outcrops within approximately 0.5 mile. Typical plant species within occupied habitats of scrub and chaparral communities include California sage (*Artemisia californic*a), coyote brush (*Baccharis pilularis*), poison oak, and sticky monkey flower (*Mimulus aurantiacus*). Canopy cover within these habitats is typically open (less than 75 percent cover of total area) with little to no herbaceous understory. "Primary constituent elements" for this snake (i.e. those habitat components that are essential for its primary biological needs, as identified by the USFWS) consist of scrub communities (including mixed chaparral, chamise-redshank chaparral, and coastal scrub) and annual grasslands and oak woodlands that lie adjacent to scrub habitats. Primary constituent elements may also include grasslands and various oak woodlands that are linked to scrub habitats by substantial rock outcrops in riverine corridors.

The average home range size for male AWS is approximately 13.6 acres, with spatial overlapping. Female AWS home range size is approximately 8.4 acres. Female home ranges were spatially overlapped with males. Activity is typically concentrated within a core area, with much of the remaining area not actively used. Movement distances have been recorded between 0.5 and 1.0 mile.

Overnight retreats and hibernacula retreats include small mammal burrows created by deer mice (*Peromyscus maniculatus*) and California voles (*Microtus californicus*). California ground squirrel (*Spermophilus beecheyi*) burrows are rarely used. Other retreat areas include soil crevices, brush piles, woodpiles, and debris (i.e.,

corrugated metal roofing boards, metal boxes), although soil crevices and woodpiles were not used by telemetered snakes.

The main diet for this snake is composed of western fence lizards. Because of special physiological features, AWS are able to warm up faster than their prey, and thus are able to catch most lizards in the early morning before they have had a chance to fully warm up themselves. Other prey items eaten by striped racers include rodents, birds and other snakes. Subadult and adult AWS have been reported as emerging in mid-April, with the males emerging from their hibernacula first. Hatchlings emerge in the first part of August through November.

The oak-bay woodland habitats present west of the project site (and within the area of designated critical habitat) is considered suitable for AWS breeding, rearing, and hibernation, due to the presence of thickets of scrub vegetation and suitable rock outcrops within and adjacent to the woodland areas. There are also sufficient food resources present, especially western fence lizards.

The project site is considered unsuitable for AWS breeding, rearing, and hibernation due to the lack of coastal scrub, chaparral, or rock outcrop habitats typical of areas occupied by AWS. However, the project site contains suitable AWS foraging habitat and refuges due to the presence of food resources, mammal burrows, and woodpiles. Western fence lizard populations (food resources for the AWS) are low in the project site and surrounding developed areas (probably as a result of increased predation by domestic cats from the existing adjacent residential developments). Additionally, the surrounding urban development on three sides of the project site limits the ability of AWS to move through or utilize the area.

The only potential areas for AWS within the project site are two small woodpiles west of the residence that are actively used by the landowner. These woodpiles, located directly adjacent to the eastern edge of the oak woodland at the base of the hillside ,could be used by AWS for foraging activities. Although there are scattered small mammal burrows within the project site, they are too far away from the potential feeding areas (i.e. the woodpiles) to likely be used by AWS for cover.

Pallid Bat and Townsend's Big-eared Bat

Pallid bats inhabit rocky terrain in open areas in lowlands, foothills, and mountainous areas near water throughout California below 2,000 meters. They feed on crickets, beetles, scorpions and other large invertebrates, often on the ground. Pallid bats roost in caves, rock crevices, mines, hollow trees, buildings and bridges in arid regions in low numbers (<200). They are active from March through November.

Townsend's big-eared bats are moth specialists that inhabit caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below 3,300 meters. They exhibit high site fidelity and are highly sensitive

to disturbance. They often forage along edge habitats near water and may travel long distances when foraging.

The orchard, woodlands, and structures (barns and outbuildings) within the project site provide potentially suitable foraging and roosting habitat for pallid bat and Townsend's big-eared bat. The buildings present within the project site are in use however, and there is also frequent landscape maintenance across the site. Given the level of on-going disturbance within the project site, and the sensitivity of these bats to disturbance the potential for both bat species to occur is low.

San Francisco Dusky-footed Woodrat

The San Francisco dusky-footed woodrat, a California Species of Special Concern, is fairly common and widespread throughout the Coast Range and the northern interior of California. It is one of 11 subspecies of woodrat, and is restricted to the San Francisco Bay Area.

San Francisco dusky-footed woodrats are highly arboreal, often associated with evergreen or live oaks and other trees and shrubs as well as with chaparral and coastal scrub plant communities. They generally prefer a moderate canopy for protection from predators. They build stick lodges from branches of trees and shrubs at the base of, or in, a tree or shrub. Houses may measure up to 8 feet in diameter and height, and can be used generation after generation. This species is nocturnal, feeding on nuts and fruits, fungi, foliage and some forbs.

Although marginally suitable habitat is present in the woodland in the western portion of the project site, no woodrat lodges were observed on site.

American Badger

American badgers are heavy bodied, short-legged, grayish mammals that have a white medial stripe from nose over the top of the head and down the back. Badgers have a black nose, white cheeks, and black spot in front of each ear. Their feet are black with extremely long front claws. The belly and the short tail are yellowish.

This mammal is most commonly found in the drier open stages of most shrub, forest, and herbaceous habitats in areas with friable soils. They are usually absent from mature chaparral. Badgers are generally associated with treeless regions, prairies, park lands and cold desert areas. Badgers may avoid areas of human habitation. Badgers dig burrows in friable soils for cover.

American badgers are carnivorous and feed on fossorial rodents including ground squirrels (*Spermophilus beecheyi*), cottontail rabbits (*Sylvilagus* spp.), jackrabbits (*Lepus* spp.), small rodents and pocket gophers (*Thomomys* spp.).

Suitable habitat is located to the west of the project site in the open oak woodland and there are no barriers to prevent individuals from ranging into the project site. The extensive tree cover present on site, relatively heavy clay content of the soils and the presence of existing development on three sides of the project site

however, limit the suitability of the site for American badger. Therefore this species is considered to have a low potential to occur on site. No potential badger dens or evidence of badger occupancy were observed within the project site.

Great Blue Heron

The great blue heron is a relatively common year-round resident in much of California, feeding on small fish, rodents, amphibians, snakes, lizards, crustaceans, and insects. Herons perch and roost in tall and often secluded trees and typically nest in colonies in tops of secluded large snags or live trees, usually among the tallest available.

The great blue heron is designated as a "Special Animal" by the CDFW. The California Department of Forestry classifies the great blue heron as a "sensitive species." The Board of Forestry assigns this classification to species that warrant special protection during timber operations. The 2010 Forest Practice Rules (Sections 919.3, 939.3, 959.3[b][3] and 961.1[a][C]) specify that a buffer of 300 feet around a tree or trees containing five or more active nests shall be observed during timber harvest operations, leaving the nest tree(s) standing and unharmed. Permission to remove a live tree constituting a rookery during timber harvest operations must be granted by CDFW.

A partially dead blue gum eucalyptus tree adjacent to the office parking lot along the southern boundary of the project site supported roosting and nesting habitat for the great blue heron through 2012. The presence of the heron rookery within the project site was noted in a study conducted by Audubon Canyon Ranch. Due to the tree's hazardous condition as determined by the International Society of Arboriculture (ISA) certified arborist Joseph McNeil (personal communication) and its proximity to a public trail, the top third of the tree, including the dead limbs supporting the nests, was removed in late 2012, outside the nesting season and when the nest was not occupied.

Due to this species' propensity to utilize the same nests year after year, removal of the portion of the eucalyptus that had supported nesting in the past has reduced the likelihood of future nesting by this species within the project site. While other eucalyptus trees that provide potential nest habitat for this species are present within and adjacent to the project site, these trees have not been utilized for nesting in the past. Accordingly, the potential for great blue heron to nest within the project site is considered to be low.

Cooper's Hawk

The Cooper's hawk is a crow-sized woodland raptor that breeds throughout much of the United States, southern Canada, and northern Mexico. Despite being widely distributed, it is a secretive, inconspicuous species, particularly in the breeding season and even in areas where it is a common nester.

The Cooper's hawk breeds in extensive forests and smaller woodlots of deciduous, coniferous, and mixed pine-hardwoods, as well as in pine plantations, in both suburban and urban habitats. It captures a variety of prey, mainly medium-sized birds and mammals such as doves, jays, robins, and rodents. While the CDFW has placed the Cooper's hawk on its statewide Watch List, this species is relatively common in the San Francisco Bay Area, and is known to nest in urban neighborhoods in numerous East Bay cities.

Suitable nesting and foraging habitat is present in the eucalyptus woodland and the valley oak woodland/savanna habitats within the project site. The likelihood of Cooper's hawk to nest is moderate.

Sharp-shinned Hawk

The sharp-shinned hawk is a small, slender accipiter with short, rounded wings and a long, narrow tail that feeds almost entirely on small birds.

This raptor is widely dispersed in North America, breeding in large stands of deciduous, coniferous and mixed pine-hardwood forests. The secretive nature of this bird during nesting and the dense vegetation in nesting habitat has limited an understanding of nesting behavior.

While sharp-shinned hawks are frequently observed in wooded habitats in the County and elsewhere in the San Francisco Bay Area, most are migrants observed outside the nesting season. The Breeding Bird Atlas of Contra Costa County reports only five confirmed nests out of a combined 20 confirmed, probable and possible nest sightings.

Suitable nesting and foraging habitat is present in the woodland habitat within the project site. Given the rarity of documented nests in the County, the likelihood of nesting is low. Migrants may pass through and forage within the project site outside the nesting season.

Bridges' Coast Range Shoulderband

The Bridges' Coast Range Shoulderband is small native land snail generally described as an inhabitant of grasslands, rock piles, and woodland edges. It is most often found associated with tall grasses and weeds or in piles of rocks. It is distributed through portions of alameda and contra costa counties. Small areas of grassland that contain logs or rocks may provide habitat for this species.

This snail has no specified protection under the State or Federal endangered species regulations. However, it is listed as a "Special Animal" by CDFW. There is insufficient information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. The nearest known occurrences are 8.6 miles northeast of the project site in Mount Diablo State Park, and 11.7 miles northwest in Berkeley.

There is a low potential for the presence of this species in the small open grassy area in the far west corner of the project site. Removal of occupied habitat, if present within the project site, would not result in a significant or adverse impact under the California Environmental Quality Act (CEQA). Even if present on site, the limited area of disturbance to suitable habitat for this snail would not constitute a significant impact due to the presence of abundant suitable habitat in the open space habitat to the west of the project site. No further discussion is warranted for this species.

4.4.2 REGULATORY SETTING

Federal

U.S. Fish and Wildlife Service (USFWS)

The USFWS has jurisdiction over Federally listed Threatened and Endangered species under the Federal Endangered Species Act (ESA). Section 9 of the ESA protects listed species from harm or "take," which is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."[1] An activity can be defined as a "take" even if it is accidental or unintentional.

An Endangered species is one which is considered in danger of becoming extinct throughout all or significant portions of its range. A Threatened species is one that is likely to become endangered within the foreseeable future. In addition to Endangered and Threatened species, the USFWS maintains lists of candidate species and Birds of Conservation Concern. Species on these lists are not afforded the legal protection of the ESA but are considered to be of special-status under CEQA. The USFWS regulations include the Bald and Golden Eagle Protection Act (BAGEPA), which prohibits the take of bald or golden eagles, or the parts, nests, or eggs of the birds without prior authorization.

Project Consistency Analysis

Grading and construction of the project has the potential to result in harm to the Alameda whipsnake if present in woodpiles or under other debris on the project site. Consultation with the USFWS and CDFW would be initiated regarding potential impacts of the project on Alameda whipsnake, and the appropriate take authorization (Section 7 Biological Opinion and/or 2081 permit or 2080.1 consistency determination) as specified by the USFWS and CDFW would be obtained prior to initiation of construction activities. Bald eagles and golden eagles are not expected to occur within the project site, although golden eagles may nest within appropriate habitat located approximately 0.5 mile of the project site. All terms of

[1] 16 USC Section 1532(19).

the endangered species permits, including any mitigation requirements, would be followed.

Migratory Bird Treaty Act (MBTA)

The MBTA of 1918 (16 USC Sections 703-712, July 3, 1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989) makes it unlawful to "take" (kill, harm, harass, shoot, etc.) any migratory bird listed in Title 50 of the Code of Federal Regulations (CFR), Section 10.13, including their nests, eggs, or young. Migratory birds include geese, ducks, shorebirds, raptors, songbirds, wading birds, seabirds, and passerine birds (such as warblers, flycatchers, swallows, etc.).

Project Consistency Analysis

The trees, shrubs, and developed area/orchard within the project site provide suitable nesting habitat for a number of migratory bird species and birds of prey, including Cooper's hawk, and the larger trees within the project site provide suitable nesting habitat for the great blue heron. To comply with the MBTA, all active nest sites would have to be avoided while such birds were nesting and protection buffers would have to be established and typically fenced with orange construction fencing. Upon completion of all nesting activities, the project could commence as otherwise planned. More specifics on the size of buffers are provided in the mitigation measures listed in **Section 4.4.3**.

USACE Jurisdiction and General Permitting

Section 404 of the Clean Water Act (CWA)

Pursuant to Section 404 of the CWA (33 USC Section 1344), USACE regulates the discharge of dredged or fill material into "waters of the United States" (33 CFR Parts 328 through 330). This requires project applicants to obtain authorization from USACE prior to discharging dredged or fill materials into any water of the United States. "Waters of the United States" are defined as, "...all interstate waters including interstate wetlands...intrastate lakes, rivers, streams (including intermittent streams), wetlands, [and] natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce..." (33 CFR Section 328.3).

Section 404 jurisdiction in "other waters" such as lakes, ponds, and streams, extends to the upward limit of the ordinary high water mark (OHWM) or the upward extent of any adjacent wetland. The OHWM on a non-tidal water is the "line on shore established by the fluctuations of water and indicated by physical characteristics such as a clear natural line impressed on the bank; shelving; changes in the character of soil; destruction of terrestrial vegetation; the presence of litter or debris; or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3[e]). Wetlands are defined as "...those areas that are inundated or saturated by surface or ground water at a frequency

and duration to support a prevalence of vegetation adapted for life in saturated soil conditions" (33 CFR Section 328.8 [b]). Wetlands usually must possess hydrophytic vegetation (i.e., plants adapted to inundated or saturated conditions), wetland hydrology (e.g., topographic low areas, exposed water tables, stream channels), and hydric soils (i.e., soils that are periodically or permanently saturated, inundated or flooded) to be regulated by USACE pursuant to Section 404 of the CWA.

Section 401 of the CWA

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) regulate activities in "waters of the State" (which includes wetlands) through Section 401 of the CWA. While USACE administers permitting programs that authorize impacts to waters of the U.S., including wetlands and other waters, any USACE permit authorized for a proposed project would be invalid unless it is a Nationwide Permit (NWP) that has been certified for use in California by the SWRCB, or if the RWQCB has issued a project specific certification or waiver of water quality. Certification of NWPs requires a finding by the SWRCB that the activities permitted by the NWP will not violate water quality standards individually or cumulatively over the term of the issued NWP (the term is typically for five years). Certification must be consistent with the requirements of the CWA, CEQA, the California Endangered Species Act (CESA), and the SWRCB's mandate to protect beneficial uses of waters of the State. Any denied (i.e., not certified) NWPs, and all Individual USACE permits, would require a project specific RWQCB certification or waiver of water quality.

Additionally, if a proposed project would impact waters of the State, including wetlands, and the project proponent cannot demonstrate that the project is unable to avoid these adverse impacts, water quality certification will most likely be denied. Section 401 Certification may also be denied based on significant adverse impacts to waters of the U.S., including wetlands. The RWQCB has also adopted USACE policy that there shall be "no net loss" of wetlands. Thus, prior to certifying water quality, the RWQCB will impose avoidance mitigation requirements on project proponents that impact waters of the State.

Project Consistency Analysis

The project would entail filling of approximately ~~283~~ 223 linear feet of channel in Drainages 1 and 2, and creating/daylighting approximately 295 linear feet of channel in Drainages 1 and 2. Approximately 0.173 acre of seasonal wetland in the orchard area in the eastern portion of the project site would be filled to allow development in this area. A wetland mitigation area would be created along Drainage 1 in the open space west of the project site. If construction of this wetland on the project site is not feasible, payment would be made to a wetland mitigation bank or wetland mitigation would be accomplished at another location within the Walnut Creek watershed under USACE, RWQCB, and CDFW approval. Authorization for the discharge of fill into waters of the U.S. and State will be required under

Sections 401 (RWQCB) and 404 of the Clean Water Act (USACE), Section 1600 of the CDFW Code. The removal of riparian vegetation is also regulated by CDFW under Section 1600 of Fish and Wildlife Code. State and Federal agencies will require avoidance, minimization, and compensatory mitigation for the loss of wetland habitat, further described in **Subsection 4.4.3**.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act, Water Code Section 13260, requires that "any person discharging waste, or proposing to discharge waste, that could affect the waters of the State to file a report of discharge" with the RWQCB through an application for waste discharge (Water Code Section 13260[a] [1]). The term "waters of the State" is defined as any surface water or groundwater, including saline waters, within the boundaries of the State (Water Code Section 13050[e]). It should be noted that pursuant to the Porter-Cologne Water Quality Control Act, the RWQCB also regulates "isolated wetlands," or those wetlands considered to be outside of USACE jurisdiction.

RWQCB generally considers filling in waters of the State to constitute "pollution." Pollution is defined as an alteration of the quality of the waters of the State by waste that unreasonably affects its beneficial uses (Water Code Section 13050[1]). The RWQCB litmus test for determining if a project should be regulated pursuant to the Porter-Cologne Water Quality Control Act is if the action could result in any "threat" to water quality.

The RWQCB requires complete pre- and post-development Best Management Practices (BMP) Plan of any portion of the project site that is developed. This means that a water quality treatment plan for the pre- and post-developed project site must be prepared and implemented. Preconstruction requirements must be consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES), including preparation of a Stormwater Pollution Prevention Plan prior to site grading.[2] In addition, a post-construction BMP plan, or a Stormwater Management Plan, must be developed and incorporated into any site development plan.

Project Consistency Analysis

Development of the project could result in the degradation of water quality in the intermittent drainages and in downstream waters. Since any "threat" to water quality could conceivably be regulated pursuant to the Porter-Cologne Water Quality Control Act, adequate pre- and post-construction BMPs are incorporated into the project implementation plans. A Stormwater Pollution Prevention Plan

[2] Refer to **Section 4.10, Hydrology and Water Quality**, for a summary of the NPDES.

would also be prepared and adhered to during project implementation (see **Section 4.10, Hydrology and Water Quality**).

California Department of Fish and Wildlife (CDFW)

The CDFW has jurisdiction over State-listed Threatened and Endangered species under CESA. The basic policy of CESA is to conserve and enhance endangered species and their habitats. State agencies will not approve private or public projects under their jurisdiction that would jeopardize threatened or endangered species if reasonable and prudent alternatives are available. CESA requires that all State lead agencies (as defined under CEQA) conduct an endangered species consultation with CDFW if their actions could affect a State-listed species. The State lead agency and/or project proponents must provide information to CDFW on the project and its likely impacts. CDFW must then prepare written findings on whether the proposed action would jeopardize a listed species would result in the direct take of a listed species. Because CESA does not have a provision for "harm" (see discussion of ESA, above), CDFW considerations pursuant to CESA are limited to those actions that would result in the direct take of a listed species.

The State also maintains a list of wildlife identified as Species of Special Concern and Fully Protected. Species on this list are not afforded the legal protection of CESA but are considered to be of special-status under CEQA.

The CDFW also exerts jurisdiction over the beds and banks of watercourses.[3] The CDFW typically requires a Lake or Streambed Alteration Agreement (LSAA) for the fill or removal of any material from any natural drainage. The jurisdiction of the CDFW extends to the top of bank and includes the outer edge of riparian canopy cover.

Section 3503 of the California Fish and Game Code protects all breeding native bird species in California by prohibiting the take, possession, or needless destruction of nests and eggs of any bird, with the exception of non-native English sparrows, European starlings, and rock doves (pigeons; Section 3801). Birds of prey are protected under Section 3503.5 of the California Fish and Game Code, which states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

[3] Section 1601- 1603 of the California Fish and Game Code.

Project Consistency Analysis

The project would result in the filling of drainages and seasonal wetlands onsite. Authorization for the discharge of fill into waters of the U.S. and State will be required under Sections 401 (RWQCB) and 404 of the Clean Water Act (USACE), Section 1600 of the CDFW. The removal of riparian vegetation is also regulated by CDFW under Section 1600 of Fish and Wildlife Code. Mitigation measures (described below) include mitigation for the loss of wetland habitat as well as obtaining authorization for the fill of waters of the U.S. and State.

The project includes the removal of structures, vegetation, wood piles, trees, and other habitat features which could result in a take of special-status animals or active nests of birds afforded protection under the MBTA or California Fish and Game Code. Mitigation measures described below in **Subsection 4.4.3** include preconstruction surveys for special-status species on site as well as measures to address the removal habitat features in terms of compliance with the CDFW and Sections 3503 and 3503.5 of the California Fish and Game Code.

California Native Plant Society (CNPS)

The CNPS has developed and maintains the California Rare Plant Ranking System, lists of plant species that it considers to be rare, threatened, or endangered in California. Although CNPS is a private conservation group, the species with a California Rare Plant Rank (Rank) of 1B (plant species considered endangered in California and elsewhere) and a Rank of 2 (plant species considered rare, threatened, or endangered in California, but common elsewhere) warrant analysis in CEQA documents, as they meet the definition of threatened or endangered under the California Native Plant Protection Act (NPPA) and Sections 2062 and 2067 of the California Fish and Game Code. List 1A plants are considered extinct by CNPS because they have not been observed in the wild for many years despite focused searches. The CDFW does not consider the CNPS Rank 3 and Rank 4 plant species as requiring CEQA analysis, although CNPS does recommended that these species be considered in CEQA documents. Rank 3 plants are those about which more information is needed (a review list), and Rank 4 plants are those plants with limited distribution (a watch list).

Project Consistency Analysis

Focused botanical surveys timed to coincide with the blooming period of target species were completed on the project site. The only special-status species detected was northern California black walnut, however this tree grew from grafted rootstock associated with the old orchard on site, and would therefore not be considered to be a rare plant by the CNPS.

Contra Costa County General Plan

The General Plan has several goals and policies that pertain to the protection of biological resources. According to the General Plan, the most significant ecological

resource areas in the County are defined by three separate categories: (1) areas containing rare, threatened, and endangered species; (2) unique natural areas; and (3) wetlands and marshes. The following goals and policies were adopted to protect these resources:

Vegetation and Wildlife Goals

8-D: To protect ecologically significant lands, wetlands, plant, and wildlife habitats.

8-E: To protect rare, threatened, and endangered species of fish, wildlife, and plants, significant plant communities, and other resources which stand out as unique because of their scarcity, scientific value, aesthetic quality, or cultural significance. Attempt to achieve a significant net increase in wetland values and functions within the County over the life of the General Plan. The definition of rare, threatened, and endangered includes those definitions provided by the Federal Endangered Species Act, the California Endangered Species Act, the California Native Plant Protection Act, and the California Environmental Quality Act.

Vegetation and Wildlife Policies

8-6: Significant trees, natural vegetation, and wildlife populations generally shall be preserved.

8-7: Important wildlife habitats which would be disturbed by major development shall be preserved, and corridors for wildlife migration between undeveloped lands shall be retained.

8-8: Significant ecological resource areas in the County shall be identified and designated for compatible low-intensity land uses. Setback zones shall be established around the resource areas to assist in their protection.

8-9: Areas determined to contain significant ecological resources, particularly those containing endangered species, shall be maintained in their natural state, and carefully regulated to the maximum legal extent. Acquisition of the most ecologically sensitive properties within the County by appropriate public agencies shall be encouraged.

8-10: Any development located or proposed within significant ecological resource areas shall ensure that the resource is protected.

8-11: The County shall utilize performance criteria and standards which seek to regulate uses in and adjacent to significant ecological resource areas.

8-12: Natural woodlands shall be preserved to the maximum extent possible in the course of land development.

8-13: The critical ecological and scenic characteristics of rangelands, woodlands, and wildlands shall be recognized and protected.

8-14: Development on hillsides shall be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion. Development on open hillsides and significant ridgelines throughout the County shall be restricted, and hillsides with a grade of 26 percent or greater shall be protected through implementing zoning measures and other appropriate actions.

8-15: Existing vegetation, both native and non-native, and wildlife habitat areas shall be retained in the major open space areas sufficient for the maintenance of a healthy balance of wildlife populations.

8-17: The ecological value of wetland areas, especially the salt marshes and tidelands of the bay and delta, shall be recognized. Existing wetlands in the County shall be identified and regulated. Restoration of degraded wetland areas shall be encouraged and supported whenever possible.

8-19: The County shall actively oppose any and all efforts to construct a peripheral canal or any other water diversion system that reduces Delta water flows unless and until it can be conclusively demonstrated that such a system would, in fact, protect, preserve, and enhance water quality and fisheries of the San Francisco Bay-Delta estuary system.

8-21: The planting of native trees and shrubs shall be encouraged in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native wildlife, and ensure that a maximum number and variety of well-adapted plants are sustained in urban areas.

8-22: Applications of toxic pesticides and herbicides shall be kept at a minimum and applied in accordance with the strictest standards designed to conserve all the living resources of the County. The use of biological and other non-toxic controls shall be encouraged.

8-23: Runoff of pollutants and siltation into marsh and wetland areas from outfalls serving nearby urban development shall be discouraged. Where permitted, development plans shall be designed in such a manner that no such pollutants and siltation will significantly adversely affect the value or function of wetlands. In addition, berms, gutters, or other structures should be required at the outer boundary of the buffer zones to divert runoff to sewer systems for transport out of the area.

8-24: The County shall strive to identify and conserve remaining upland habitat areas which are adjacent to wetlands and are critical to the survival and nesting of wetland species.

8-25: The County shall protect marshes, wetlands, and riparian corridors from the effects of potential industrial spills.

8-26: The environmental impacts of using poisons to control ground squirrel populations in grasslands shall be thoroughly evaluated by the County.

8-27: Seasonal wetlands in grassland areas of the County shall be identified and protected.

8-28: Efforts shall be made to identify and protect the County's mature native oak, bay, and buckeye trees.

Development Review Process

8-F: Prepare a list of standard mitigation measures from which the County could select appropriate measures to mitigate the effect of projects in or adjacent to significant ecological resources.

Wetland Areas

8-J: A setback from the edge of any wetland area may be required for any new structure. The breadth of any such setback shall be determined by the County after environmental review examining (a) the size and habitat value of the potentially affected wetland, and (b) potential impact on the wetland, and adjacent uplands, arising out of the development and operation of the new structure. Unless environmental review indicates that greater or lesser protection is necessary or adequate, setbacks generally will be between 50 and 100 feet in breadth. Expansions or other modifications of non-habitable agriculturally related structures existing as of 1990 shall be exempt from this setback requirement. Parcels which would be rendered un-buildable by application of this standard shall also be exempt.

8-l: The County shall require avoidance, minimization, and/or compensatory mitigation techniques to be employed with respect to specific developments projects having a potential to affect a wetland. In evaluating the level of compensation to be required with respect to any given project, (a) on-site mitigation shall be preferred to off-site and in-kind mitigation shall be preferred to out-of-kind, (b) functional replacement ratios may vary to the extent necessary to incorporate a margin of safety reflecting the expected degree of success associated with the mitigation plan, and (c) acreage replacement ratios may vary depending on the relative functions and values of those wetlands being lost and those being supplied. To the extent permitted by law, the County may require 3:1 compensatory mitigation of any project affecting a "Significant Wetland."

Policies to Protect and Maintain Riparian Zones

8-78: Where feasible, existing natural waterways shall be protected and preserved in their natural state, and channels which already are modified shall be restored. A natural waterway is defined as a waterway which can support its own environment of vegetation, fowl, fish, and reptiles, and which appears natural.

8-79: Creeks and streams determined to be important and irreplaceable natural resources shall be retained in their natural state whenever possible to maintain water quality, wildlife diversity, aesthetic values, and recreation opportunities.

8-80: Wherever possible, remaining natural watercourses and their riparian zones shall be restored to improve their function as habitats.

8-82: Riparian habitat shall be protected by providing channel cross-sections adequate to carry 100-year flows, as per policies contained in the Public Facilities/Services Element. If it is not possible to provide a channel cross-section sufficient to carry the 100-year flow, then detention basins should be developed.

Policies for New Development Along Natural Watercourses

8-85: Natural watercourses shall be integrated into new development in such a way that they are accessible and provide a positive visual element.

8-86: Existing native riparian habitat shall be preserved and enhanced by new development unless public safety concerns require removal or habitat for flood control or other public purposes.

8-87: On-site water control shall be required of major new developments so that no increase in peak flows occurs relative to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts.

8-88: New development which modifies or destroys riparian habitat because of needed flood control shall be responsible for restoring and enhancing an equivalent amount of habitat within or near the project area.

8-89: Setback areas shall be provided along natural creeks and streams in areas planned for urbanization. The setback areas shall be of a width adequate to allow maintenance and to prevent damage to adjacent structures and the loss of private property.

8-90: Deeded development rights for lands within established setback areas along creeks or streams shall be sought to assure creek preservation and to protect adjacent structures and the loss of private property.

8-91: Grading, filling, and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

8-92: Revegetation of a watercourse shall employ native vegetation, providing the type of vegetation is compatible with the watercourse's maintenance program and does not adversely alter channel capacity.

Project Consistency Analysis

Many of the policies presented in the General Plan are relevant to the project site and the project site's plant communities, wildlife habitats, and wetlands. Mitigation measures will be necessary to offset the project's impact to these County-protected (and agency-protected) resources, as well as to bring the project into compliance with policies defined in Chapter 8 of the General Plan. Mitigation measures will be necessary to offset the project's impact to these County-protected (and agency-protected) resources.

County Tree Protection and Preservation Ordinance 816-6

Chapter 816-6 Tree Protection and Preservation of the Contra Costa County Code of Ordinances outlines a variety of measures for the protection of trees in the County. Relevant portions of County Code Chapter 816-6.6004 defining protected trees is as follows:

1. On all properties within the unincorporated area of the County:
    a. Where the tree to be cut down, destroyed or trimmed by topping is adjacent to or part of a riparian, foothill woodland or oak savanna area, or part of a stand of four or more trees, measures twenty inches or larger in circumference (approximately 6.5 inches in diameter) as measured four and one-half feet from ground level, and is included in the list of indigenous trees, includes the following species found on the project site: Monterey pine (*Pinus radiata*), valley oak, coast redwood, coast live oak, and California black walnut (*Juglans hindsii*).
2. On any of the properties specified in subsection (3) of this section:
    a. Any tree measuring twenty inches or larger in circumference (approximately six and one-half inches diameter), measured four and one-half feet from ground level including the oak trees listed above;
    b. Any multistemmed tree with the sum of the circumferences measuring forty inches or larger, measured four and one-half feet from ground level;
    c. And any significant grouping of trees, including groves of four or more trees.
3. Specified properties referred to in subsection (2) of this section includes:
    a. Any developed property within any commercial, professional office or industrial district;
    b. Any undeveloped property within any district;
    c. Any area designated on the general plan for recreational purposes or open space;

d. Any area designated in the county general plan open space element as visually significant riparian or ridge line vegetation and where the tree is adjacent to or part of a riparian, foothill woodland or oak savanna area

Project Consistency Analysis

Trees would be removed from the development, wetland, and staging area to construct the project. The trees within the project site would be classified as protected in accordance to most of the criteria discussed above. Under the County Tree Protection and Preservation Ordinance, submittal of a Tree Permit application is unnecessary when a project requires approval of another development application, such as a subdivision or development plan. Any discretionary approval(s) may include analysis of impacts and include conditions of approval normally incorporated into a stand-alone Tree Permit. **Mitigation Measure BIO-8** requires the submittal of a Tree Replacement Plan to ensure that adequate tree replacement and preservation will take place. The Tree Replacement Plan would be prepared by a qualified arborist and approved by the County prior to project construction.

4.4.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modification, 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.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to: marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, Regional, or State habitat conservation plan.

Discussion of No Impacts

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, Regional, or State habitat conservation plan?

No local, regional, or statewide habitat conservation plans have been adopted for the area in which the project is located. Las Trampas Ridge Significant Ecological Resource Area designated by the General Plan is located west of the project site, but is outside of the project site boundaries. No off-site or indirect impacts would occur in that area. Therefore, no impact would occur and no mitigation would be required.

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The project would not interfere with the movement of native fish or wildlife, nor would it reduce the suitability of the riparian habitat along the creek or wetlands as movement corridors. While the project proposes development of a relatively open site with previously developed areas and low to moderate wildlife habitat value, the project site is surrounded on three sides by urban development and does not provide an established wildlife movement corridor from westerly hillsides to any other open space area. Therefore, no impact would occur.

Discussion of Significant Impacts

Would the project have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

There is at least a low potential for nine special-status species to occur within the within the project site, including:

- Alameda whipsnake
- Pallid bat
- Townsend's big-eared bat
- San Francisco dusky-footed woodrat
- American badger
- Cooper's hawk

- Sharp-shinned hawk
- Great blue heron
- Bridges' coast range shoulderband snail

Removal of habitat occupied by the Bridges' coast range shoulderband snail, if present, would not result in a significant or adverse impact due to the small area of suitable habitat that would be disturbed and the presence of abundant suitable habitat in the open space west of the project site. This species is not addressed further.

Removal of existing structures, vegetation, wood piles and other habitat features and earthwork required for construction of the proposed project could result in a take of special-status animals or active nests of birds afforded protection under the MBTA, California Fish and Game Code, or BAGEPA, if present at the time of construction. A detailed description of potential impacts to each of the special-status species with potential to occur within the project site is presented below, followed by proposed mitigation measures.

Impact BIO-1: Grading and construction of the project has the potential to result in harm or mortality to individual Alameda whipsnake, if present in woodpiles or under other debris along the western boundary of the project site (Less than Significant with Mitigation).

Suitable breeding, foraging, and hibernation habitat for Alameda whipsnake is present in the designated open space and critical habitat west of the project site, including the potential wetland mitigation area. Marginal food resources for Alameda whipsnake are present in the two small woodpiles west of the existing residential estate onsite. Construction has the potential to adversely affect an individual Alameda whipsnake if an individual attempted to forage in or seek temporary cover in one of the woodpiles that are present along the western boundary of the project site. Annual mowing, weed whacking, grazing and disposal of woody debris to manage defensible space in the open space west of Lots 8, 9, 28-33, and the residences bordering Parcel A may adversely affect an individual AWS if a snake was seeking temporary cover in woody debris, or moving through herbaceous/graminoid or shrubby vegetation during vegetation management activities. With implementation of **Mitigation Measures BIO-1a** through **BIO-1h** and **HAZ-3**, this impact would be reduced to a less-than-significant level.

> ***Mitigation Measure BIO-1a:*** The project proponent shall consult with the USFWS and CDFW regarding potential impacts of the project on Alameda whipsnake, and shall obtain the appropriate take authorization (Section 7 Biological Opinion and/or 2081 permit or 2080.1 consistency determination) as specified by the USFWS and CDFW prior to initiation of construction activities. The project proponent shall comply with all terms of the endangered species permits including any mitigation requirements, and provide evidence of compliance to the County prior to issuance of a grading permit.

Mitigation Measure BIO-1b: In order to allow any snakes and lizards that currently use the small woodpiles west of the residence to seek alternative cover, the woodpiles shall be removed gradually and under the supervision of an agency-approved biologist prior to the start of construction. Depending upon the size of the woodpiles, a quarter to a third of the piles should be manually removed every five days.

As discussed in **Chapter 3.0, Project Description**, project operation will include vegetation management to maintain 100 feet of defensible space to reduce the risk of wildfires. Vegetation management activities include annual weed whacking, grazing and disposal of woody debris to manage defensible space in the open space west of Lots 8, 9, Lots 28-33, and the residences bordering Parcel A may adversely affect an individual Alameda whipsnake if a snake was seeking temporary cover in woody debris, or moving through herbaceous/ graminoid or shrubby vegetation during vegetation management activities.

Vegetation management to achieve defensible space in the open space west of the development shall be conducted manually. Grasses, weeds, and brush shall be cut manually or with the aid of hand-powered equipment such as weed-whackers or hand-operated mowers. Woody debris shall be retrieved manually. Grazing animals such as goats may be used for vegetation management. A Defensible Space Vegetation Management Plan that describes vegetation management objectives and practices protective of AWS shall be prepared by the project sponsor, approved of by the USFWS, and implemented by the homeowners and HOA.

In addition, an agency-approved biologist shall monitor removal of the eucalyptus trees and construction of the wetland mitigation area in the western portion of the project site, if wetland restoration or tree removal in this area is conducted (see **Mitigation Measure BIO-6b**).

Mitigation Measure BIO-1c: A preconstruction survey for Alameda whipsnake shall be conducted by a 10(a)(1)(A) permitted biologist not more than 24 hours prior to the start of any site disturbance activities. All suitable habitat features that may be used by Alameda whipsnake shall be identified, marked, and mapped during the preconstruction survey. The removal or destruction of suitable habitat features and all initial ground disturbances (e.g. clearing and grubbing) shall be conducted under the direct supervision of the agency approved biologist prior to the onset of site grading. If Alameda whipsnake are detected within the project work area, site disturbance shall be halted until the snake has been relocated by a 10(a)(1)(A) permitted biologist as approved and directed by the USFWS and CDFW. Terms of the salvage shall be established in consultation with USFWS and CDFW prior to initiation of construction activities, and approved relocation may be in suitable habitat in the open space and critical habitat area west of the project site.

Mitigation Measure BIO-1d: Upon completion of the preconstruction survey, a snake exclusion fence not less than 4 feet in height with one-way exit funnels (to allow Alameda whipsnake to passively move out of the construction zone), and buried at least 4 inches in the ground shall be installed around the southern and western boundaries of the project development site. The fence shall be installed under the guidance of an agency approved biologist who is knowledgeable about Alameda whipsnake, and shall be maintained until all vegetation removal and earthwork for the project has been completed. The fence shall be inspected by the construction team on a daily basis (i.e., every workday), and repairs shall be made immediately if the integrity of the fence is compromised.

Mitigation Measure BIO-1e: All construction personnel shall attend an informational training session conducted by an agency approved biologist prior to the start of any site disturbance activities, including demolition. This session will cover identification of the species and procedures to be followed if an individual is found onsite, as well as biology and habitat needs of this species. Handouts will be provided and extra copies will be retained onsite. Construction workers shall sign a form stating that they attended the program and understand all protection measures for the Alameda whipsnake. Additional training sessions will be provided to construction new personnel during the course of construction.

Mitigation Measure BIO-1f: Trenches or pits greater than 1 foot deep that are created during earthwork for the project shall be covered with plywood or an earthen ramp will be made each night after work so no organisms are trapped. Trenches and pits shall be inspected by a designated member of the construction team who has been trained by the agency-approved biologist prior to the start of earthwork each day. Any vertebrate organisms observed in such areas shall be allowed to escape to the safety of adjacent cover.

Mitigation Measure BIO-1g: Best Management Practices shall be implemented to minimize the potential mortality, injury, or other impacts to Alameda whipsnake. Erosion control materials shall not include small-mesh plastic netting, which could result in entanglement and death. All food trash items shall be removed from the project site daily to reduce the potential for attracting predators of Alameda whipsnake which could scavenge uncovered snakes.

***Mitigation Measure BIO-1h*:** An agency approved biological monitor knowledgeable about Alameda whipsnake will be the point of contact for the construction team. The USFWS will be notified immediately if Alameda whipsnakes are detected within the project site. The CDFW will also be notified after contacting the USFWS.

Significance after Mitigation: Mitigation Measures BIO-1a through **BIO-1h** would ensure implementation of Alameda whipsnake protection procedures during project construction, resulting in a less-than-significant impact.

Impact BIO-2: Construction of the project during nesting season has the potential to result in a take of protected birds or create disturbance that could result in nest abandonment (Less than Significant with Mitigation).

The trees, shrubs, and developed area/orchard within the project site provide suitable nesting habitat for a number of migratory bird species and birds of prey, including Cooper's hawk, and the larger trees within the project site provide suitable nesting habitat for the great blue heron. Although not on the project site, appropriate nesting habitat for the golden eagle occurs within 0.5 mile of the project site, and suitable nesting habitat for Swainson's hawk is present on and within 1,000 feet of the project site. The 0.5-mile radius nest buffer zone for golden eagle and 1,000-foot buffer for Swainson's hawk are employed by the East Contra Costa County Habitat Conservation Plan (ECCHCP).

Construction activities occurring during the nesting season have the potential to result in a take of tree- or ground-nesting migratory birds and/or birds of prey or create disturbance that could result in nest abandonment. This represents a potentially significant impact; implementation of **Mitigation Measure BIO-2** would reduce this impact to less-than-significant level.

> ***Mitigation Measure BIO-2:*** If construction-related site disturbance commences between February 1 and August 31, a qualified biologist shall conduct a pre-construction bird nesting survey. If nests of either migratory birds or birds of prey are detected on or adjacent to the site, a no-disturbance buffer (generally 50 feet for passerines, 0.5 mile for golden eagle, 1,000 feet for Swainson's hawk, and 300 feet for other raptors) in which no new site disturbance is permitted shall be observed up to August 31, or until the qualified biologist determines that the young are foraging independently. The size of the no-disturbance buffer shall be determined by a qualified biologist, and shall take into account local site features and existing sources of potential disturbance. If more than 15 days elapse between the survey and the start of construction, the survey shall be repeated. If vegetation removal, building demolition, or earthwork stages are phased over multiple years, the pre-construction survey and nest-avoidance measures described above would need to be repeated.

Significance after Mitigation: Mitigation Measure BIO-2 would ensure that impacts to nesting birds project construction would be reduced to a less-than-significant level.

Impact BIO-3: Building demolition and tree removal could result in a take of roosting bats, including a maternity colony, if present (Less than Significant with Mitigation).

Structures and trees within the project site may provide suitable roosting habitat for the Pallid bat and Townsend's big-eared bat. Building demolition and tree removal could result in a take of roosting bats, including a maternity colony, if present. Take of a maternity colony or roosting special-status bats would be considered a significant impact. Implementation of **Mitigation Measures BIO-3a** through **BIO-3c** would reduce this impact to a less-than-significant level.

Mitigation Measure BIO-3a: A qualified biologist knowledgeable about local bat species and experienced with bat survey methods shall inspect all structures and trees that could support bats at the project site prior to the start of site disturbance (e.g., demolition, vegetation removal, and earthwork). Surveys should be conducted during appropriate weather to detect bats (i.e., not in high winds or during heavy rain events). One daytime and up to two nighttime surveys (starting at least 1 hour prior to dusk) should be conducted to determine if bats are present. If bats are detected, additional surveys utilizing acoustic monitoring or other methods may be necessary depending on the recommendations of the bat biologist.

Mitigation Measure BIO-3b: Preconstruction surveys for bats should be conducted within two weeks prior to the removal of any trees or structures that are deemed to have potential bat roosting habitat. If bats are detected on site and would be impacted by the project, then appropriate mitigation measures would be developed with approval from CDFW. Mitigation measures would include one or more of the following methods: using one-way doors to exclude non-breeding bats, opening up roof areas of structures to allow airflow that would deter bats from roosting, and taking individual trees down in sections to encourage bats to relocate to another roost site. Typically this work is conducted in the evening when bats are more active, and this work should be conducted under the guidance of an experienced bat biologist.

Mitigation Measure BIO-3c: Mitigation for impacts to a maternity bat roost, if detected, would be determined through consultation with CDFW and may include construction of structures that provide suitable bat roosting habitat (i.e., bat houses, bat condos) for the particular species impacted.

Significance after Mitigation: Mitigation Measures BIO 3a-3c would ensure that special-status bats roosting onsite are identified and protected during construction. This impact would be less than significant with mitigation.

Impact BIO-4: Project construction activities (i.e., ground disturbance, vegetation removal, and earthwork) could result in the take of an active San Francisco dusky-footed wood rat lodge (Less than Significant with Mitigation).

The eucalyptus and valley oak woodland habitats within the project site provide suitable denning habitat for the San Francisco dusky-footed woodrat, although no woodrat lodges were observed on site during biological surveys. If woodrat lodges become established within the area subject to disturbance, vegetation removal and

earthwork for the project could result in the take of an active woodrat lodge. This represents a potentially significant impact; implementation of **Mitigation Measure BIO-4** would reduce this impact to a less-than-significant level.

> ***Mitigation Measure BIO-4:*** Not more than 30 days before initial ground disturbance, a qualified biologist shall conduct a survey of the project site to determine whether San Francisco dusky-footed woodrat lodges have been constructed within the work area. If no woodrat lodges are present within the work area, no further mitigation is required. If San Francisco dusky-footed woodrat lodges are observed within the area subject to ground disturbance, a woodrat mitigation plan describing habitat enhancement and relocation of the lodge(s) to an area not subject to site disturbance within the project site or the remainder parcel shall be prepared and submitted to CDFW for approval prior to the start of ground disturbance.

Significance after Mitigation: Mitigation Measure BIO-4 would ensure that any dusky-footed woodrat that are potentially lodging onsite are identified and protected during construction, resulting in a less-than-significant impact.

Impact BIO-5: If American badger establishes dens within the project site, construction activities could result in the take of an active den (Less than Significant with Mitigation).

Through there is no current evidence of the American badger on the project site, suitable habitat exists west of the project site. Because there are no barriers to prevent individual badgers from entering the project site, construction activities have the potential to injure American badger or destroy an active den. This represents a potentially significant impact; implementation of **Mitigation Measure BIO-5** would reduce this impact to a less-than-significant level.

> ***Mitigation Measure BIO-5:*** A qualified biologist shall conduct a preconstruction survey for the American badger within 14 days prior to the start of construction. If no potential dens are found, no additional measures are required. If an active badger den is found, consultation with CDFW would be required. Construction would be halted within 100 feet of the den during the breeding season (summer through early fall), and hand excavation of dens during the non-breeding period would be required subject to CDFW approval.

Significance after Mitigation: Mitigation Measure BIO-5 would ensure that American badger dens are identified and protected during construction, resulting in a less-than-significant impact.

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

and

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to: marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-6: The project would require the filling and daylighting of drainages and seasonal wetlands onsite (Less than Significant with Mitigation).

Authorization for the discharge of fill into waters of the U.S. and State will be required under Sections 401and 404 of the CWA and Section 1600 of the California Fish and Game Code. The removal of riparian vegetation is also regulated by CDFW under Section 1600 of Fish and Game Code. State and Federal agencies will require avoidance, minimization, and compensatory mitigation for the loss of wetland habitat.

The two intermittent stream channels (Drainage 1 and Drainage 2) on the project site currently support an interrupted canopy of native and non-native trees that provide riparian cover. The project would require the relocation, fill and restoration of sections of existing creek channel. Approximately 223 linear feet of seasonal creek would be filled in order to create buildable lots, while 295 linear feet of creek channel would be created where the creeks would be relocated and restored through the removal of existing culverts. In addition, a bridge spanning Drainage 2 would not require filling the drainage channel, but shading from the bridge could reduce vegetative cover on the banks and in the bed of the channel beneath the bridge. The Parcel D staging area also proposes a 10-foot long pedestrian bridge constructed across Drainage 1 that may shade wetland vegetation and the channel beneath the bridge. Approximately 32 riparian trees lining these drainages would be removed to reduce safety hazards and facilitate development. In addition, temporary disturbance to portions of Drainage 1 may occur during construction of the on-site wetland mitigation to compensate for impacts to wetlands.

Five areas of seasonal freshwater wetlands are also present within or adjacent to the project site. Approximately 0.173 acre of seasonal wetland in the orchard area in the eastern portion of the project site would be filled to allow development in this area.

The discharge of fill material into seasonal wetlands, drainage channel realignment, and removal of riparian trees are considered significant impacts. With implementation of **Mitigation Measures BIO-6a** and **BIO-6b** described below, this impact would be reduced to a less-than-significant level.

Mitigation Measure BIO-6a: The removal of riparian trees and shrubs will be avoided and minimized to the extent feasible. Hazard reduction associated with structurally unsound trees, and the risks of failure given proximity to improvements proposed in the project shall be considered and addressed through tree removals and pruning specified by a certified arborist. Mitigation to compensate for the removal of riparian trees shall be accomplished through replacement plantings of locally native trees at not less than a 3:1 replacement to loss ratio within the project site or an alternative location approved by CDFW. With regards to riparian trees, this mitigation measure shall supersede other mitigation included in this draft environmental impact report that prescribe tree replacement ratios to reduce other impacts.

A riparian restoration plan detailing the following elements shall be prepared:

- The number, species, and location of riparian mitigation plantings that will be planted in the restoration area;
- Performance standards requiring a minimum 75 percent survival rate; average of good vigor and positive height growth of riparian mitigation trees after ten years; seasonal planting timing; and method of supplemental watering during the establishment period;
- The monitoring period, which shall be not less than 10 years for riparian restoration;
- Adaptive management procedures that may be employed as needed to ensure the success of the restoration project. These include, but are not limited to, exotic and invasive plant species control, the use of browse barriers to protect riparian plants from wildlife damage, replacement plantings and management of the supplemental watering system to support the attainment of the foregoing performance standards;
- Management and maintenance activities, including weeding, supplemental irrigation, site protection; and
- Responsibility for maintaining, monitoring and ensuring the preservation of the mitigation site in perpetuity.

In replacing riparian trees, the arborist shall review the final project grading plans to ensure that adequate tree preservation methods, guidelines, and conditions are in place. The arborist shall conduct pre-demolition site meetings with the contractor to determine clearance pruning, stump removal techniques, fencing placement and timing, and tree protection. The arborist shall have site meetings after demolition to review and confirm tree protection fencing position for the grading and construction portion of the subdivision. The arborist shall be guided by the standard protocols set forth in the *American National Standards Institute (ANSI) A300 Standard, Part 5 (2005)* and the International

Society of Arboriculture's publication Best Management Practices: Managing Trees During Construction (2008).

Mitigation Measure BIO-6b: The fill of jurisdictional wetlands and unvegetated other waters will be avoided and minimized to the extent feasible. Authorization for the fill of waters of the U.S. and State shall be obtained by the project proponent prior to the start of construction. Mitigation for the fill of wetlands and other waters shall be accomplished through the creation of seasonal freshwater wetlands and unvegetated other waters at a minimum 1:1 replacement ratio within the project site, at an approved wetland mitigation bank, or at another location within the Walnut Creek watershed approved of by the USACE, RWQCB, and CDFW. The mitigation goal shall be to create and enhance aquatic habitats with habitat functions and values greater than or equal to those that will be impacted by the proposed project.

Wetland mitigation within the project site or at another location within the Walnut Creek watershed would be described in a wetland mitigation plan that would:

- Be prepared consistent with the *Final Regional Compensatory Mitigation and Monitoring Guidelines* (USACE 2015) and the *Compensatory Mitigation for Losses of Aquatic Resources: Final Rule* (USACE 2008);
- Define the location of all restoration and creation activities;
- Describe measures that would ensure that adjacent land uses would not adversely affect the ecological functions and values of the wetland mitigation area, so as to ensure consistency with the foregoing federal guidelines and rules. Such measures may include the use of appropriately-sized buffers between the wetland mitigation area and any adjacent development, the use of fencing or walls to prevent unauthorized access, lighting in adjacent development designed to avoid light spillage into the wetland mitigation area, landscape-based Best Management Practices for adjacent development prior to discharge into the wetland mitigation area, and signage describing the sensitive nature of the wetland mitigation area.
- Provide evidence of a suitable water budget to support restored and created wetland habitats;
- Identify the species, quantity, and location of plants to be installed in the wetland habitats;
- Identify the time of year for planting and method for supplemental watering during the establishment period;
- Identify the monitoring so as to ensure consistency with the foregoing federal guidelines and rules, which shall be not less than five years for wetland restoration;

- Define success criteria that will be required for restoration efforts to be deemed a success;
- Identify adaptive management procedures that may be employed as needed to ensure the success of the mitigation project and its consistency with the foregoing federal guidelines and rules. These include, but are not limited to, remedial measures to address exotic invasive species, insufficient hydrology to support the attainment of performance standards, and wildlife harm;
- Define management and maintenance activities, including weeding, supplemental irrigation, and site protection; and
- Define responsibility for maintaining, monitoring and ensuring the preservation of the mitigation site in perpetuity.

The project applicant shall comply with all terms of the permits issued by these agencies, including mitigation requirements, and shall provide proof of compliance to the County prior to issuance of a grading permit.

Significance after Mitigation: With implementation of **Mitigation Measures BIO-6a** and **BIO-6b**, this impact would be less than significant.

Impact BIO-7: The project could result in the degradation of water quality in the intermittent drainages and downstream waters (Less than Significant with Mitigation).

Site development would require the construction of roads, driveways, building pads, and associated facilities. Construction will require grading that leaves the soil in construction zones barren of vegetation and vulnerable to sheet or gully erosion. Eroded soil can be carried as sediment in surface runoff to be deposited in creeks. In addition to construction-related impacts, urban runoff may be polluted with grease, oil, residues of pesticides and herbicides, and heavy metals. These pollutants may be carried to sensitive habitats in downstream locations. The deposition of pollutants and sediments in sensitive habitats is considered a potentially significant impact.

Mitigation Measure BIO-7: Adverse impacts to water quality shall be avoided and minimized by implementing the following measures:

- Prior to the start of site disturbance activities, construction barrier fencing and silt fencing shall be installed around the perimeters of wetlands and drainages that are to be protected during construction of the project to prevent movement of sediments into these features. Any debris that is inadvertently deposited into these features during construction shall be removed in a manner that minimizes disturbance.
- All construction within jurisdictional features shall be conducted consistent with permits issued by USACE, RWQCB, and CDFW. Construction activities

within these features shall be completed promptly to minimize their duration and resultant impacts.

- Contractors shall be required to implement a Stormwater Pollution Prevention Plan that describes BMPs including the conduct of all work according to site-specific construction plans that minimize the potential for sediment input to the aquatic system, avoiding impacts to areas outside the staked and fenced limits of construction, covering bare areas prior to storm events, and protecting disturbed areas with approved erosion control materials.
- Bioretention planters, vegetated swales, and other landscape-based BMPs to catch and filter runoff from impervious surfaces shall be implemented throughout the project site to protect water quality in receiving waters.

Significance after Mitigation: With implementation of **Mitigation Measure BIO-7**, this impact would be less than significant.

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact BIO-8: Several protected trees would be removed to allow for project construction (Less than Significant with Mitigation).

The project site contains trees that are protected per the County's Tree Protection and Preservation Ordinance. Of the approximately 3,489 native and non-native trees on the project site, approximately 469 trees are proposed for removal, including approximately 32 riparian trees and approximately 25 trees in the Parcel D staging area. Approximately 36 percent of these trees would be cleared to construct the project, while the remaining approximately 64 percent are proposed for removal because of unsuitability factors such as poor health, mechanical failure, crowding or interfering with the development of a healthier tree, a maladapted species, or of a species generally unsuited to the Alamo climate. In addition, the project also proposes to slightly impact approximately 205 trees through pruning, hydrologic modification, or other disturbances that would not entail tree removal.

The County does not maintain a fixed tree replacement ratio to mitigate for the removal of protected trees. For this project, the replacement ratio for non-riparian trees would be either 2:1 or 1:1, depending if they are drought or non-drought tolerant. As previously discussed in **Mitigation Measure BIO-6a**, the planting ratio will be 3:1 for trees that are removed from riparian areas. Considering that the total number of trees to be removed is 469, the project sponsor will have to replant additional trees to satisfy the tree ratio requirement.

Due to size limitations, the lower portions of the project site proposed for residential development may not be reasonably capable of supporting mitigation trees for approximately 469 tree removals. Installation of all mitigation trees on the

lower portions of the project site could result in overcrowding and prohibit safe development of the house sites. Utilizing a combination of box sizes (where in one 24-inch boxed tree equals two 15 gallon trees, or one 36-inch boxed tree may be equivalent to two 24-inch boxed trees) could meet the same mitigation requirements with fewer trees without irresponsibly overstocking the landscapes. Such size substitution strategies are often used by public agencies to balance agency requirements with the best use of the site. If the project site cannot sustainably support the required number of replacement trees, the County would coordinate with the project sponsor and a county-approved biologist to determine offsite replacement ratios and locations.

To comply with the County's Tree Protection and Preservation Ordinance, **Mitigation Measure BIO-8** outlines the project's replanting requirements.

> ***Mitigation Measure BIO-8:*** A Tree Replacement Plan shall be submitted to and approved by the County prior to the removal of trees and/or prior to the issuance of a grading permit. The replacement ratio shall be 3:1 for trees that are removed within riparian corridors, 2:1 for drought tolerant trees, and 1:1 for non-drought tolerant trees. The Tree Replacement Plan shall identify the total number of trees to be replanted in accordance to the above discussed ratio.
>
> The Tree Replacement Plan shall designate the approximate location, number, and sizes of trees to be planted on each lot. In addition, prior to submittal of a building permit for each home, a licensed landscape architect shall submit a landscape plan designating the final location and species of trees in general conformance with the Tree Planting Plan. Trees shall be planted prior to final of building permit.
>
> Replacement plantings shall consist of locally appropriate native species and non-invasive species. Tree species identified as a pest species by the California Invasive Plant Council shall not be used as replacement plantings.
>
> In designing the Tree Replacement Plan, the arborist shall review the final project grading plans to ensure that adequate tree preservation methods, guidelines, and conditions are in place. The project arborist shall host pre-demolition meetings with the general contractor and demolition contractor to determine clearance pruning, stump removal techniques, fencing placement and timing, and tree protection. The arborist shall conduct post-demolition meetings to review and confirm tree protection fencing for grading and construction. The arborist shall incorporate standard protocols set forth in the American National Standards Institute (ANSI) A300 Standard, Part 5 (2005) and the International Society of Arboriculture's *Best Management Practices: Managing Trees During Construction* (2008).
>
> The County will determine the number of replacement trees to be planted offsite if the project site cannot sustainably support the required number of replacement trees.

Significance after Mitigation: With implementation of **Mitigation Measure BIO-8**, the project would comply with the County's Tree Protection and Preservation Ordinance. This impact would be less than significant.

4.4.4 CUMULATIVE IMPACTS

The cumulative setting for biological resources comprises the project and the three proposed developments within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**):

- 902 Danville Boulevard, a church addition project, is located within an urbanized area and does not include modifications to habitat or sensitive natural communities.
- 512 Hemme Avenue, three-lot subdivision, has low likelihood to impact to special-status species due to the urbanized, paved project site, but construction improvements would encroach on a drainage channel within adjacent oak woodland habitat. Pre-construction surveying would identify and protect nesting birds nearby trees, and work in the drainage would be subject to a CDFW Streambed Alteration Agreement.
- 805/813 La Gonda Way, Danville, a five-lot subdivision, located adjacent to Interstate 680, harbors habitat for multiple special-status species, including 16 bird species. Preconstruction surveys would identify and protect special-status plant and wildlife species. This project also entails the removal of protected trees (mitigated through the planting of replacement trees) and potential work in the San Ramon Creek (mitigated though compliance with CDFW, USFWS, and RWQCB permitting requirements).

These developments considered for cumulative impacts are infill developments and occur within the County's ULL. Two of these cumulative projects (902 Danville Boulevard and 512 Hemme Avenue) have relatively low potential for sensitive plant or animal species impacts due to their developed condition.

The third project (805/813 La Gonda Way) could result in potential impacts to special-status species, protected trees, and riparian habitat, which would be reduced through the application of mitigation measures. Similarly, the project would implement **Mitigation Measures BIO-1** through **BIO-8** to minimize potential impacts to biologic resources. Given this, no cumulative impact would occur.

4.4.5 REFERENCES

Joseph McNeil, 2016. *Tree Survey and Report for Ball Estates.*

Mosaic Associates LLC, 2013, Revised June 2016. *Biological Resources Report Ball Family Property.*

Sequoia Ecological Consulting, Inc., 2015. *Peer Review of Biological Resource Report and Appendices Prepared for CEQA Review of the 65-acre Ball Estates Property in Alamo, Contra Costa County.*

4.6 ENERGY

This section describes the potential effects of the project on energy conservation. Information in this section is derived from the following sources:

- Energy Assessment prepared by ESA in February 2017 (see **Appendix H**)
- Circlepoint, Pantages Bay Residential Development Project. Final Environmental Impact Report, 2013
- California Public Utilities Commission, California Renewables Portfolio Standard. 2016
- Personal communication with Pacific Gas and Electric Company (PG&E)

For the purposes of this analysis, buildout of the project is conservatively assumed to occur over a 30-month period, which includes operation of the homes. However, the actual construction of the individual homes will be largely market-driven and may extend over a 10-year period. A 30-month construction period results in a conservative analysis as the assumed annual energy demand would be higher.

No comments regarding energy were submitted in response to the Notice of Preparation for this draft environmental impact report.

4.6.1 EXISTING CONDITIONS

Electrical and Gas Services

Electrical and gas services in the project area are provided by PG&E. PG&E obtains its energy supplies from power plants and natural gas fields in northern California, as well as from energy purchased outside its service area and delivered through high voltage transmission lines and pipelines. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, wind, and geothermal plants; and is fed into the electrical grid system serving Northern California.

PG&E updates all load forecasts for gas and electricity services every year. Load growth forecasts for this area are currently determined using load growth projection tools that use a number of sources of data including past peak loading, population, development characteristics, and temperature history information. If an update for the distribution area indicates that the load growth is different than forecasted, an expansion of the existing systems would be timed to match the faster or slower growth (Circlepoint, 2013).

The approximately 61-acre project site currently contains two residential buildings, a barn, horse pasture area, an office building, two abandoned walnut orchards, and adjacent open space. For the purposes of this analysis, the existing setting includes

occupancy of the office building, which has varied over time. While the permitted capacity and documented actual occupancy of the building for California Environmental Quality Act (CEQA) baseline purposes is the entire 20,700 square feet of the building, this analysis uses the 76 percent occupancy as its baseline. This choice is based on the historical record that the occupied capacity of the building is approximately 76 percent.

4.6.2 REGULATORY SETTING

State

California's Energy Efficiency Standards for Residential Buildings, Title 24

The Energy Efficiency Standards for Residential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Examples of energy measures in the Title 24 standards and the CALGreen Code include energy efficiency metrics and performance standards for appliances, space-conditioning equipment (i.e., heating, ventilation and air conditioning [HVAC]), water heating systems, windows and doors, insulation, lighting, and roofing materials; indoor and outdoor water use efficiency and conservation performance metrics; and requirements to provide solar-ready buildings with a minimum solar zone area (solar zone is defined as a section of the roof designated and reserved for the future installation of a solar electric or solar thermal system).

Project Consistency Analysis

As required by law, the project would comply with the most recent Energy Efficiency Standards of Title 24 by incorporating 'green building' and energy saving measures. According to the California Energy Commission, the latest version of the Title 24 (2016) standards, which took effect on January 1, 2017, uses approximately 28 percent less energy for residential lighting, heating, cooling, ventilation, and water heating compared to the prior Title 24 (2013) standards.

California's Renewable Energy Portfolio Standard Program (Senate Bills 107 and 1078)

California's Renewables Portfolio Standard was established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107, and expanded in 2011 under Senate Bill 2. This program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Project Consistency Analysis

This regulation does not require an evaluation of project consistency; however, it is important to note as the project would receive electricity from PG&E which is required to meet the renewable energy goal. PG&E procured 23.8 percent of their energy from renewable sources in 2013, and is currently under contract to procure 31.3 percent of their energy from renewable sources by 2020 (California Public Utilities Commission, 2016).

California Air Resources Board On-Road and Off-Road Vehicle Regulations

In 2004, the California Air Resources Board (CARB) adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 California Code of Regulations Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Project Consistency Analysis

All on-road and off-road construction and commercial equipment used during project construction would comply with the CARB On-Road and Off-Road Vehicle Regulations. Neither on-road nor off-road equipment would be allowed to idle for more than five minutes at a time. While intended to reduce construction criteria pollutant emissions, compliance with anti-idling and emissions reduction regulations would also minimize wasteful and unnecessary energy consumption during construction.

California Assembly Bill No. 1493 (AB 1493, Pavley), (Chapter 200, Statutes of 2002)

Authored by Assembly Member Fran Pavley and enacted on July 22, 2002, these standards are intended to reduce GHG emissions for passenger vehicles, light duty trucks, and other vehicles whose primary use is noncommercial personal transportation manufactured in and after 2009. However, they also have the associated benefit of reducing energy consumption from the transportation sector by improving fuel economy and reducing fuel consumption as a means to reduce emissions. Referred to as the Pavley standards, implementation of AB 1493 was delayed due to litigation, but ultimately upheld by the Supreme Court. The standards established tailpipe GHG emissions standards for model year 2012 through 2016 light-duty vehicles under Phase I and model year 2017 through 2025 light-duty vehicles under Phase II.

The United States Environmental Protection Agency and United States Department of Transportation adopted federal equivalent standards for model year 2012 through 2016 light-duty vehicles and model year 2017 through 2025 light-duty vehicles. The federal standards are slightly different from the Pavley Phase I and Phase II standards, but the State of California has agreed not to contest these standards, in part due to the fact that while the national standard would achieve slightly lower reductions in California, it would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals (CARB 2016). On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the national standards to meet state law.

Project Consistency Analysis

Construction related light-duty trucks would be required to meet state GHG emission laws either through adherence to the Pavley standards or federal standards.

Local

Contra Costa County General Plan

The Conservation Element of the General Plan contains the following goal related to energy conservation:

Goal 8-L: Reduce energy use in the County to avoid risks of air pollution and energy shortages which prevent orderly development.

Project Consistency Analysis

As required by law, the project would incorporate 'green building' and energy saving measures pursuant to the Energy Efficiency Standards of Title 24 and the new California Green Building Code. These same measures would reduce the potential energy use of the project, thereby ensuring consistency with Goal 8-L of the General Plan.

4.6.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

The potential for energy usage impacts is based on thresholds derived from Appendix F of the State CEQA Guidelines. Appendix F recommends the following considerations for evaluating energy impacts:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In consideration of the above factors, the following threshold is utilized to determine if the project would result in potentially significant impacts on energy resources:

- Would the project result in wasteful, inefficient, and unnecessary consumption of energy during project construction and operation, including transportation energy; result in energy demand substantially affecting local and regional energy supplies and capacity; or substantially conflict with existing energy standards?

Discussion of Less-than-Significant Impacts

Would the project result in wasteful, inefficient, and unnecessary consumption of energy during project construction and operation, including transportation energy; result in energy demand substantially affecting local and regional energy supplies and capacity; or substantially conflict with existing energy standards?

Construction Period

In February 2017, ESA prepared the Energy Assessment to evaluate energy usage related to the project (see **Appendix H**). For the purposes of this analysis, project construction is assumed to occur over a 30-month period. Though the completion of 35 individual homes would be market-driven and could extend over a 10-year period, a 30-month construction period reflects the most conservative analysis as the assumed annual energy demand would be higher.

Energy consumption during construction would result primarily from transportation fuels (e.g., diesel and gasoline) used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the project site. The Energy Assessment used project-level construction information, traffic data, and standard fuel consumption rates to estimate the maximum gasoline and diesel consumption for the purposes of evaluating the associated impacts on energy resources.

- **Off-road equipment:** Heavy-duty construction equipment such as backhoes, dozers, excavators, and rollers would be required during project construction. Based on the amount and type of equipment required for project construction, the duration of construction activities, and standard fuel consumption factors, off-road equipment would consume approximately 24,482 gallons of diesel, or 9,793 gallons of diesel per year over the 30-month construction period.

- **Trucks:** Trucks would be used to haul material and deliver supplies. Based on the estimated vehicle miles required for material hauling and delivery and standard fuel consumption factors, construction-related trucks would consume approximately 7,867 gallons of diesel, or 3,147 gallons of diesel per year over the 30-month construction period.

- **Construction Worker Vehicle Trips:** Construction workers would be expected to drive to and from the project site on workdays throughout the construction period. Based on the construction duration and engineering estimates, construction workers would travel approximately 100,514 vehicle miles throughout the construction period. Travelling this distance would require approximately 4,038 gallons of fuel, or approximately 1,615 gallons of fuel per year. For the purposes of this analysis, construction worker vehicles are expected to use gasoline.

Based on these above estimates, project construction would require approximately 12,940 gallons of diesel and 1,615 gallons of gasoline on an annual average basis during the 30-month (i.e., 2.5-year) construction timeframe. California's total annual consumption of gasoline is 14.4 billion gallons for the transportation sector. The state's total annual consumption of diesel for the transportation sector is 3.4 billion gallons (ESA, 2017). The estimated annual average construction fuel usage for the project represents a very small fraction of the State's annual fuel usage (approximately 0.0004 percent of the statewide annual diesel consumption and 0.00001 percent of the statewide annual gasoline consumption). This represents a negligible amount of fuel consumption on a statewide level.

Construction of the project is not expected to require substantial electricity usage. Electricity use during construction would be variable depending on lighting needs and the use of electric-powered equipment and would be temporary for the duration of construction activities. If electric-powered construction equipment or vehicles are used, they would replace the diesel- and gasoline-fueled equipment assumed in this assessment. Therefore, it is expected that construction electricity use would generally be considered as temporary and negligible and accounted for in the fuel estimates discussed above.

As discussed in **Subsection 4.6.2**, the project would be required to comply with CARB On-Road and Off-Road Vehicle Regulations to limit vehicle idling. While intended to reduce construction criteria pollutant emissions, compliance with this anti-idling regulation would also result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. The project would utilize construction contractors that demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel equipment. Ultimately, the estimated project energy savings from the foregoing construction measures would result in diesel fuel savings of 1,875 gallons (see **Appendix H**).

Finally, because project construction will entail energy demands largely associated with equipment and transportation fuels, construction of the project would not increase demands on the electric power network during peak and base period demand periods. As a result, construction energy impacts would be considered less than significant.

Operational Period

Operational energy consumption would occur from the proposed residences and transportation fuels (e.g., diesel and gasoline) used for vehicles traveling to and from the site.

Proposed Residences

Operation of the 35 proposed single-family residences would require electricity and natural gas. Based on the proposed development and engineering estimates, the project would have an electricity demand of approximately 289,280 kilowatt-hours (kWh) per year, and a natural gas demand of approximately 1,358,180 kilo British thermal units (kBtu) per year. Based on historical energy demand factors, existing structures on the project site currently generate demand for approximately 262,000 kWh and 453,000 kBtu per year. Since these existing structures would be removed from the project site, the project's net annual energy usage upon operation would be 27,280 kWh and 905,180 kBtu.

In 2015, Contra Costa County consumed approximately 2.8 billion kWh of electricity (CEC, 2017a) and approximately 15.3 billion kBtu of natural gas (CEC, 2017b). The project's net demand would represent approximately 0.001 percent of the County's electricity consumption and approximately 0.01 percent of the County's natural gas consumption. In addition, PG&E's infrastructure accounts for increases in energy demand and load growth by annually updating load forecasts for gas and electricity services. If an increase or decrease in load growth is realized, an expansion of existing systems would be timed appropriately. The project would also incorporate energy and water efficient designs consistent with energy efficiency standards in the applicable Title 24 standards and the CALGreen Code.

Transportation Fuels

Project operation would result in consumption of transportation fuels, primarily gasoline and diesel. Based on average fuel economy for passenger vehicles in the San Francisco Bay Area and the project's maximum estimated annual vehicle miles travelled (VMT), passenger vehicles would use approximately 28,150 gallons of gasoline and 174 gallons of diesel per year. Currently, approximately 10,464 gallons of gasoline and 655 gallons of diesel are consumed per year for trips to existing uses on the project site. Since these existing structures would be removed from the project site, the project's net annual fuel usage upon operation would be 17,686 gallons of gasoline and 109 gallons of diesel per year.

In 2015, California consumed a total of 14.4 billion gallons of gasoline and 3.4 billion gallons of diesel in the transportation sector. Given that the population of California in 2015 was estimated to be 39,144,818 people,[1] this represents a per capita consumption of approximately 368 gallons of gasoline and 87 gallons of diesel. In comparison, the net per capita transportation fuel demand from operational vehicle trips for this project would be approximately 168 gallons of gasoline and 1 gallon of diesel.[2]

[1] United States Census Bureau, 2016

[2] As discussed in **Section 4.14, Population and Housing**, the project is expected to generate a direct population increase of 105 people.

The location of the project is also ideal for limiting transportation-related energy impacts. The project site is located east of the EBRPD-managed Madrone Trail, which commences at the existing terminus of Camille Avenue, and approximately 0.25 mile away from the Iron Horse Regional Trail. The project site would provide residents with convenient access to these trails for recreational use. The project site would also provide residents with convenient access to other nearby uses Rancho Romero Elementary School approximately 0.3 mile to the north, San Ramon Valley High School approximately 1 mile to the southeast, and Hap Magee Ranch Park approximately 0.5 mile to the northeast. Suburban commercial centers with retail, restaurant, office, and other commercial uses are located approximately 1 mile to the north in Alamo and approximately 1.5 miles to the southeast in Danville, including employment centers.

As a result, the project would provide nearby access to a range of destinations. According to the California Air Pollution Control Officer's Association (CAPCOA) guidance document *Quantifying Greenhouse Gas Mitigation Measures*, projects with accessibility to destinations result in reductions in VMT. According to the CAPCOA guidance, factors that contribute to VMT reductions based on destination accessibility include the distance to a downtown or job center, and expected VMT reductions range from approximately 6.7 percent to 20 percent (CAPCOA 2010). Thus, the project would be expected to result in transportation fuel savings of approximately 1,886 gallons of gasoline per year and 12 gallons of diesel per year.

Further, as discussed in **Section 4.11, Land Use and Planning**, the project site is located entirely within the Urban Limit Line and would be adjacent to similar residential areas. This means that the development would be located in an area that already has infrastructure to serve a residential community. As discussed in **Section 4.15, Public Services and Recreation** and **Section 4.17, Utilities and Service Systems**, the project site is currently served by public safety, school systems, and infrastructure.

Lastly, the project would also include the installation of electric vehicle supply equipment (EVSE) in garages, pursuant to the CALGreen Code. The project would include the installation of dedicated circuits to accommodate at least one electric vehicle per dwelling unit. Alternative-fueled, electric, and hybrid vehicles, to the extent these types of vehicles would be utilized by passengers, would reduce the project's consumption of gasoline and diesel; however, the effect may be minimal in the current vehicle market. According to the EMFAC2014 model, electric vehicles are predicted to account for 2.0 percent of passenger vehicle VMT in 2020 in the SFBAAB region. Based on the estimate above, this would translate to a fuel savings of up to approximately 572 gallons of fuel (primarily gasoline, assuming electric vehicles replace gasoline-fueled passenger vehicles) per year. Plug-in electric vehicles would generally obtain battery power from utilities are required to provide an increasing share of electricity from renewable sources (i.e., 33 percent by 2020

and 50 percent by 2030) under the State's Renewables Portfolio Standard. Therefore, while plug-in electric vehicles would replace traditional transportation fuels (i.e., gasoline) with utility provided electricity, the electricity would be provided by an increasing share of renewable sources resulting in an overall reduction in energy resource consumption.

Given the above, project operation would not result in wasteful, inefficient, or unnecessary energy usage, and would result in a less-than-significant impact to energy resources.

4.6.1 CUMULATIVE IMPACTS

The cumulative setting for energy impacts is the regional energy distribution systems that serve the project site and County. Development proposed as part of the build out of the General Plan within the County could increase energy demands on these systems. PG&E has indicated that the distribution systems serving the County are designed to adequately serve the energy demands from projected development within the ULL (Carr, 2015). As such, the project in combination with the other development in the County would not result in cumulative impacts to energy.

4.6.4 REFERENCES

California Air Pollution Control Officer's Association, 2010. *Quantifying Greenhouse Gas Mitigation Measures*. Available: http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoa-quantifying-greenhouse-gas-mitigation-measures.pdf. Accessed: March 2017.

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4.6 ENERGY

This section describes the potential effects of the project on energy conservation. Information in this section is derived from the following sources:

- Energy Assessment prepared by ESA in February 2017 (see **Appendix H**)
- Circlepoint, Pantages Bay Residential Development Project. Final Environmental Impact Report, 2013
- California Public Utilities Commission, California Renewables Portfolio Standard. 2016
- Personal communication with Pacific Gas and Electric Company (PG&E)

For the purposes of this analysis, buildout of the project is conservatively assumed to occur over a 30-month period, which includes operation of the homes. However, the actual construction of the individual homes will be largely market-driven and may extend over a 10-year period. A 30-month construction period results in a conservative analysis as the assumed annual energy demand would be higher.

No comments regarding energy were submitted in response to the Notice of Preparation for this draft environmental impact report.

4.6.1 EXISTING CONDITIONS

Electrical and Gas Services

Electrical and gas services in the project area are provided by PG&E. PG&E obtains its energy supplies from power plants and natural gas fields in northern California, as well as from energy purchased outside its service area and delivered through high voltage transmission lines and pipelines. Power is generated from various sources, including fossil fuel, hydroelectric, nuclear, wind, and geothermal plants; and is fed into the electrical grid system serving Northern California.

PG&E updates all load forecasts for gas and electricity services every year. Load growth forecasts for this area are currently determined using load growth projection tools that use a number of sources of data including past peak loading, population, development characteristics, and temperature history information. If an update for the distribution area indicates that the load growth is different than forecasted, an expansion of the existing systems would be timed to match the faster or slower growth (Circlepoint, 2013).

The approximately 61-acre project site currently contains two residential buildings, a barn, horse pasture area, an office building, two abandoned walnut orchards, and adjacent open space. For the purposes of this analysis, the existing setting includes

occupancy of the office building, which has varied over time. While the permitted capacity and documented actual occupancy of the building for California Environmental Quality Act (CEQA) baseline purposes is the entire 20,700 square feet of the building, this analysis uses the 76 percent occupancy as its baseline. This choice is based on the historical record that the occupied capacity of the building is approximately 76 percent.

4.6.2 REGULATORY SETTING

State

California's Energy Efficiency Standards for Residential Buildings, Title 24

The Energy Efficiency Standards for Residential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

Examples of energy measures in the Title 24 standards and the CALGreen Code include energy efficiency metrics and performance standards for appliances, space-conditioning equipment (i.e., heating, ventilation and air conditioning [HVAC]), water heating systems, windows and doors, insulation, lighting, and roofing materials; indoor and outdoor water use efficiency and conservation performance metrics; and requirements to provide solar-ready buildings with a minimum solar zone area (solar zone is defined as a section of the roof designated and reserved for the future installation of a solar electric or solar thermal system).

Project Consistency Analysis

As required by law, the project would comply with the most recent Energy Efficiency Standards of Title 24 by incorporating 'green building' and energy saving measures. According to the California Energy Commission, the latest version of the Title 24 (2016) standards, which took effect on January 1, 2017, uses approximately 28 percent less energy for residential lighting, heating, cooling, ventilation, and water heating compared to the prior Title 24 (2013) standards.

California's Renewable Energy Portfolio Standard Program (Senate Bills 107 and 1078)

California's Renewables Portfolio Standard was established in 2002 under Senate Bill 1078, accelerated in 2006 under Senate Bill 107, and expanded in 2011 under Senate Bill 2. This program requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent of total procurement by 2020.

Project Consistency Analysis

This regulation does not require an evaluation of project consistency; however, it is important to note as the project would receive electricity from PG&E which is required to meet the renewable energy goal. PG&E procured 23.8 percent of their energy from renewable sources in 2013, and is currently under contract to procure 31.3 percent of their energy from renewable sources by 2020 (California Public Utilities Commission, 2016).

California Air Resources Board On-Road and Off-Road Vehicle Regulations

In 2004, the California Air Resources Board (CARB) adopted an Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling in order to reduce public exposure to diesel particulate matter emissions (Title 13 California Code of Regulations Section 2485). The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. While the goal of this measure is primarily to reduce public health impacts from diesel emissions, compliance with the regulation also results in energy savings in the form of reduced fuel consumption from unnecessary idling.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. The In-Use Off-Road Diesel-Fueled Fleets regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 California Code of Regulations Section 2449). The compliance schedule requires full implementation by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Project Consistency Analysis

All on-road and off-road construction and commercial equipment used during project construction would comply with the CARB On-Road and Off-Road Vehicle Regulations. Neither on-road nor off-road equipment would be allowed to idle for more than five minutes at a time. While intended to reduce construction criteria pollutant emissions, compliance with anti-idling and emissions reduction regulations would also minimize wasteful and unnecessary energy consumption during construction.

California Assembly Bill No. 1493 (AB 1493, Pavley), (Chapter 200, Statutes of 2002)

Authored by Assembly Member Fran Pavley and enacted on July 22, 2002, these standards are intended to reduce GHG emissions for passenger vehicles, light duty trucks, and other vehicles whose primary use is noncommercial personal transportation manufactured in and after 2009. However, they also have the associated benefit of reducing energy consumption from the transportation sector by improving fuel economy and reducing fuel consumption as a means to reduce emissions. Referred to as the Pavley standards, implementation of AB 1493 was delayed due to litigation, but ultimately upheld by the Supreme Court. The standards established tailpipe GHG emissions standards for model year 2012 through 2016 light-duty vehicles under Phase I and model year 2017 through 2025 light-duty vehicles under Phase II.

The United States Environmental Protection Agency and United States Department of Transportation adopted federal equivalent standards for model year 2012 through 2016 light-duty vehicles and model year 2017 through 2025 light-duty vehicles. The federal standards are slightly different from the Pavley Phase I and Phase II standards, but the State of California has agreed not to contest these standards, in part due to the fact that while the national standard would achieve slightly lower reductions in California, it would achieve greater reductions nationally and is stringent enough to meet state GHG emission reduction goals (CARB 2016). On November 15, 2012, CARB approved an amendment that allows manufacturers to comply with the national standards to meet state law.

Project Consistency Analysis

Construction related light-duty trucks would be required to meet state GHG emission laws either through adherence to the Pavley standards or federal standards.

Local

Contra Costa County General Plan

The Conservation Element of the General Plan contains the following goal related to energy conservation:

Goal 8-L: Reduce energy use in the County to avoid risks of air pollution and energy shortages which prevent orderly development.

Project Consistency Analysis

As required by law, the project would incorporate 'green building' and energy saving measures pursuant to the Energy Efficiency Standards of Title 24 and the new California Green Building Code. These same measures would reduce the potential energy use of the project, thereby ensuring consistency with Goal 8-L of the General Plan.

4.6.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

The potential for energy usage impacts is based on thresholds derived from Appendix F of the State CEQA Guidelines. Appendix F recommends the following considerations for evaluating energy impacts:

- The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed.
- The effects of the project on local and regional energy supplies and on requirements for additional capacity.
- The effects of the project on peak and base period demands for electricity and other forms of energy.
- The degree to which the project complies with existing energy standards.
- The effects of the project on energy resources.
- The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

In consideration of the above factors, the following threshold is utilized to determine if the project would result in potentially significant impacts on energy resources:

- Would the project result in wasteful, inefficient, and unnecessary consumption of energy during project construction and operation, including transportation energy; result in energy demand substantially affecting local and regional energy supplies and capacity; or substantially conflict with existing energy standards?

Discussion of Less-than-Significant Impacts

Would the project result in wasteful, inefficient, and unnecessary consumption of energy during project construction and operation, including transportation energy; result in energy demand substantially affecting local and regional energy supplies and capacity; or substantially conflict with existing energy standards?

Construction Period

In February 2017, ESA prepared the Energy Assessment to evaluate energy usage related to the project (see **Appendix H**). For the purposes of this analysis, project construction is assumed to occur over a 30-month period. Though the completion of 35 individual homes would be market-driven and could extend over a 10-year period, a 30-month construction period reflects the most conservative analysis as the assumed annual energy demand would be higher.

Energy consumption during construction would result primarily from transportation fuels (e.g., diesel and gasoline) used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the project site. The Energy Assessment used project-level construction information, traffic data, and standard fuel consumption rates to estimate the maximum gasoline and diesel consumption for the purposes of evaluating the associated impacts on energy resources.

- **Off-road equipment:** Heavy-duty construction equipment such as backhoes, dozers, excavators, and rollers would be required during project construction. Based on the amount and type of equipment required for project construction, the duration of construction activities, and standard fuel consumption factors, off-road equipment would consume approximately 24,482 gallons of diesel, or 9,793 gallons of diesel per year over the 30-month construction period.

- **Trucks:** Trucks would be used to haul material and deliver supplies. Based on the estimated vehicle miles required for material hauling and delivery and standard fuel consumption factors, construction-related trucks would consume approximately 7,867 gallons of diesel, or 3,147 gallons of diesel per year over the 30-month construction period.

- **Construction Worker Vehicle Trips:** Construction workers would be expected to drive to and from the project site on workdays throughout the construction period. Based on the construction duration and engineering estimates, construction workers would travel approximately 100,514 vehicle miles throughout the construction period. Travelling this distance would require approximately 4,038 gallons of fuel, or approximately 1,615 gallons of fuel per year. For the purposes of this analysis, construction worker vehicles are expected to use gasoline.

Based on these above estimates, project construction would require approximately 12,940 gallons of diesel and 1,615 gallons of gasoline on an annual average basis during the 30-month (i.e., 2.5-year) construction timeframe. California's total annual consumption of gasoline is 14.4 billion gallons for the transportation sector. The state's total annual consumption of diesel for the transportation sector is 3.4 billion gallons (ESA, 2017). The estimated annual average construction fuel usage for the project represents a very small fraction of the State's annual fuel usage (approximately 0.0004 percent of the statewide annual diesel consumption and 0.00001 percent of the statewide annual gasoline consumption). This represents a negligible amount of fuel consumption on a statewide level.

Construction of the project is not expected to require substantial electricity usage. Electricity use during construction would be variable depending on lighting needs and the use of electric-powered equipment and would be temporary for the duration of construction activities. If electric-powered construction equipment or vehicles are used, they would replace the diesel- and gasoline-fueled equipment assumed in this assessment. Therefore, it is expected that construction electricity use would generally be considered as temporary and negligible and accounted for in the fuel estimates discussed above.

As discussed in **Subsection 4.6.2**, the project would be required to comply with CARB On-Road and Off-Road Vehicle Regulations to limit vehicle idling. While intended to reduce construction criteria pollutant emissions, compliance with this anti-idling regulation would also result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. The project would utilize construction contractors that demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel equipment. Ultimately, the estimated project energy savings from the foregoing construction measures would result in diesel fuel savings of 1,875 gallons (see **Appendix H**).

Finally, because project construction will entail energy demands largely associated with equipment and transportation fuels, construction of the project would not increase demands on the electric power network during peak and base period demand periods. As a result, construction energy impacts would be considered less than significant.

Operational Period

Operational energy consumption would occur from the proposed residences and transportation fuels (e.g., diesel and gasoline) used for vehicles traveling to and from the site.

Proposed Residences

Operation of the 35 proposed single-family residences would require electricity and natural gas. Based on the proposed development and engineering estimates, the project would have an electricity demand of approximately 289,280 kilowatt-hours (kWh) per year, and a natural gas demand of approximately 1,358,180 kilo British thermal units (kBtu) per year. Based on historical energy demand factors, existing structures on the project site currently generate demand for approximately 262,000 kWh and 453,000 kBtu per year. Since these existing structures would be removed from the project site, the project's net annual energy usage upon operation would be 27,280 kWh and 905,180 kBtu.

In 2015, Contra Costa County consumed approximately 2.8 billion kWh of electricity (CEC, 2017a) and approximately 15.3 billion kBtu of natural gas (CEC, 2017b). The project's net demand would represent approximately 0.001 percent of the County's electricity consumption and approximately 0.01 percent of the County's natural gas consumption. In addition, PG&E's infrastructure accounts for increases in energy demand and load growth by annually updating load forecasts for gas and electricity services. If an increase or decrease in load growth is realized, an expansion of existing systems would be timed appropriately. The project would also incorporate energy and water efficient designs consistent with energy efficiency standards in the applicable Title 24 standards and the CALGreen Code.

Transportation Fuels

Project operation would result in consumption of transportation fuels, primarily gasoline and diesel. Based on average fuel economy for passenger vehicles in the San Francisco Bay Area and the project's maximum estimated annual vehicle miles travelled (VMT), passenger vehicles would use approximately 28,150 gallons of gasoline and 174 gallons of diesel per year. Currently, approximately 10,464 gallons of gasoline and 655 gallons of diesel are consumed per year for trips to existing uses on the project site. Since these existing structures would be removed from the project site, the project's net annual fuel usage upon operation would be 17,686 gallons of gasoline and 109 gallons of diesel per year.

In 2015, California consumed a total of 14.4 billion gallons of gasoline and 3.4 billion gallons of diesel in the transportation sector. Given that the population of California in 2015 was estimated to be 39,144,818 people,[1] this represents a per capita consumption of approximately 368 gallons of gasoline and 87 gallons of diesel. In comparison, the net per capita transportation fuel demand from operational vehicle trips for this project would be approximately 168 gallons of gasoline and 1 gallon of diesel.[2]

[1] United States Census Bureau, 2016

[2] As discussed in **Section 4.14, Population and Housing**, the project is expected to generate a direct population increase of 105 people.

The location of the project is also ideal for limiting transportation-related energy impacts. The project site is located east of the EBRPD-managed Madrone Trail, which commences at the existing terminus of Camille Avenue, and approximately 0.25 mile away from the Iron Horse Regional Trail. The project site would provide residents with convenient access to these trails for recreational use. The project site would also provide residents with convenient access to other nearby uses Rancho Romero Elementary School approximately 0.3 mile to the north, San Ramon Valley High School approximately 1 mile to the southeast, and Hap Magee Ranch Park approximately 0.5 mile to the northeast. Suburban commercial centers with retail, restaurant, office, and other commercial uses are located approximately 1 mile to the north in Alamo and approximately 1.5 miles to the southeast in Danville, including employment centers.

As a result, the project would provide nearby access to a range of destinations. According to the California Air Pollution Control Officer's Association (CAPCOA) guidance document *Quantifying Greenhouse Gas Mitigation Measures*, projects with accessibility to destinations result in reductions in VMT. According to the CAPCOA guidance, factors that contribute to VMT reductions based on destination accessibility include the distance to a downtown or job center, and expected VMT reductions range from approximately 6.7 percent to 20 percent (CAPCOA 2010). Thus, the project would be expected to result in transportation fuel savings of approximately 1,886 gallons of gasoline per year and 12 gallons of diesel per year.

Further, as discussed in **Section 4.11, Land Use and Planning**, the project site is located entirely within the Urban Limit Line and would be adjacent to similar residential areas. This means that the development would be located in an area that already has infrastructure to serve a residential community. As discussed in **Section 4.15, Public Services and Recreation** and **Section 4.17, Utilities and Service Systems**, the project site is currently served by public safety, school systems, and infrastructure.

Lastly, the project would also include the installation of electric vehicle supply equipment (EVSE) in garages, pursuant to the CALGreen Code. The project would include the installation of dedicated circuits to accommodate at least one electric vehicle per dwelling unit. Alternative-fueled, electric, and hybrid vehicles, to the extent these types of vehicles would be utilized by passengers, would reduce the project's consumption of gasoline and diesel; however, the effect may be minimal in the current vehicle market. According to the EMFAC2014 model, electric vehicles are predicted to account for 2.0 percent of passenger vehicle VMT in 2020 in the SFBAAB region. Based on the estimate above, this would translate to a fuel savings of up to approximately 572 gallons of fuel (primarily gasoline, assuming electric vehicles replace gasoline-fueled passenger vehicles) per year. Plug-in electric vehicles would generally obtain battery power from utilities are required to provide an increasing share of electricity from renewable sources (i.e., 33 percent by 2020

and 50 percent by 2030) under the State's Renewables Portfolio Standard. Therefore, while plug-in electric vehicles would replace traditional transportation fuels (i.e., gasoline) with utility provided electricity, the electricity would be provided by an increasing share of renewable sources resulting in an overall reduction in energy resource consumption.

Given the above, project operation would not result in wasteful, inefficient, or unnecessary energy usage, and would result in a less-than-significant impact to energy resources.

4.6.1 CUMULATIVE IMPACTS

The cumulative setting for energy impacts is the regional energy distribution systems that serve the project site and County. Development proposed as part of the build out of the General Plan within the County could increase energy demands on these systems. PG&E has indicated that the distribution systems serving the County are designed to adequately serve the energy demands from projected development within the ULL (Carr, 2015). As such, the project in combination with the other development in the County would not result in cumulative impacts to energy.

4.6.4 REFERENCES

California Air Pollution Control Officer's Association, 2010. *Quantifying Greenhouse Gas Mitigation Measures*. Available: http://www.aqmd.gov/docs/default-source/ceqa/handbook/capcoa-quantifying-greenhouse-gas-mitigation-measures.pdf. Accessed: March 2017.

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United States Census Bureau. *Quick Facts, California.* Available: https://www.census.gov/quickfacts/table/PST045215/06. Accessed: March 2017.

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4.7 GEOLOGY AND SOILS

This section describes geology and soils at the project site and potential risk associated with known geologic hazards, including seismic activity. Information in this section is based on:

- A Geotechnical Exploration prepared ENGEO in 2013 (see **Appendix I**)
- A Geologic Peer Review by Darwin Meyers Associates, prepared in 2013
- Alquist-Priolo Earthquake Fault Zoning Maps, prepared by the State of California Department of Conservation in 2007
- Custom Soil Resource Report, accessed from the United States Department of Agriculture in 2015
- Soil Survey of Contra Costa County, prepared by the United States Department of Agriculture in 1977
- The Contra Costa County General Plan 2005-2020 (General Plan)

These reports are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Street, Martinez, California.

No comments related to the geology and soils were received in response to the Notice of Preparation for this draft environmental impact report.

4.7.1 EXISTING CONDITIONS

Regional Geology

The project site is located within the Coast Ranges Geomorphic Province, which extends 400 miles from Oregon to Southern California. This region is defined by a series of northwest-trending mountain ranges and intervening valleys that parallel geologic structures and major fault systems. Much of this province is composed of marine sedimentary and volcanic rock ranging from 65 to 150 million years old (Metropolitan Transportation Commission and Association of Bay Area Governments, 2013).

The project site lies within the San Ramon Valley, which is a basin surrounded by the East Bay Hills that were formed from younger rocks uplifted between the Hayward and Calaveras fault zones. This region is underlain by Tertiary marine and non-marine sedimentary rocks. The San Ramon Valley fill includes Quaternary-aged

alluvium up to approximately 300 feet thick, and is drained by the San Ramon and South San Ramon creeks, which actively cut into the alluvial surface soils (City of San Ramon, 2010).

Site Geology

The project site is located on the east flank of the Las Trampas Ridge in the Northern San Ramon Valley, approximately 7 miles west of Mount Diablo. Site elevations range from 348 feet above mean seal level (AMSL) near the southeast portion of the property and reach 680 feet AMSL on the hilly, western portions of the project site. The eastern lowlands consist of Quaternary alluvial gravel, sand, and silt, while the western highlands contain Late Miocene Monterey Formation clay shale and sandy siltstone. The western portion of the site sits on broad bedrock spur that extends northeast into the valley.

In the summer of 2008, ENGEO excavated seven test pits (ranging from 2.5 to 10 feet deep) and a 218-foot-long trench (average depth between 10 to 12 feet). The field exploration identified four soil types on the project site: Colluvium, Alluvium, Older Alluvium, bedrock, and artificial fill. These geologic units are discussed below and mapped in **Figure 4.7-1**. Refer to **Section 4.12, Mineral Resources**, for additional descriptions of soil found on the project site. The full results of this geotechnical exploration are included in **Appendix I**.

Colluvium

Colluvium is eroded material carried by sheet wash from ridgelines and slopes into low-lying depressions. Colluvium was identified in test pits 1, 3, 4, and 7 (see **Figure 4.1-1**), and was encountered at depths ranging from 1.5 to 8 feet and in thicknesses between 2 and 4.5 feet. This material consists of brown to dark-brown silty clay, and was moderately stiff to stiff. Based on laboratory results and field observations, these soils are highly to critically expansive when subjected to fluctuations in moisture content. Previous studies also detected colluvium at various locations along the western border of the project site.

Alluvium

Loose, heterogeneous alluvial deposits exist in low-lying areas around the residence and office structures extending to the eastern property limits. A 7-foot-thick deposit of alluvium was encountered at a depth of 3.5 feet at the base of the artificial fill approximately 40 meters east of the existing residence. Based on field tests, these alluvium deposits are a mixture of material types including silty clay, clayey silt, and clayey gravel. The soils range from low to high plasticity and are highly expansive when subjected to fluctuations in moisture content.

Older Alluvium

Older alluvium was encountered in the exploratory trench at depths ranging from 8 to 12 feet. These deposits consisted of clayey silt with variable amounts of gravel and rock fragments. They are very stiff to hard with moderate to low plasticity and moderate expansion potential.

Artificial Fill

Soils around the existing structures experienced significant alteration from previous grading activity. Artificial fill was found in the test pits at depths ranging from 0 to 4 feet and in thicknesses between 1 to 4 feet. The fill typically derived from on-site sources and was free of deleterious debris. Two test pits in the southern portion of site contained substantial quantities of asphaltic concrete and minor nesting of cobble-size sandstone fragments.

Conditions in the test pits suggest that most artificial fills were compacted and experienced little shifting, settling, or movement. However, cracking observed along some of the paved areas suggest that underlying fills may be experiencing slow downward progression known as “creep.” Furthermore, it appears unlikely that the fills were constructed with keyways, benching, or other improvements required for engineered fill to meet current standards.

Bedrock

Bedrock was encountered at five of the seven test pits at depths ranging from two-to-eight feet. This bedrock consists primarily of moderately weathered limestone from the Monterey Formation. The rock varied from moderately strong to very strong and moderately fractured. Bedrock was not encountered in the test trench, but according to the most recent map of Quaternary deposits from the United States Geological Survey, nearly the entire site is underlain by bedrock at relatively shallow depths (ENGEO, 2013).

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Location of Geotechnical Field Explorations

Figure 4.7-1

Source: ENGEO, 2013.

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Groundwater

Groundwater was not encountered on the project site during the geotechnical exploration, but groundwater fluctuations may occur based on annual variations in precipitation, temperature, irrigation, and other factors (ENGEO, 2013).

Seismic and Geological Hazards

The California Geological Survey (CGS) delineates Alquist-Priolo (A-P) zones along known active faults in California. A-P zones are based on clear evidence of surface fault rupture that occurred during the Holocene time (during the last 10,000 years). No portion of the project site is within an Earthquake Fault Zone (EFZ), as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map (Department of Conservation, 2007).

The ancestral trace of the Calaveras fault passes through the immediate site area. This segment of the Calaveras fault has no proven record of Holocene ground displacement and is not considered to be an active fault by the CGS. However, it may be a potential seismic source.

According to the CGS, the nearest active faults are the Calaveras fault (2.25 miles southeast of the project site), Concord fault (4.75 miles northeast of the project site), and Hayward fault (8.5 miles southwest of the project site). Other nearby faults includes Greenville (9.5 miles east of the project site), and San Andreas (28 miles west of the project site). Potential seismic hazards from a nearby moderate to major earthquake are discussed below.

Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture can occur along an active major fault trace. Though a trace of the potentially active Northern Calaveras Fault crosses the project site, the area is not within an EFZ; therefore, the probability of the project site experiencing surface rupture is low.

Ground Shaking

Ground shaking is a general term referring motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage during seismic events. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (**Table 4.7-1**).

Table 4.7-1 **Modified Mercalli Intensity (MMI) Scale**

MMI Scale	Description
I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geological Survey, 2002.

An earthquake of moderate to high magnitude generated within the San Francisco Bay Area could cause considerable ground shaking at the project site. During a seismic event, the upper portions of the project site could expect Very Strong shaking (VIII MMI), while the lower portions of project site could expect Violent shaking (IXMMI) (Association of Bay Area Governments, 2012). The degree of shaking would be dependent on the magnitude of the event, distance to the seismic source, and local geologic conditions.

The General Plan Safety Element classifies the higher, western portions of the project site as "lowest damage susceptibility." This estimate is for firm bedrock that is of Miocene age or older. The remainder of this site is rated for "moderate damage susceptibility." Sound structures on firm, dry alluvium typically perform satisfactorily, while water saturated areas are potentially hazardous (Contra Costa County, 2005).

Slope Stability and Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep). The primary factors influencing the stability of a slope are the nature of the underlying soil or bedrock; the height and steepness of the slope; rainfall; and the presence of previous landslide deposits. Clayey soils on steeper natural slopes are subject to creep, so improvements encroaching into these areas may be at risk.

There is landslide evidence in the hillsides west of the proposed residential lots (**Figure 4.7-1**). These landslides consisted of shallow slump-type failures or earth flow failures involving soil over highly eroded bedrock material. Geomorphic features suggest that these landslide deposits range from approximately 10 to 20 feet thick. The nearest landslide is located approximately 200 feet southwest of the proposed residential lots, and exhibited southward displacement away from the project site. Because the slides do not present a risk to the project, corrective grading of the landslides is not warranted.

Soil Liquefaction

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state because of seismic ground shaking. In the process, the soil undergoes temporary loss of strength, which commonly causes ground displacement or ground failure to occur. Since saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher liquefaction potential than those in which the water table is located at greater depths.

The United States Geological Survey (USGS) classifies upland portions of the project site with "very low" liquefaction potential due to the presence of bedrock. However, the lower, eastern portions of the site have "moderate" liquefaction

potential (United States Geological Survey, 2000). The General Plan Safety Element also characterizes the lower portions of the project site as "generally high" for liquefaction potential (Contra Costa County, 2005).

Lurching and Lateral Spreading

Lateral spreading is a form of horizontal displacement of soil toward an open channel or excavation boundary. Lateral spreading can result from either the slump of unconsolidated material or, more commonly, by liquefaction of soil or a subsurface layer on a slope, resulting in gravitationally driven movement. Earthquake-induced liquefaction can result in lateral spreading. Based on the soil composition, site topography, and results of the geotechnical exploration, the potential for lateral spreading on the project site is low.

Expansive Soils

Expansive soils contain clay and silt that expand in volume in response to increased water content and shrink in volume upon drying. Highly expansive soils present a significant risk to buildings and infrastructure. Colluvium deposits are highly to critically expansive, and the alluvium mapped in the low lying areas on the project site is highly expansive. The older Alluvium deposits encountered only in the trench excavation are moderately expansive.

Soil Corrosivity

Acidic soils have the potential to corrode steel and concrete building materials, and may result in long-term structural failure. The development area within the project site consists of Millsholm loam, Garretson loam, and Clear Lake clay (United States Department of Agriculture, 2015). Clear Lake clay and Garretson loam exhibit slight acidity, while Milshom Loam exhibits moderate acidity (United States Department of Agriculture, 1977). However, the preliminary geotechnical exploration did not identify any risk from corrosive soils on the project site. Refer to **Section 4.12, Mineral Resources**, for additional descriptions of the soil types on the project site.

4.7.2 REGULATORY SETTING

State

California Building Standards Code

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, sets minimum requirements for building design and construction. The 2016 version of the California Building Standards Code is effective as of January 1, 2017 The California Building Standards Code is a compilation of three types of building standards from three different origins:

- Building standards that have been adopted by state agencies without change from building standards contained in national model codes;
- Building standards that have been adopted and adapted from the national model code standards to meet California conditions; and
- Building standards, authorized by the California legislature, that constitute extensive additions not covered by the model codes that have been adopted to address particular California concerns

Project Consistency Analysis

As required by law, the project would be subject to the operative provisions of the most recent California Building Code at the time that building permits are requested. Compliance with building and grading regulations would keep risks within generally accepted limits.

Alquist-Priolo Earthquake Faulting Act

The California Legislature passed the Alquist-Priolo Earthquake Fault Zoning Act in 1972 to mitigate the hazard of surface faulting to structures. The Alquist-Priolo Earthquake Fault Zoning Act's main purpose is to prevent the construction of buildings used for human occupancy astride the surface trace of active faults, and to require adequate structure setbacks from active faults.

Project Consistency Analysis

The project site is not within an A-P EFZ, and no evidence of active faulting exists. The risk of surface fault rupture at the project area is very low (ENGEO, 2013).

Seismic Hazards Mapping Act

The Seismic Hazard Mapping Act was adopted by the California Legislature in 1990 to reduce public health and safety treats and to minimize property damage caused by earthquakes. The act directs the CGS to identify and map areas prone to earthquake hazards, such as liquefaction, earthquake induced landslides, and ground shaking. The act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting

most developments designed for human occupancy within Zones of Required Investigation.

Project Consistency Analysis

The State of California has not yet issued seismic hazards maps of the County. Consequently, the project site is not within a Zone of Required Investigation, and is not subject to the requirements of the Seismic Hazards Mapping Act.

Local

Contra Costa County Code, Section 94-4.420

Section 94-4.420 of the Contra Costa County Code (County Code) was adopted in 1978 to mitigate the hazards of unstable soils and geological formations to structures. Pursuant to the County Code, the preliminary soil investigation report prepared for a project must be submitted to the County's building inspection department. The report shall indicate the presence of critically expansive soils, unstable geological formations, or any soil problems that may present a hazard to structure, buildings, or other improvements. If soil instability issues arise, a report including the recommended corrective actions taken to prevent structural damage to buildings, structures, or improvements must also be submitted. Upon review of the preliminary soil report, the County Building Official will determine the completeness of the report and the effectiveness of the recommended corrective actions. If approved, the County Building Official shall certify the final map or parcel map and the recommended actions in the report shall become a condition of approval and incorporated into the development.

Project Consistency Analysis

A preliminary geotechnical report was prepared and submitted to the County with the application. Its primary purpose was to characterize site geologic conditions and serve as the primary data source for evaluating the range of potential geologic hazards. A design-level geotechnical report will be required, as outlined in **Mitigation Measures GEO-1** through **GEO-4**, to provide specific criteria and standards to guide the grading, drainage, and foundation depth.

Contra Costa County General Plan

The following policies from the General Plan Safety Element are relevant to geology, soils, and seismicity.

Safety Element

10-3: Because the region is seismically active, structures for human occupancy shall be designed to perform satisfactorily under earthquake conditions.

10-6: Structures of human occupancy, and structures and facilities whose loss would substantially affect the public safety or the provision of needed

services shall not be erected in areas where there is a high risk of severe damage in the event of an earthquake.

10-8: Ground conditions shall be a primary consideration in the selection of land use and in the design of development projects.

10-10: Policies regarding liquefaction shall apply to other ground failures which might result from groundshaking but which are not subject to such well-defined field and laboratory analysis.

10-11: Classify as active those faults which have ruptured the ground surface during Holocene geologic time, roughly the last 10,000 years. Classify as potentially active faults which displace Quaternary geologic units, those formed during approximately the last 2 to 3 million years.

10-13: In areas where active or inactive earthquake faults have been identified, the location and/or design of any proposed buildings, facilities, or other development shall be modified to mitigate possible danger from fault rupture or creep.

10-14: Preparation of a geologic report shall be required as a prerequisite before authorization of public capital expenditures or private development projects in areas of known or suspected faulting.

10-20: Any structures permitted in areas of high liquefaction danger shall be sited, designed, and constructed to minimize the dangers from damage due to earthquake-induced liquefaction.

10-21: Approvals to allow the construction of public and private development projects in areas of high liquefaction potential shall be contingent on geologic and engineering studies which define and delineate potentially hazardous geologic and/or soils conditions, recommend means of mitigations these adverse conditions; and on proper implementation of the mitigation measures.

10-22: Slope stability shall be a primary consideration in the ability of land to be developed or designated for urban uses.

10-23: Slope stability shall be given careful scrutiny in the design of developments and structures, and in the adoption of conditions of approval and required mitigation measures.

10-24: Proposed extensions of urban or suburban land uses into areas characterized by slopes over 15 percent and/or generally unstable land shall be evaluated with regard to the safety hazard prior to the issuance of any discretionary approvals. Development on very steep open hillsides and significant ridgelines throughout the County shall be restricted, and hillsides

with a grade of 26 percent or greater shall be protected through implementing zoning measures and other appropriate actions.

10-26: Approvals of public and private development projects in areas subject to slope failures shall be contingent on geologic and engineering studies which define and delineate potentially hazardous conditions and recommend adequate mitigation.

10-27: Soil and geological reports shall be subject to the review and approval of the County Planning Geologist.

10-28: Generally, residential density shall decrease as slope increases, especially above a 15 percent slope.

10-29: Significant very steep hillsides shall be considered unsuitable for types of development which require extensive grading or other land disturbance.

10-30: Development shall be precluded in areas when landslides cannot be adequately repaired.

10-31: Subdivisions approved on hillsides which include individual lots to be resold at a later time shall be large enough to provide flexibility in finding a stable buildable site and driveway location.

10-32: The County shall not accept dedication of public roads in unstable hillside areas, or allow construction of private roads there which would require an excessive degree of maintenance and repair costs.

Policy Consistency Analysis

Development within the project site would comply with the most recent state seismic requirements and building codes. These measures would ensure the reduction of potential risks to people and property resulting from seismic and geologic hazards. The project would therefore be consistent with the General Plan policies related to geology, soils, and seismicity.

4.7.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

  - 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.
  - Strong seismic ground shaking.
  - Seismic-related ground failure, including liquefaction.
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- 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.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- 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.

Discussion of No Impacts

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving 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?

The project site is not located within an A-P EFZ. Therefore, the project would not expose people or structures to potential substantial adverse effects from surface fault rupture of known active faults. No impact would occur.

Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;

The project site would connect to the Central Contra Costa Sanitary District's sewer system, as discussed in **Section 4.17, Utilities and Service Systems**. Septic tanks or alternative waste water systems would not be required. No impact would occur.

Discussion of Less-Than-Significant Impacts

Would the project result in substantial soil erosion or the loss of topsoil?

The proposed residential portions of the project site (approximately 20 acres) would require intensive earthmoving activities during construction. Excavation of lots,

sidewalks, and roadways on the lower portion of the project site would temporarily increase the amount of exposed (unvegetated) surfaces. Erosion of these surfaces could lead to increased sedimentation in receiving water bodies, such as San Ramon Creek.

As discussed in **Section 4.10, Hydrology and Water Quality**, the project proponent shall submit a Storm Water Pollution Prevention Plan (SWPPP) for review and approval by the Contra Costa County Public Works Department and the Contra Costa County Department of Conservation and Development. The SWPPP would comply with current San Francisco Bay Regional Water Quality Control Board guidelines and would adopt acceptable best management practices (BMP) for control of sediment and stabilization of erosion in the project area. The SWPPP would include acceptable BMPs for the protection of water quality. Application of the SWPPP will ensure that the project would not result in substantial soil erosion or loss of topsoil. This impact would be less than significant.

Discussion of Significant Impacts

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

Impact GEO-1: The project could be subject to strong seismic shaking from regional geologic faults (Less than Significant with Mitigation).

Although the project site is not within an officially designated A-P EFZ, the ancestral trace of the Northern Calaveras fault passes through the immediate project site along the toe of Las Trampas Ridge. This segment of the Calaveras Fault does not fall within an A-P zone because it has no evidence of surface fault rupture during Holocene times (within the last 11,000 years). However, previous geotechnical studies have reported evidence of seismic activity along the Northern Calaveras fault during the Late Quaternary (within the last 35,000 years) in the Walnut Creek area (Darwin Myers Associates, 2013). Though the segment of the Calaveras fault that passes through the project site is not considered an active fault by the CGS, it is a potential seismic source.

In addition, earthquakes along nearby active faults in the region could cause moderate to strong ground shaking at the project site. The ground shaking intensity at the project site during a major earthquake in the San Francisco Bay Area is estimated at MMI level VII or VIII, with the potential to cause violent shaking and significant structure damage. The intensity of the earthquake ground motions and resulting damage would depend on the characteristics of the generating fault, distance to the fault and rupture zone, earthquake magnitude, earthquake duration, and site-specific geologic conditions.

The California Building Code has established seismic structural analysis guidelines for sites located near active seismic sources. As required by law, the project would be designed in conformance with current applicable residential standards for seismic stability as presented in the 2013 California Building Code, or the version in effect at the time of building permit issuance. **Mitigation Measure GEO-1** would address potential impacts related to seismic ground shaking.

> ***Mitigation Measure GEO-1***: The project proponent shall design structures and foundations to withstand expected seismic sources in accordance with the current version of the California Building Code, as adopted by the County. Prior to the issuance of a building permit, the Contra Costa County Department of Conservation and Development shall verify that plans incorporate seismic site categorization and design coefficients in conformance with the most recent version of the California Building Code. The project sponsor shall be required to provide evidence that a qualified geotechnical engineer has reviewed final grading, drainage, and foundation plans for consistency with California Building Code and Uniform Building Code design standards, and verify that all pertinent recommendations of the geotechnical engineer are incorporated into final building plans (see **Mitigation Measure GEO-2**).

Significance after Mitigation: Implementation of **Mitigation Measure GEO-1** would reduce potential adverse impacts resulting from seismic-related ground shaking to a less-than-significant level. Compliance with building and grading regulations would keep risks within generally accepted limits. Peer review of the final design plans and active supervision during installation of the project's seismic components would ensure compliance with all County approved building requirements.

Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

and

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure or landslides?

Impact GEO-2: Soils on the project site are unstable and could experience soil failure or other geotechnical hazards (Less than Significant with Mitigation).

Artificial Fill

Existing artificial fill on the project site was not constructed in a manner that is consistent with current standards for engineered fill. Furthermore, ENGEO observed downslope movement (creep) of artificial fill within the project site. These

areas represent a potentially unstable geologic unit and a potentially significant impact.

Compressible Alluvial Deposits

Compressible alluvial deposits may exist on site. Placement of engineered fill and structures over on-site colluvial deposits may induce settlement of the underlying compressible alluvial deposits. In general, these soils will settle by approximately 0.25 inch for each foot of engineered fill, in addition to the settlement due to building weight. This is a potentially significant impact.

Corrosive Soil

The soils at the project site may be corrosive to building materials. Structures that contact these corrosive soils may be at risk for long-term damage, which is a potentially significant impact.

Expansive Soil

The expansive nature of the native soil is of significant geotechnical concern in the region. Clayey soils on the project site are highly expansive and susceptible to shrinking and swelling due to variations in moisture content. Expansive soils may cause heaving and cracking of slabs-on-grade, pavement, and foundations, representing a potentially significant impact.

Lurching and Lateral Spreading

Based on the mapped extent of young soils, site topography, and the engineering properties of the surficial deposits on the project site, the risk of lurching and lateral spreading is relatively low.

Liquefaction

Based on subsurface investigation from geotechnical consultants, surficial deposits of the valley floor are too cohesive to liquefy. Furthermore, according to the General Plan Safety Element, portions of the project site have been classified with a "generally high" liquefaction potential. For these reasons, implementation of the project could result in a potentially significant impact associated with liquefaction.

Landslides

Landslide areas shown in **Figure 4.7-1** have a relatively low likelihood of experiencing future instability that would affect the flatter, eastern portions of the project site where the proposed residential lots are located. Nevertheless, the risk of landslides is present at the site to varying degrees depending on the slope conditions and time of year. In addition, many of the soils found in the upland portions exhibit clayey characteristics (see **Section 4.12, Mineral Resources**). Clayey soils on steeper natural slopes are subject to slow, downslope movement that occurs with the annual cycle of wetting and drying under the influence of gravity.

Any encroachment of project improvements into slide areas will require specific remedial grading based on site-specific conditions.

Design-Level Geotechnical Report

The preliminary geotechnical report prepared by ENGEO provided sufficient data to make a preliminary assessment of geological hazards in this draft environmental impact report. However, final design of the project would require future geotechnical analysis and plan review, performed in conjunction with the processing of construction permits. The County Code requires additional geotechnical studies during the processing of final maps, grading permits, and building permits.

Prior to the issuance of building permits, the proponent shall submit a design-level geotechnical report for review by the County and review and approval of the County Building Official. This detailed investigation will also examine the potential hazards posed by artificial fill, compressible native soils, expansive soils, corrosion, liquefaction, and landslides.

Mitigation Measure GEO-2: A design-level geotechnical report shall provide recommendations to address soil stability on the project site. Performance measures shall include, but not be limited to, those described below.

- To reduce the potential for adverse settlement or stability problems, compressible native soils, artificial fill, and any compressible alluvium shall be replaced with engineered fill and/or improvements designed to accommodate the anticipated settlement. To reduce the expansion potential of the fill, moisture conditioning of clayey fill materials to above-optimum moisture content should be anticipated. Detailed fill placement recommendations will be provided based on laboratory testing and analysis performed in conjunction with the design-level geotechnical report.
- Depending on the location and characteristics of compressible native soils and artificial fill, some building pads may require drilled pier and grade beam foundations to achieve the desired level of structural support. This technique entails drilling pier holes below the depth of seasonal moisture changes and into more stable soils below. The pier holes are backfilled with concrete and reinforcing steel rebar, resulting in a structure with low movement risk.
- Most of the existing fill slope located along the rear of Lots 11 through 14 and Lots 18 through 20 will require corrective grading. For existing fills that remain in place, setbacks from the toe of the existing fill slope can be developed based on the findings of the design-level geotechnical exploration. In general, all proposed improvements should be set back from the toe of the slope a distance equal to, or greater than, the height of the existing fill slope.

- If after rough grading, testing of the pad soils determines that soils on the project site are corrosive, the project proponent will provide recommendation for foundations that protect building materials (such as concrete and steel) in contact with the ground surface.
- The design-level geotechnical report will characterize shrink/swell properties of on-site soils. Design-level mitigation will be required to reduce the risk associated with expansive soils, which may include the following.
    - Excavate expansive soils and replace with non-expansive fill
    - Avoid siting structures across soil materials of substantially different expansive properties
    - Extend building foundations below the zone of seasonal moisture change
    - Utilize pier and grade beam foundation system
    - Utilize post-tensioned slabs
    - Prevent accumulation of surface water adjacent to or under foundations
- Depending on the results of the design-level geotechnical report, the potential danger posed by liquefiable soils would be mitigated by appropriate soil and structural stabilization measures, such as compaction grouting and/or designing structures to accommodate anticipated settlement.
- Where development encroaches into the hilly, western areas of the project site, remedial grading will be required to reduce the potential for adverse impacts from slide movement and soil creep. Specific grading measures should be developed on a case-by-case basis where development encroaches into the mapped landslide areas. Measures may include:
    - Benching through the surficial soils during fill placement
    - Drilled pier and grade beam foundation systems to accommodate lateral loads from soil creep
    - Properly engineered cut and fill slopes
    - Stabilization of landslide areas
    - Creation of sufficient buffers between the identified landslide areas and development area
- Maintenance benches should be provided at the toe of major cut slopes (cut slopes higher than 10 feet) or natural slopes that extend upslope of the area of planned development. The width of the bench should be approximately 15 feet wide or as determined necessary by a licensed geotechnical engineer, depending on the height and steepness of the adjacent slope, to

ensure compliance with applicable provisions of the California Building Code.

- A cut slope is planned on the upslope side of proposed Lot 29 that would be about 18 feet high and have a gradient of about 2:1. This proposed cut slope may encounter relatively shallow bedrock. Additional exploration must determine if a 2:1 slope is feasible in this location. If subsurface conditions are such that a 2:1 slope is not feasible, the slope should be flattened to a gradient no steeper than 2.5:1, or reconstructed as an engineered fill slope with an appropriate keyway and subdrainage.

Significance after Mitigation: Mitigation Measure GEO-2, in combination with **Mitigation Measure GEO-1**, would reduce the exposure hazards resulting from artificial fills, compressible native soils, corrosive soils, expansive soils, liquefaction, landslides, and other geotechnical concerns by incorporating site-specific grading and foundation design while ensuring project consistency with the California Building Code. This impact would be less than significant.

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic-related ground failure, including liquefaction?

Impact GEO-3: The project site could experience hazards related to liquefaction or other seismic-related ground failure (Less than Significant with Mitigation).

Seismic-related ground failure represents a variety of hazards on the project site. A design-level geotechnical exploration is necessary to characterize risks, as described above. Based on this evaluation, **Mitigation Measure GEO-2** would reduce the exposure of people and structures to potential adverse impacts resulting from ground failure by incorporating site-specific stabilization and foundation recommendations into the project design. **Mitigation Measure GEO-1** would ensure that design recommendations are consistent with the California Building Code. Incorporation of these measures would reduce this potentially significant impact to a less-than-significant level.

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Impact GEO-4: Evidence of landslide areas in the hills west of the project site suggests that the area experienced landslides in the past (Less than Significant with Mitigation).

The landslide areas shown in **Figure 4.7-1** have a relatively low likelihood of experiencing future instability that would affect the flatter, lower lying portions of the site where the residential lots are proposed. Although the risks of landslides

impacting the proposed residential lots is relatively low, it is potential hazard. Moreover, many of the soils found in the upland portions exhibit clayey characteristics, and may be subject to slow, downslope movement that occurs with the annual cycle of wetting and drying under the influence of gravity. This represents a potentially significant impact.

A design-level geotechnical exploration would be prepared to further refine the assessment of risks related to landslides and soil creep. Based on this evaluation, **Mitigation Measure GEO-2** would apply specific remedial grading measures and foundation design on a case-by-case basis, particularly on the western portions of the development site near the hilly areas. Therefore, **Mitigation Measure GEO-2** would reduce the exposure of people and structures to potential adverse impacts resulting from landslides and soil creep. In addition, **Mitigation Measure GEO-1** would ensure that design recommendations are consistent with the California Building Code. Incorporation of these measures would reduce this potentially significant impact to a less-than-significant level.

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Impact GEO-5: The project site may be located on expansive soils (Less than Significant with Mitigation).

The expansive nature of the native soil is of significant geotechnical concern in this region. Expansive soils may cause structural damage, representing a potentially significant impact. A design-level geotechnical exploration will characterize risks related to soil expansion. Based on this evaluation, **Mitigation Measure GEO-2** would ensure that the risk of expansive soils is reduced through the application of appropriate grading and foundation design measures. In addition, **Mitigation Measure GEO-1** would ensure that design recommendations are consistent with the California Building Code. Incorporation of these measures would reduce the potentially significant impact to a less-than-significant level.

4.7.4 CUMULATIVE IMPACTS

The cumulative context for geology and soils includes any recent or near-future development in the project vicinity. However, geologic conditions within the San Francisco Bay Area and can vary widely, even among short distances. Therefore, seismic hazards related to recent and near-future development in the project vicinity are heavily influenced by site-specific features such as soil composition and slope, and do not have the potential to cumulate.

Due to the seismically active nature of the region, the recent and near-future development within the project vicinity, including the project itself, must conform

to general plan regulations and building codes that ensure adequate performance during a seismic event. Incorporation of these design requirements would avoid cumulative hazards related to regional seismic events.

4.7.5 REFERENCES

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4.8 GREENHOUSE GAS EMISSIONS

This section describes the existing greenhouse gas (GHG) conditions and analyzes the potential GHG emissions that would result from implementation of the project.

The information in this section is based on the following sources:

- Guidance adopted by the Bay Area Air Quality Management District (BAAQMD)
- An Air Quality and GHG Emissions Report provided by Illingworth and Rodkin, Inc. (see **Appendix B**)
- The Contra Costa County General Plan 2005-2020 (General Plan)
- The Contra Costa County Climate Action Plan (CCCCAP), adopted December 2015

The above-mentioned reports are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

No comments related to GHG emissions were received in response to the Notice of Preparation for this draft environmental impact report.

4.8.1 EXISTING CONDITIONS

Greenhouse gases trap heat in the atmosphere, preventing it from dissipating into outer space. The accumulation of GHGs in the atmosphere has been implicated as a driving force for global climate change. Definitions of climate change vary between regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and anthropogenic activities that alter the composition of the global atmosphere.

Individual projects contribute to the cumulative effects of climate change by emitting GHGs during demolition, construction, and operational phases. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and water vapor. While the primary GHGs in the atmosphere are naturally occurring CO_2, CH_4, and N_2O are largely emitted from human activities, accelerating the rate at which these compounds occur within the earth's atmosphere.

Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Other GHGs, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride have much greater heat absorption potential than CO_2, and are generated in certain industrial processes.

There is international scientific consensus that human-caused increases in atmospheric GHG concentrations have contributed and will continue to contribute to global warming, although there is uncertainty concerning the magnitude and rate of the warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, sea-level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include global rise in sea-level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

The California Air Resources Board (ARB) estimated that in 2015 California produced about 440.4 million gross metric tons of carbon dioxide equivalent (CO_2e) emissions.[1] The ARB found that transportation is the source of 37 percent of the State's GHG emissions, followed by industrial sources at 21 percent, and electricity generation at 19 percent (ARB, 2017).

In the San Francisco Bay Area (Bay Area), fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately 39.7 percent of the Bay Area's GHG emissions in 2011. Industrial and commercial sources (including office and retail uses) were the second largest contributors of GHG emissions with about 35.7 percent of total emissions. Electricity production accounts for almost 14 percent of the Bay Area's GHG emissions, followed by domestic sources (e.g., home water heaters, furnaces, etc.) at approximately 7.7 percent. Off-road equipment and farming account for approximately 1.5 percent of the total Bay Area GHG emissions (ARB, 2017).

4.8.2 REGULATORY SETTING

Federal

2009 Endangerment Finding

In December 2009, in response to a U.S. Supreme Court ruling, the U.S. Environmental Protection Agency (EPA) made a finding under the Federal Clean Air Act (CAA) that current and projected atmospheric concentrations of the six generally recognized GHGs (CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) "threaten the public health and welfare of current and future generations," and that emissions of these gases from new cars and trucks "contribute to the greenhouse gas pollution which threatens public health and welfare" (BAAQMD, 2015).

[1] The effect of a project on global climate change is calculated by quantifying project emissions of GHG. CO_2 is the "reference gas" for climate change, meaning that emissions of GHGs are typically reported in CO_2e.

In conjunction with EPA, the National Highway Traffic Safety Administration of U.S. Department of Transportation (DOT) developed the National Program for Greenhouse Gas emissions. The first phase rulemaking applies to light duty cars and trucks in model years 2012-2016, and requires an average fuel economy standard of 32.6 miles per gallon (mpg) in 2015 and 34.1 mpg in 2016. If the automotive industry were to meet this CO_2 level entirely through fuel economy improvements, the total CO_2 emissions reductions would be approximately 1.8 billion barrels of oil savings between 2012 and 2016.

State

California has been at the vanguard of State efforts to regulate and reduce GHG emissions and to plan for the effects of global climate change. The State recognizes that "there appears to be a close relationship between the concentration of greenhouse gases in the atmosphere and global temperatures" and that "the "evidence for climate change is overwhelming." The effects of climate change on California remain uncertain. According to a 2009 California Climate Adaptation Strategy final discussion report prepared by the California Climate Action Team Report, the following climate change effects and conditions can be expected to occur in California over the course of the next century:

- A change in the timing of precipitation, with more falling as rain and less as snow, resulting in a diminishing Sierra Nevada snowpack that would threaten the State's water supply.
- Increased average temperatures of up to 4.0-9.0 degree Fahrenheit (°F).
- A 25 to 35 percent increase in the number of days ozone pollution levels are exceeded in most urban areas.
- Increased vulnerability of forests due to pest infestation, increased temperatures, and lighting storms without precipitation.
- Increased challenges for the State's important agricultural industry from water shortages, increasing temperatures, and saltwater intrusion into the Delta.
- Increased electricity demand, particularly in the hot summer months.
- Sea-level rise of 12 to 18 inches by 2050 and 21 to 55 inches by 2100

State of California Executive Order S-3-05

In June 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emission of GHGs would be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels (ARB, 2017).

Executive Order B-30-15

Governor Jerry Brown signed Executive Order B-30-15s on April 29, 2015. The following are major provisions of the Executive Order:

1. A new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 is established in order to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.
2. All state agencies with jurisdiction over sources of greenhouse gas emissions shall implement measures, pursuant to statutory authority, to achieve reductions of greenhouse gas emissions to meet the 2030 and 2050 greenhouse gas emissions reductions targets.
3. The California Air Resources Board shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

The executive order does not apply directly to cities and counties, but will lead to the preparation of a new ARB Scoping Plan and the development of regulations to achieve post-2020 reduction targets.

Assembly Bill 32: The California Global Warming Solutions Act of 2006 (Scoping Plan Updated 2014)

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32), which requires the ARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

AB 32 establishes a timetable for the ARB to adopt emission limits, rules, and regulations designed to achieve the intent of the Act. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business as usual emissions levels or about 10 percent from today's levels. In May 2014, ARB released an updated Scoping Plan in 2014 to meet the 2020 GHG reduction limits outlined in AB 32. The Scoping Plan estimates a reduction of 174 million metric tons (about 191 million U.S. tons) of CO_2e (ARB, 2015).

Transportation Sector Reductions

Approximately one-third of the emissions reductions strategies fall within the transportation sector and include the following: California Light-Duty Vehicle GHG standards, the Low Carbon Fuel Standard, Heavy-Duty Vehicle GHG emission reductions and energy efficiency, and medium and heavy-duty vehicle hybridization, high speed rail, and efficiency improvements in goods movement.

Energy Sector Reductions

Emissions from the energy sector are expected to reduce another 25 million metric tons of CO_2e. Reductions from the electricity sector include building and appliance energy efficiency and conservation, increased combined heat and power, solar water heating (AB 1470), the renewable energy portfolio standard (33 percent renewable energy by 2020), and the existing million solar roofs program.

Other Reductions

Other reductions are expected from industrial sources, agriculture, forestry, recycling and waste, water, and emissions reductions from cap-and-trade programs. Regional GHG targets are also expected to yield a reduction of 23 million metric tons of CO_2e.

California's Regional Transportation and Land Use Planning Efforts (Senate Bill 375)

In addition to policy directly guided by AB 32, in 2008 the legislature passed Senate Bill (SB) 375, which provides for regional coordination in land use and transportation to incorporate a "sustainable communities strategy" into regional transportation plans that will achieve GHG emission reduction targets set by ARB.[2] SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. The Metropolitan Transportation Commission's (MTC) 2013 Regional Transportation Plan (RTP) will be its first plan subject to SB 375.

SB 375 requires ARB to establish regional GHG reduction targets for GHGs. ARB appointed a 21-member Regional Targets Advisory Committee to recommend factors to be considered and methodologies used in setting the regional goals; this committee provided its recommendations to ARB in September 2009.

Modification to the Public Resources Code (Senate Bill 97)

Pursuant to State Senate Bill (SB) 97, the Governor's Office of Planning and Research (OPR) was required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. OPR transmitted draft guidelines to the Resources Agency in June 2009. In September 2009, the Resources Agency released draft amendments to the CEQA Guidelines regarding GHG reductions. These draft guidelines were adopted on December 30, 2009, and went into effect on March 18, 2010. These CEQA Guidelines provide direction for determining the significance of impacts from GHG emissions on the environment.

BAAQMD adopted Air Quality Guidelines in May 2012 that include a significance threshold for GHG emissions within the Bay Area region. Refer to **Subsection 4.8.3**

[2] Senate Bill 375 was amended in September 2008.

for further discussion of the significance thresholds used in evaluating global climate change and GHG emissions for this project.

California's Energy Efficiency Standards for Residential Buildings, Title 24, Part 6, of the California Code of Regulations and California Building Code (Cal Green)

The Energy Efficiency Standards for Residential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Typically every three years energy efficiency standards are revised to include more stringent performance requirements. The 2016 standards went into effect January 2017 (California Building Standards Commission, 2017).

Regional

BAAQMD Climate Protection Program

In June 2005, BAAQMD established a Climate Protection Program to reduce pollutants that contribute to global climate change and affect air quality in the Bay Area. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy all of which assist in reducing emissions of GHG and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

BAAQMD CEQA Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. BAAQMD adopted revisions to the Guidelines in May 2011 that clarify application of several thresholds. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in BAAQMD 2012 updated CEQA Guidelines (BAAQMD, 2012).

BAAQMD's adoption of the thresholds was called into question by an order issued March 5, 2012, *in California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order required BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The claims made in the case concerned the environmental impacts of adopting the thresholds, that is, how the thresholds would indirectly affect land use development patterns. Those issues are not relevant to the scientific basis of BAAQMD's analysis of what levels of pollutants should be deemed significant. In August 2013, the First

District Court of Appeal held the adoption of the thresholds was not a "project" subject to CEQA review. Then in December 2013, the California Supreme Court granted a petition to review the question of whether the guidelines could compel evaluation of impacts of the environment on a project (i.e., "CEQA in reverse"). In December 2015, the Court held that CEQA generally does not require such an analysis. This analysis considers the science informing the thresholds as being supported by substantial evidence. Scientific information supporting the thresholds was documented in BAAQMD's proposed thresholds of significance analysis. This analysis herein uses the thresholds and methodologies from BAAQMD's May 2011 CEQA Air Quality Guidelines to determine the potential impacts of the Project on the existing environment.

BAAQMD framework is designed to implement AB 32. To derive its significance thresholds, BAAQMD estimated the growth in statewide GHG emissions between 1990 and 2020 attributable to "land use" related planning. These planning considerations include transportation, electric power, commercial and residential configurations (influencing vehicle miles traveled), and recycling and waste. BAAQMD documents show that a 26.2 percent reduction from statewide land use related greenhouse gas emissions would be necessary to meet the AB 32 goals. To effect these reductions, BAAQMD adopted an efficiency threshold (i.e., 4.6 metric tons of carbon dioxide equivalent emissions per member of a project service population). This threshold is discussed in **Subsection 4.8.3**.

Local

Contra Costa County General Plan

The General Plan recognizes the positive impact that judicious land use and transportation planning at the city and county level represents another means of improving air quality. The following General Plan policies pertaining to GHG emissions apply to the project:

8-103: When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

8-104: Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

8-107: New Housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Project Consistency Analysis

The project conforms to the General Plan policies 8-103 and 8-104, through the compilation of this draft environmental impact report, and the identification of mitigation measures necessary to remediate the emissions from project buildout. Additionally, the project is consistent with General Plan policy 8-107, as the project

is in within the Urban Limit Line (ULL) and would be utilizing previously developed space to construct new residential units, as well as dedicating the existing open space to the Land Conservancy trust, the HOA, or public agency.

Contra Costa County Climate Action Plan

On December 15, 2015, the Board of Supervisors approved the CCCCAP. The CCCCAP identifies specific measures on how the County can achieve a GHG reduction target of 15 percent below baseline levels by the year 2020. In addition to reducing GHGs, the CCCCAP includes policies and actions to improve public health and provide additional community benefits, and it lays the groundwork for achieving long-term greenhouse reduction goals for a qualified 2020 and 2035 GHG Reduction Strategy. The CCCCAP contains an analysis demonstrating that it meets BAAQMD's minimum standards for a qualified GHG reduction strategy. Therefore, the primary means of determining project significance is through an assessment of consistency of the project with the CCCCAP.

Project Consistency Analysis

The CCCCAP provides performance criteria to ensure that new projects are consistent with and do not compromise the County's ability to attain GHG reduction targets. As discussed in **Subsection 4.8.3**, the project would be consistent with applicable CCCCAP GHG reduction measures with application of **Mitigation Measure GHG-1**.

4.8.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

GHG impacts are evaluated in the context of the cumulative condition, since no single land use (during construction or operation) can generate enough project-level emissions to change the global average temperature. No project-level impacts are therefore identified.

BAAQMD adopted the following CEQA thresholds of significance to clarify the evaluation of GHG emissions in the cumulative context:

- 1,100 metric tons (MT) of CO_2e per year); or

- 4.6 MT of CO_2e per project service population member per year.

Discussion of Less-than-Significant Impacts

Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Short-term GHG emissions associated with project construction activities, would consist primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the project are discussed below and were analyzed using the methodology recommended in the 2011 BAAQMD CEQA Air Quality Guidelines.

Construction

Neither BAAQMD nor the County has an adopted threshold of significance for construction-related GHG emissions. For the purpose of this analysis, GHGs emitted during project construction were compared to BAAQMD's 1,100 MT of CO_2e per year threshold for operational impacts. Construction-related GHG emissions were estimated at 274 MT of CO_2e (see **Appendix B**), well below the applicable threshold.

Operation

In their May 2011 update to the CEQA Air Quality Guidelines, BAAQMD identified screening sizes for land use projects that could result in significant GHG emissions. For operational impacts related to single-family residential projects, the screening size is 56 dwelling units. GHG emissions from operation of single-family projects below this threshold are expected to be below BAAQMD significance threshold of 1,100 MT of CO_2e. Since the project proposes 35 dwelling units, this operational impact would be less than significant.

Discussion of Potentially Significant Impacts

Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Impact GHG-1: The project could conflict with the Contra Costa County Climate Action Plan.

As noted above, the project would emit greenhouse gases in amounts significantly below BAAQMD's thresholds and screening criteria, and therefore the project is consistent with BAAQMD policies. The project is also consistent with Plan Bay Area, the region's sustainable communities strategy. While not located in a Priority Development Area (PDA), the project site is located near the PDA that encompasses Danville, and is located less than 1 mile from Interstate 680, a major transportation

corridor providing project residents with access to complementary uses that minimizes vehicle miles traveled.

Additionally, the CCCCAP serves as a Qualified Greenhouse Gas Reduction Strategy approved by BAAQMD to reduce GHG emissions in accordance with AB 32 goals. As discussed in **Appendix B**, Appendix E of the CCCCAP provides the following performance criteria to ensure that new projects are consistent with, and do not compromise, the County's ability to attain GHG reduction targets:

- **Measure EE 1: Energy-Efficient Retrofits – Residential Buildings.** Provide opportunities for residential buildings to become more energy efficient.
- **Measure EE 6: Energy-Efficient New Buildings.** Support the statewide transition to net zero energy construction for new residential buildings by 2020.
- **Measure RE 1: Alternative Energy Installations.** Promote installation of alternative energy facilities on homes and businesses.
- **Measure LUT 2: Alternative-Fuel Infrastructure.** Expand the use of alternative fuels in vehicle travel.

A significant impact would occur if the project did not comply with these GHG reduction goals. **Mitigation Measure GHG-1** would require improvements to achieve consistency with applicable CCCCAP GHG reduction measures.

Mitigation Measure GHG-1: The following improvements will be included as requirements for building permits for any applicable structure on the project site:

- The proposed project shall install high-efficiency kitchen and laundry appliances (e.g., Energy Star-rated appliances or equivalent). Tankless water heaters or a similar hot water energy-saving device or system shall be installed.
- The project proponent will develop a solar exposure study to determine which residences would benefit from solar energy. The solar study will be submitted prior to obtaining a building permit. Residences that would cost-effectively benefit from solar energy shall be wired to be solar ready, as defined by the California Building Standards Code. Residences that would not cost-effectively benefit from solar energy shall have the attic insulated with R-49 insulation batts to prepare for the statewide transition to zero net energy.
- The proposed project shall provide prewiring for electric vehicle charging stations for each residence.

Significance after Mitigation: With implementation of the energy-saving measures established by **Mitigation Measure GHG-1**, the project would comply with applicable performance criteria established by the CCCCAP. This impact would be less than significant.

4.8.4 REFERENCES

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4.9 HAZARDS AND HAZARDOUS MATERIALS

This section describes potential hazards and hazardous materials related to the project. The information in this section is based on the following reports:

- The Environmental Data Review (EDR) and accompanying Radius Map Report compiled by Environmental Data Resources, Inc. (see **Appendix J**)
- Agricultural Assessment prepared by ENGEO in July 2008 (see **Appendix K.1**)
- Agrichemical Impact Assessment prepared by ENGEO in November 2015 (see **Appendix K.2**)
- Underground Storage Tank Remediation Report prepared by ENGEO in October 2009 (see **Appendix L**)
- Phase I Environmental Site Assessment prepared by ENGEO in November 2015 (see **Appendix M**)
- United States Geological Survey topographical maps
- The Contra Costa County General Plan 2005-2020 (General Plan)

These documents are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation submitted for the project, residents within the surrounding neighborhood expressed concern regarding potential hazardous materials exposure related to previous agricultural use of the project site. This issue is addressed below.

4.9.1 EXISTING CONDITIONS

The project site contains a residential estate, which was constructed between 1912 and 1914, while the caretaker's quarters, pool house, barn, and office complex were constructed in subsequent years. Topographic maps of the project area (1897, 1959, and 2015) by the United States Geological Survey (USGS) were reviewed to determine historical land uses in the project vicinity. Based on a review of these resources, residential development was present in the project vicinity by 1959. The project site was used for agricultural purposes in the early 1950s, and produced walnuts from the two orchards located on the northern and southeastern borders of the property; however, both orchards have been out of production for at least 20 years.

Underground Storage Tanks

Records from the State and Tribal Underground Leaking Storage Tanks List indicate that two 500-gallon underground storage tanks (USTs) were removed from the project site southwest of the carport structure (ENGEO, 2009). These USTs were removed in February 2000 under the oversight of the Contra Costa County Health Services Department (CCCHSD) (ENGEO, 2008). A groundwater sample collected during this excavation contained elevated levels of gasoline, methyl tertiary butyl ether (MtBE), and benzene. No remedial action occurred, and the pit was backfilled with imported aggregate.

In 2008, ENGEO performed an assessment of the former UST site, and detected gasoline, diesel, toluene, ethylbenzene, total xylenes, and MtBE in soil. Groundwater was not encountered in this investigation. ENGEO concluded that groundwater reported during the UST removal consisted of a perched zone of water associated with the UST basin, and does not indicate the presence of a larger groundwater basin beneath the project site. Following excavation of the site in November 2008 and the removal of 25 cubic yards of contaminated soil, soils in the UST vicinity were deemed suitable for residential uses (ENGEO, 2009). The Regional Water Quality Control Board (RWQCB) issued a No Further Action Letter for this UST site on November 30, 2010 (RWQCB, 2010). Refer to **Appendix L** for ENGEO's UST Remediation report.

In addition to the USTs at the project site, the EDR search of the Contra Costa County Site List revealed that there was a third UST located at 172 La Sonoma Way, 0.234 mile from the project site (EDR, 2014). The EDR lists this UST as "Inactive," and a residential property currently exists where the tank may be located. Refer to **Appendix J** for the full text of the EDR.

Wildland Fire Hazards

The entire project area is outside of the Local Response Area "Very High Fire Hazard Severity Zone" (VHFHSZ) designated by the California Department of Forestry and Fire protection (CAL FIRE). The project site falls within the Non-VHFHSZ area, where the probability of naturally caused fires and fire-related hazards are low (Contra Costa County, 2009).

Pesticide Use

Due to the past agricultural use of the property, an agricultural assessment of the two non-producing walnut orchards was prepared for the project site in July 2008 (see **Appendix K.1**). The assessment involved the sampling and laboratory analysis of 13 soil samples taken from the orchard area within one of the two Assessor's Parcel Numbers (APN) within the project site: APN 198-170-006-3. This analysis detected concentrations of organochlorine pesticides within this APN at concentrations well below the California Health Screening Levels (CHHSLs) for land

residential uses. In addition, arsenic and lead were detected in soils within this APN, but were determined to exist at concentrations consistent with the background soil concentration for the State of California and were therefore deemed safe. These findings were reconfirmed by an Agrichemical Impact Assessment conducted by ENGEO in November, 2015 (see **Appendix K.2**).

4.9.2 REGULATORY SETTING

Federal

The Environmental Protection Agency (EPA) is responsible for enforcing regulations related to hazardous materials and wastes, including evaluation and remediation of contamination. The EPA works collaboratively with other agencies to enforce materials handling and storage regulations and site cleanup requirements. The Department of Transportation (DOT) is authorized to regulate safe transport of hazardous materials.

Primary Federal laws pertaining to hazardous materials and wastes include the Resource Conservation and Recovery Act of 1976 (RCRA) and the Comprehensive Environmental Responsibility, Compensation, and Liability Act of 1980 (CERCLA). RCRA includes procedures and requirements for reporting releases of hazardous materials, and for cleanup of such releases. RCRA also includes procedures and requirements for handling hazardous wastes or soil or groundwater contaminated with hazardous wastes. CERCLA delineates the liability for contamination between current property owners and others. The Hazardous Materials Transportation Act is administered by the DOT via its performance of inspections and training, and its issuance of transportation guidelines. The Federal government delegates enforcement authority to the states.

Project Consistency Analysis

Activities associated with construction and operations of the project will be conducted in accordance with applicable Federal laws.

State

State agencies that regulate hazardous materials and contamination include the Department of Health Services (DHS), the Department of Toxic Substances Control (DTSC) and the RWQCB. The DTSC administers EPA's Office of Environmental Health Hazard Assessment (which establishes the CHHSLs regarding public health effects of soil contamination), while the RWQCB administers State water quality standards for surface and groundwater. Lead responsibility for remediation depends on the proposed use of a parcel, the character of waste contaminants, and the need for site monitoring. Transport of hazardous materials is administered by the

Department of Transportation (Caltrans) and enforced by the California Highway Patrol (CHP).

Relevant State laws that address soil and water pollution, hazardous materials storage, handling, transport and disposal include the State Water Code, Underground Storage Tank Code, Cortese Act (listing of hazardous waste and substances sites), and Proposition 65 (safe drinking water and toxics enforcement).

Project Consistency Analysis

Relevant State regulatory requirements will be implemented for the project at the time of preliminary development plans. Due to the fact that the project does not propose land uses likely to utilize hazardous materials and/or petroleum products, the State laws that regulate the storage, handling, transport, and disposal of hazardous materials are not anticipated to be applicable to project operations.

Local

The CCCHSD requires a permit for destruction of any abandoned wells and septic tanks. If the existence of such facilities are known in advance or are discovered during construction or other activities, these should be clearly marked, kept secure, and destroyed or abandoned pursuant to CCCHSD requirements.

Contra Costa County General Plan

The Safety and the Public Facilities/Services elements of the General Plan contain the following relevant policies associated with hazards and hazardous materials.

Safety Element

10-61: Hazardous waste releases from both private companies and from public agencies shall be identified and eliminated.

10-62: Storage of hazardous materials and wastes shall be strictly regulated.

10-63: Secondary containment and periodic examination shall be required for all storage of toxic materials.

Public Facilities/Services Element

7-80: Wildland fire prevention activities and programs such as controlled burning, fuel removal, establishment of fire roads, fuel breaks, and water supply shall be encouraged to reduce wildland fire hazards.

Project Consistency Analysis

The project would be in compliance with the General Plan policies related to hazards and hazardous materials. As discussed in this subsection, the previously existing UST has been removed in accordance with CCCHSD policies and General Plan policy 10-61. In regard to General Plan policies 10-62 and 10-63, it is not anticipated that toxic substances would be stored onsite. The project site is also not

located in an area typically associated with wildfires. Though the project site was previously utilized for agricultural purposes, soil from the project site was tested for agricultural contaminants and did not exceed EPA screening thresholds (see **Appendix K.1** and **Appendix K.2**).

4.9.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- 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.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- 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 create a significant hazard to the public or the environment.
- 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 for people residing or working in the project area.
- For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation system.
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urban areas or where residences are intermixed with wildlands.

Discussion of No Impacts

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 for people residing or working in the project area?

The project is located approximately 12 miles southeast of the Buchanan Airport. A review of the Contra Costa County Airport Land Use Compatibility Plan indicates that the project site is not located within the airport sphere of influence (County Airport Land Use Compatibility Plan, 2000). Therefore, implementation of the project would not result in a safety hazard for construction workers or future residents. No impact would occur.

For a project in the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The Little Hands private airstrip, the nearest private airstrip, is located approximately 2 miles south of the project site in the San Ramon area. The project does not include any towers or other vertical obstructions that would extend beyond the existing height of surrounding structure or topography, and does not represent a unique hazard to the operations of this airstrip. No impact would occur.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation system?

The project would not result in any substantial modification to existing public roadways that would impair emergency access in the vicinity of the project site. As described in **Chapter 3.0, Project Description**, a 20-foot-wide paved emergency vehicle access road (EVA) would be constructed between Lots 5 and 6, connecting the existing Ironwood Place (terminating at the northwest project site boundary) to the proposed extension of Ironwood Place (see **Figure 3-4**). An 8-foot high EVA gate attached to an 8-foot fence would be installed on the common property line between the new project and the existing Ironwood Place. Thus, the project would not impair implementation of, or physically interfere with, an adopted emergency response plan, or emergency evacuation system. No impact would occur.

Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment?

A review of regulatory databases found that the project site was included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 as a UST site. These USTs were removed in February 2000, as was more extensively

discussed above and in **Appendices K-M**. Subsequent excavation in November 2008 removed 25 cubic yards of contaminated soil, and this case was closed in November 2010 by the RWQCB. No impact would occur.

Discussion of Less-than-Significant Impacts

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The closest school in the project vicinity is Rancho Romero Elementary School located 0.3 mile north of the project site. Given the distance of the school from the project site, there are no anticipated impacts associated with the potential emission of, or exposure to, hazardous materials, substances, or wastes. Additionally, with compliance to local, State, and Federal regulations, as they pertain to the handling and disposal of hazardous materials and wastes, impacts to existing or proposed schools in the project vicinity would be reduced to a less-than-significant level.

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

During construction and grading, diesel fuels, solvents, and similar substances would be transported to and used at the project site related to the operation and maintenance of heavy construction equipment. The transport and use of such materials would be for a short-term duration and would be limited to the quantities required for construction and grading. No significant impact would result from the transport or use of such materials over the construction and grading period. The transport of such materials is overseen by Federal and State regulators to ensure public safety.

The proponent proposes a project that would not entail the routine use, transport, or disposal of hazardous materials as part of its day-to-day operations. No substantial quantities of hazardous materials would be stored on-site during operation, save for small amounts of common cleaning and landscaping products that are typically found in most residences, commercial buildings, and institutional facilities. Given the above, potential impacts associated with the use, transport, and storage of hazardous materials would be less than significant.

Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urban areas or where residences are intermixed with wildlands?

The project site is bounded by residential land uses to the north, northeast, southeast, and east. Lands west of the project site are designated as open space.

The General Plan does not identify the project site as a high-risk zone for wildland fires (Contra Costa County, 2009), though the property lies within a State Responsibility Area and is in a Fire Hazard Severity Zone designated as "high." Responsibility for fire protection has been transferred to the San Ramon Valley Fire Protection District (SRVFPD). The SRVFPD would require increased fire flow, fire hydrants, and adequate access roads designed to accommodate fire engines, which have been incorporated as elements of project design.

As noted in **Section 3.0, Project Description**, 100 feet of defensible space will be maintained between the project and the surrounding natural area consistent with California Public Resources Code 4291. The Homeowners Association will be responsible for reducing the amount of fuel within 100 feet of structures through annual mowing, grazing, pruning lower limbs from trees, and removing dead vegetation. Additionally, the Proposed Vesting Tentative Map includes a buffer zone (Parcel C, described in **Chapter 3.0, Project Description**) which serves as a 3.7-acre fire break located between the residential units and the open space area. This impact would be less than significant.

Discussion of Significant Impacts

Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Agrichemicals

Impact HAZ-1: Soils within portions of the project site could contain residual agrichemicals (Less than Significant with Mitigation).

The Agrichemical Impact Assessment determined that residual soil contamination levels are below applicable EPA screening thresholds for APN 198-170-006, and that this portion of the project site is safe for residential development (ENGEO, 2015a). In addition, ENGEO confirmed that residually-contaminated soil would not pose an impact to nearby residents if mobilized as airborne dust (ENGEO, 2017).

However, due to previous agricultural uses of the project site, this report has conservatively determined that portions of APN 198-170-008 proposed for residential development may contain elevated levels of agrichemicals that may endanger construction workers or future residents. Implementation of **Mitigation Measure HAZ-1** would reduce impacts related to residual agrichemicals.

> ***Mitigation Measure HAZ-1***: Prior to issuance of any demolition, grading, or building permit, a site evaluation will investigate for agrichemical contamination on portions of APN 198-170-008 proposed for residential development. Soil samples will be collected and tested for organochlorine pesticides, lead, and

arsenic by a qualified professional to assess potential environmental impacts from past agricultural practices. Concentrations of agricultural contaminants will be compared to applicable EPA screening levels for residential development. The project applicant will be required to submit a comprehensive report to the County, signed by a qualified environmental professional, documenting the presence or lack of agrichemicals on APN 198-170-008. If this assessment finds presence of such chemicals, the project applicant will create and implement a remediation plan that ensures workers and future residents are not exposed to concentrations in excess of applicable EPA screening levels and risks associated with these agrichemicals. Potential safety measures could include soil removal and treatment or protective work attire requirements for construction workers.

Significance after Mitigation: With implementation of **Mitigation Measure HAZ-1**, potential agricultural contaminants on the project site would be investigated and, if necessary, remediated. This impact would be less than significant.

Hazardous Building Materials

Impact HAZ-2: Demolition of existing structures on the site could result in the release of lead, asbestos, and other contaminants (Less than Significant with Mitigation).

Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable Federal regulations regarding hazardous air pollutants, including asbestos. The Bay Area Air Quality Management District is vested with authority to regulate airborne pollutants through both inspection and law enforcement, and must be notified 10 days in advance of any proposed demolition or abatement work. The U.S. Occupational Safety and Health Administration require that asbestos be handled by properly certified professionals.

Prior to 1978, lead compounds were commonly used in interior and exterior paints. Prior to the 1980s, building materials often contained asbestos fibers to provide strength and fire resistance. Because of the age of the existing structures on the estate, hazardous materials such as lead based paint (LBP) and asbestos could be present, and demolition of these structures therefore has the potential to release lead particles, asbestos fibers, and/or other hazardous materials that could be inhaled by construction workers and the public. In addition, other common items such as electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats can contain hazardous materials.

The presence of hazardous building materials within existing structures on the project site represents a potentially significant impact. Implementation of **Mitigation Measure HAZ-2** would reduce impacts related to these materials.

> ***Mitigation Measure HAZ-2***: Prior to issuance of any demolition, grading, or building permit, the project applicant shall submit a comprehensive report to the County, signed by a qualified environmental professional, documenting the presence or lack of asbestos, lead-based paint, and any other building materials or stored materials classified as hazardous waste by State or Federal law. If this assessment finds presence of such materials, the project applicant shall create and implement a health and safety plan to ensure workers are not exposed to contaminants in excess of OSHA and other applicable State and Federal standards and associated risks associated with hazardous materials during demolition, renovation of affected structures, transport, and disposal.

Significance after Mitigation: With implementation of **Mitigation Measure HAZ-2**, potentially hazardous building materials within structures on the project site would be investigated and, if necessary, remediated. This impact would be less than significant.

4.9.4 CUMULATIVE IMPACTS

The cumulative setting for Hazards and Hazardous Materials includes the project and the three proposed developments within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts and Mitigation Measures**). These developments include residential subdivisions and a church expansion, and their implementation, when considered cumulatively, would not have a significant cumulative impact to hazards and hazardous materials.

According to the General Plan Impacts and Mitigation Summary, new developments generate potential significant impacts related to risk of accidental release of hazardous materials associated with heavy industry and other land uses requiring the use, transport, and storage of hazardous materials. Additionally, any new residential developments would increase the number of people in proximity to these uses thereby increasing their risk of exposure. Although not specifically assumed in the General Plan, the three cumulative projects are residential developments, and the last is a church expansion. These project types do not routinely involve the use of hazardous or acutely hazardous materials, and would not represent a new significant hazard to the public or the environment that was not considered in the General Plan.

Additionally, hazardous materials are strictly regulated by local, State, and Federal laws specifically to ensure that they do not result in a gradual increase to toxins in the environment. The County general plan includes policies that reinforce these regulations by requiring construction and operation pursuant to applicable

standards and regulations, submittal of hazardous materials business plans, risk management and prevention program information, secondary containment, and creation of buffer zones for adjacent development. Any past, present, or future developments would have to adhere to these policies as part of the development review and construction permitting process.

All of the projects listed in **Table 4-1** of **Chapter 4.0, Setting, Impacts, and Mitigation Measures**, of this draft environmental impact report are consistent with the land use designations identified in the General Plan and were therefore assumed as part of the analysis contained in the General Plan. Additionally, the project includes **Mitigation Measures HAZ-1** and **HAZ-2** which would reduce impacts related to hazards and hazardous materials are at a less-than-significant level. Given this, no cumulative impact would occur.

4.9.5 REFERENCES

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Contra Costa County, 2009. *Very High Fire Hazard Severity Zones in Local Response Area.* Available: http://frap.cdf.ca.gov. Accessed September 1, 2015.

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United States Geological Survey, 1959. *Concord Quadrangle California 15 Minute Series.* 1:62500.

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4.10 HYDROLOGY AND WATER QUALITY

This section describes hydrologic and flooding characteristics of the project site and vicinity and analyzes the potential for the project to impact water quality, groundwater, surface drainage, and flooding. Information regarding hydrology and water quality to provide a basis for the analysis of potential impacts was obtained through:

- Geotechnical Exploration, prepared by ENGEO in 2013 (see **Appendix I**)
- Preliminary Drainage Study, prepared by Aliquot Associates in August 2017 (see **Appendix N**)
- Walnut Creek Watershed Atlas
- California Environmental Protection Agency State Water Resources Control Board
- Contra Costa County Mapping Information Center
- Personal Communication with Brooks Ramsdell, Engineering Geologist, ENGEO
- *The Contra Costa County General Plan 2005-2020* (General Plan)
- Stormwater Control Plan, prepared by Aliquot Associates in March 2018

These reports are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation for this draft environmental impact report, the County received a comment from a local resident regarding inadequate drainage on the southeast corner of the project site, noting that added hardscape will worsen these conditions. This comment is addressed in the following sections.

4.10.1 EXISTING CONDITIONS

Regional Characteristics

The project site is located in Contra Costa County within a valley bound to the west by the East Bay Hills and to the east by the Mount Diablo range. Nearly all the County's creeks originate in the high elevations of these two mountain ranges before flowing down to the valleys and coastal plains. Approximately 1,350 miles of waterways run through the County's 31 watersheds and subwatersheds (Contra Costa County Community Development Department, 2004).

The project site is located within the San Ramon Creek Watershed, a subwatershed of the Walnut Creek Watershed. As San Ramon Creek flows north through the San Ramon Valley, it collects Bollinger Canyon Creek, Green Valley Creek, and Sycamore Creek as they drain the surrounding hillsides. Upon reaching the City of Walnut Creek, San Ramon Creek's main channel flows underground and intersects Las Trampas Creek to form Walnut Creek. Walnut Creek flows down flood control channels into the tidal Pacheco Slough (sometimes referred to as Lower Walnut Creek). Pacheco Slough passes through Concord Marsh, a 6,500 acre complex of tidal mashers that drains Peyton Creek, Walnut Creek, and Mount Diablo watersheds, before emptying into Suisun Bay (Walnut Creek Watershed Council, 2013).

Local Hydrology

The project site is a mostly undeveloped area at the toe of Las Trampas Ridge. Though the project site is fairly flat, it borders very steep terrain along the western adjacent open space area. Site elevations within the project site range from 350 to about 384 feet above mean sea level, and existing development contributes about 131,571 square feet of impervious surface,[1] or approximately 5 percent of the total project area (Aliquot Associates, 2018a). The principal hydrologic sources for the study area are direct precipitation, surface runoff from surrounding uplands, and channelized flow through the seasonal channels.

There are two creek drainages that convey seasonal runoff from open space land to the west through the project site. Drainage 1 cuts through the middle of the project site, as indicated in **Figure 4.10-1**. This feature is non-navigable, seasonal to relatively permanent, and extends for 1,364 linear feet. Drainage 2 is a seasonal channel that extends for approximately 217 linear feet along the southeastern border of the project site. It conveys a low volume of surface flow on an infrequent basis. Both drainages discharge into the storm drain system, which empties into San Ramon Creek (Mosaic Associates, 2016).

As shown in **Figure 4.10-1**, there are five areas of seasonal freshwater wetland within the project site:

- Wetland 1 is located west of the residence, and appears to be isolated.
- Wetland 2 is located in the eastern portion of the project site, and is associated with culverted discharge from Drainage 2. Wetland 2 may also be associated with a seep resulting from earthwork to create the office building pad.

[1] Impervious surface refers to materials and structures that cannot be penetrated by water. Examples include concrete streets, the roofs of buildings, and highly compacted soil.

- Wetland 3 is located just east of Wetland 2, and is situated in a low-lying portion of the project site next to a culvert that conveys runoff from this area into stormwater system beneath Camille Lane.
- Wetland 4 is located on East Bay Regional Park District (EBRPD) property southwest of the project area, situated immediately upstream and in the same channel as Drainage 2.
- Wetland 5 is located just west of Wetland 4, situated in an opening surrounded by eucalyptus trees.

Drainage and Stormwater

The majority of stormwater runoff on the project site currently percolates into the soil or collects in the on-site Drainages (Aliquot Associates, 2018b). Stormwater that does not infiltrate into the ground eventually drains via channelized and overland flow into a drainage system under Camille Avenue (Camille Avenue system), which ultimately delivers water to San Ramon Creek. Portions of the site also drain to a system at Hemme Avenue, which also delivers water to San Ramon Creek.

Three local drainage areas convey water from the eastern slope of Las Trampas Ridge through the project site before ultimately emptying into San Ramon Creek. These drainages are discussed in detail below and shown on **Figure 4.10-1.**

- **Drainage Area I** drains the northeastern 28.31 acres of the project site. Sheet flow commences at the western edge of the open space and passes through the site before entering a ditch, which intersects with a catch basin to a 30-inch stormwater pipe at Hemme Avenue that empties into San Ramon Creek.
- **Drainage Area II** extends 0.76 mile west to Las Trampas Ridge, encompassing 157.42 acres with an elevation difference of nearly 1,000 feet. Runoff flows from Las Trampas Ridge through EBRPD's land and the open space west of the project site. This water is conveyed through the project site within small, shallow, rock-lined stream (Drainage 1), which continues through the project site to the Camille Avenue system.

  The Camille Avenue system begins at a concrete headwall/drop structure. A 48-inch drain pipe exits the structure and expands to a 60-inch pipe at the intersection of Escondido Court and Camille Avenue before emptying into San Ramon Creek. The existing Camille Avenue storm drain system was designed in 1969 and assumed more intense development of the Drainage Area II (Aliquot Associates, 2018b).
- **Drainage Area III** consists of 27.28 acres that contribute stormwater through the site before entering Camille Avenue system at Escondido Court. A portion of this drainage site falls outside of the project boundary, but still contributes runoff to the site. Beginning in EBRPD lands, runoff flows into a small creek

(Drainage 2) along the southern border of the proposed residential area, than sheet flows to a 10-inch outlet pipe at the southeast corner of the project site. The drainage continues across Camille Lane through a series of pipes before entering the Camille Avenue system at the intersection of Escondido Court.

Flooding

A review of the Federal Emergency Management Agency (FEMA) Flood Zone Maps for the County indicates that the project site is not subject to flooding during a 100-year flood event (Federal Emergency Management Agency, 2009). The project site and immediate vicinity are designated as an unshaded "Zone X," delineating a minimal flood risk hazard according to FEMA. Such lands are considered outside areas where flooding could occur on a 500-year basis. The nearest floodway areas are San Ramon Creek and a flood zone located 750 feet northwest of the northern corner of the project site (Contra Costa County Mapping Information Center, 2015).

Groundwater

Groundwater was not encountered on the project site during a geotechnical investigation (ENGEO, 2013). Field expeditions occurred in late-July, early-August of 2008, and included excavating seven test pits, which ranged from 2.5 feet-10 feet deep, and a 218-foot-long exploratory trench that averaged 10 feet to 12 feet deep. The study acknowledged groundwater fluctuations may occur based on annual variations in precipitation, temperature, irrigation, and other seasonal factors.

The project site is lies within a priority basin in the California Statewide Groundwater Elevation Monitoring Program (CASGEM). This program is designed to track seasonal and long-term trends in groundwater elevations in California's groundwater basins. Within the CASGEM program, the basin below Alamo is designated with "very low" priority (California Department of Water Resources, 2014).

Water Quality

Pollutant sources discharging to creeks and other bodies of water may include both "point" and "nonpoint" discharges.

A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a water body from such sources as industrial facilities or wastewater treatment plants. Point sources are subject to measures designed to protect the overall water quality of the creeks and San Francisco Bay, including water quality requirements, periodic monitoring, annual reporting, and prohibitions of the discharge of pollutants by regulatory agencies, as well as other requirements.

Nonpoint pollutant sources are sources that do not have a single, identifiable discharge point, but are rather a combination of many sources. A nonpoint source can be stormwater runoff from land that contains, for example, petroleum from

parking lots, pesticides from farming operations, or sediment from soil erosion. Section 303(d) of the Federal Clean Water Act requires that states develop a list of impaired water bodies that do not meet water quality standards. As of January 2017, the San Ramon Creek did not appear on the list of impaired streams prepared by the Regional Water Quality Control Board (RWQCB) (California Environmental Protection Agency State Water Resources Control Board, 2017).

4.10.2 REGULATORY SETTING

Federal

Clean Water Act

The Clean Water Act (CWA) was enacted by Congress in 1972 and amended several times since inception. It is the primary federal law regulating water quality in the United States, and forms the basis for several State and local laws throughout the country. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribed the basic federal laws for regulating discharges of pollutants as well as set minimum water quality standards for all "waters of the United States." Several mechanisms are employed to control domestic, industrial, and agricultural pollution under the CWA. At the Federal level, the CWA is administered by the U.S. Environmental Protection Agency (EPA). At the State and regional level, the CWA is administered and enforced by the State Water Resources Control Board (SWRCB) and the RWQCB. The State of California has developed a number of water quality laws, rules, and regulations, in part to assist in the implementation of the CWA and related federally mandated water quality requirements. In many cases, the Federal requirements set minimum standards and policies and the laws, rules, and regulations adopted by the State and regional boards exceed the Federal requirements.

Project Consistency Analysis

The project would include a storm water drainage and treatment system to convey runoff into San Ramon Creek. Bioretention facilities would serve as soil filtration and would treat the water to reduce water quality impacts to receiving waters.

The system will be designed per criteria in the C.3 Stormwater Technical Guidance Manual and the California Stormwater Best Management Practice Handbook to provide a level of treatment that meets or exceeds existing standards, as described elsewhere in this section. During construction, erosion control and stormwater pollution prevention plans would prevent construction-related pollution from contaminating downstream receiving waters consistent with the above mentioned documents. As such, the project would be consistent with the CWA.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act establishes the SWRCB and the RWQCB as the principal State agencies having primary responsibility for coordinating and controlling water quality in California. The Porter-Cologne Act establishes the responsibility of the RWQCBs for adopting, implementing, and enforcing water quality control plans (Basin Plans), which set forth the state's water quality standards (i.e., beneficial uses of surface waters and groundwater) and the objectives or criteria necessary to protect those beneficial uses.

National Pollution Discharge Elimination System (NPDES)

Water runoff quality is regulated by the Federal National Pollution Discharge Elimination System (NPDES) program (established by the Clean Water Act of 1972). The NPDES objective is to control and reduce pollutants to water bodies from non-point discharges. RWQCB administers this program throughout the state. The RWQCB issues NPDES point source permits for discharges from major industries and non- point source permits for discharges to water bodies in the Central Valley region for the municipality's other dischargers.

Additionally, improvement projects disturbing more than 1 acre of land during construction are required to file a Notice of Intent (NOI) to be covered under the State NPDES General Construction Permit for discharges of storm water associated with construction activity. A developer must propose control measures that are consistent with the State General Construction Permit. A Storm Water Pollution Prevention Plan (SWPPP) must be developed and implemented for each site covered by the state's General Permit. A SWPPP must include "Best Management Practices" (BMPs) designed to reduce potential impacts to surface water quality through the construction and life of the project.

Contra Costa County Provision C.3 Requirements

The County has the authority to uphold its NPDES permit, and currently exercises this authority in its adopted Provision C.3 requirements. The provisions require the installation of post-construction BMPs for new development as part of the Federal NDPES program, and have set standards for their implementation.

In compliance with Provision C.3 of the NPDES Permit and the County's Stormwater Management and Discharge Control Ordinance (Section 1014), projects creating and/or replacing (redeveloping) impervious area exceeding 10,000 square feet shall submit a Storm Water Control Plan (SWCP) for the review and approval of the Public Works Department. The SWCP is a separate document from the SWPPP. Provision C.3 requires these projects to treat storm water runoff with permanent storm water management facilities, and requires projects creating and/or redeveloping

impervious area exceeding 1 acre to design such facilities to control runoff rates and volumes (in addition to treatment).

To comply with these requirements, new developments are required to install water quality storm water runoff BMPs that filter or treat rainfall runoff generated from storm events up to approximately the 85th percentile rainfall event (or approximately the 1-inch storm event) before discharging into natural drainage systems. Additional hydrograph modification BMPs are also required so that post-project runoff does not exceed pre-project rates or durations, such an increase could contribute to erosion in receiving waters downstream from the project.

Project Consistency Analysis

Consistent with NPDES and Provision C.3 requirements, the proponent submitted a SWCP with its development application. Information from the SWCP is included in the impact analysis discussions below.

Local

Contra Costa County General Plan

The General Plan includes the following policies to manage water resources and flood risk, which are presented in Chapter 7, Public Facilities/Services and Chapter 8, Conservation of the General Plan.

Public Facilities/Services Element

7-23: The County shall cooperate with other regulatory agencies to control point and non-point water pollution sources to protect adopted beneficial uses of water.

7-26: The need for water system improvements shall be reduced by encouraging new development to incorporate water conservation measures to decrease peak water use.

7-45: On-site water control shall be required of major new developments so that no significant increase in peak flows occurs compared to the site's pre-development condition, unless the Planning Agency determines that off-site measures can be employed which are equally effective in preventing adverse downstream impacts expected from the development or the project in implementing an adopted drainage plan.

7-46: Regional detention basins shall be favored over smaller, on-site detention basins.

7-55: As appropriate and to the extent allowed by law, assess all new development projects at least $0.35 per square foot of impervious surface created. This drainage fee is to be collected through existing County Flood Control drainage area fee ordinances, newly adopted drainage area fee

ordinances, existing and new assessment districts, or other financial entities. The fee may be applied to the cost of any developer-sponsored regional flood control improvements on- or off-site which mitigate the project's flooding impacts. Regional facilities are defined as systems sized to handle at least 15 cubic feet per second and suitable for public agency maintenance, i.e., 24-inch diameter and larger storm drains.

Conservation Element

8-23: Runoff of pollutants and siltation into marsh and wetland areas from outfalls serving nearby urban development shall be discouraged. Where permitted, development plans shall be designed in such a manner that no such pollutants and siltation will significantly adversely affect the value or function of wetlands.

8-91: Grading, filling and construction activity near watercourses shall be conducted in such a manner as to minimize impacts from increased runoff, erosion, sedimentation, biochemical degradation, or thermal pollution.

Project Consistency Analysis

The project would include a stormwater drainage and treatment system to convey runoff to San Ramon Creek. Bioretention facilities would allow runoff to from permeable surfaces to filter through the soil, thereby reducing water quality impacts to receiving waters. The project would not introduce any untreated storm water into the emergent marsh or wetland areas, consistent with policy 8-23.

The system would be designed per criteria in the C.3 Stormwater Technical Guidance Manual and the California Stormwater Best Management Practice Handbook to provide a level of treatment that meets or exceeds existing standards, as described elsewhere in this section. During construction, erosion control and storm water pollution prevention plans would prevent construction-related pollution from contaminating downstream receiving waters consistent with the above mentioned documents. As such, the project would be consistent with policies 7-45, 8-23, and 8-27.

4.10.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Violate any water quality standards or waste discharge requirements.

- Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional source of polluted runoff.
- Otherwise substantially degrade water quality.
- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structure which would impede or redirect flood flows.
- Expose people or structure to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Result in risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

Discussion of No Impacts

Would the project place within a 100-year flood hazard area structure which would impede or redirect flood flows?

and

Would the project place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary of Flood Insurance Rate Map or other flood hazard delineation map?

and

Would the project expose people or structure to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

FEMA publishes maps showing areas of flood risk. FEMA maps 06013C0433F and 06013C0434F show that the project site is not within a 100-year or 500-year flood zone. Therefore, the project would not expose people or structures to risks associated with a 100-year or 500-year flood event. No impact would occur.

Would the project result in risk of loss, injury or death involving inundation by seiche, tsunami or mudflow?

The project site is separated from the San Francisco Bay shoreline by more than 11 miles and substantial intervening topography. Therefore, the possibility of damage from a tsunami is low. Similarly, the project site is separated by over 5 miles and substantial topographical features from the Lafayette reservoir and Upper San Leandro Reservoir. It is not located adjacent to any large body of fresh water that could be expected to overtop its banks during an earthquake, so it is not subject to inundation due to seiche.

There is not a significant potential for mudflow due to the low gradient of the drainage areas west of the site (Ramsell, 2015). In addition, corrective grading measures used to mitigate the landslide hazards will further reduce risk of mudflows (see **Section 4.7, Geology and Soils**). No impact would occur.

Would the project substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

The project would not utilize groundwater for irrigation or drinking water, and would not therefore deplete groundwater. Water is provided to the project area by

East Bay Municipal Utility District (EBMUD). With respect to groundwater recharge, the project site contains 3.02 acres of impervious surfaces, or roughly 5 percent of the project site. Implementation of the project would add an additional 3.53 acres of impervious surface for a total of 6.55 acres of impervious surface, or approximately 10 percent of the project site. Although there is an increase in impervious surface, drainage flow, which travels over sloped ground under existing site conditions, would be partially retained on padded lots and in bioretention facilities decreasing surface flow rates in some cases and allowing water to infiltrate. Therefore, no impact would occur.

Would the project violate any water quality standards or waste discharge requirements?

Wastewater generated on the project site would originate from residential sources and no industrial wastewater would be generated by the project. As a result, no specific changes to the wastewater treatment plan would be required to treat these flows. No impact would occur.

Discussion of Less-than-Significant Impacts

Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional source of polluted runoff?

The project site contains 3.02 acres of impervious surfaces, or roughly 5 percent of the project site. Implementation of the project would add an additional 3.53 acres of impervious surface for a total of 6.55 acres of impervious surface, or approximately 10 percent of the project site (Aliquot Associates 2018a). When rain falls on impervious surfaces, it washes away litter and chemicals present on the surface, such as petroleum products, paints and solvents, nutrients, pesticides and litter. Once mobilized by stormwater, these chemicals and litter could pollute the waterways on the project site and downstream into San Ramon Creek and the San Francisco Bay.

The Preliminary Drainage Study (**Appendix N**), which assumes development of the entire drainage basin, shows an increase in the 10-year flow rate post-project, and demonstrates that there is adequate capacity in downstream infrastructure for this additional flow. This preliminary analysis addresses potential flood control concerns, and does not account for the bioretention facilities which are designed to both treat the runoff and to provide hydromodification. Stormwater control facilities, including bioretention facilities, are included as project components and would regulate runoff into downstream facilities in compliance with applicable law. The project's SWCP, meanwhile, is designed to ensure capture and treatment stormwater on the project site. According to the SWCP, additional surface runoff

created by impervious surfaces resulting from the project would be managed in various Drainage Management Areas that encompass new impervious surfaces. Specifically, stormwater would be conveyed into self-retaining bioretention facilities. Bioretention areas are graded to capture stormwater and slowly pass it through a biologically active organic layer to filter contaminants. After this detention and percolation, the treated stormwater would be conveyed to proposed storm drain pipes within the right-of-ways for new access roads serving the project. These systems would intertie with existing stormwater facilities serving the project site along Camille Avenue and Hemme Avenue, which are adequately sized to carry post-project flows.[2]

As noted in the introduction to this section, the existing stormwater drainage system at Irongate Court is inadequate. Runoff from Drainage Area 1 currently drains to this system. The drainage system implemented with the project will reroute stormwater from Drainage Area 1 to the Camille Avenue system. Therefore stormwater runoff to the Irongate Court system will not increase. Additionally, the proposed drainage system has been designed to comply with NPDES and the Contra Costa County Public Works Department's C.3 requirements. Consistent with the above, the project's drainage system would comply with the hydromodification criteria developed by the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP), where such criteria was developed to mitigate potential cumulative impacts from increased flow from new development. This criteria applies to projects with more than one acres of impervious surface and, because the project falls within this category, the project bioretention facilities comply with the MRP hydromodification criteria. Therefore, the quantity of runoff from the project site would not have any significant individual or cumulative impacts.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site?

Drainage Channel Modification

As displayed in **Figure 4.10-1**, two drainage channels travel through the project site. As discussed below, project implementation would substantially alter the pattern of both drainages.

Implementation of the project would fill approximately 168 linear feet of Drainage 1 surface channel and relocate it slightly to the south by creating approximately 185 linear feet of surface channel; replace an existing culvert with approximately 85 linear feet of creek channel; and replace 115 linear feet of surface channel with an

[2] Refer to **Section 4.17, Utilities and Service Systems**, for an analysis of the existing Camille Avenue and Hemme Avenue stormwater systems.

underground storm line extended from the Camille Avenue system. The "B" Court bridge would span Drainage 2, and not require filling the drainage channel. Ultimately, Drainage 1 would discharge directly into a storm drain extension from Camille Avenue. These modifications are shown in **Figure 4.10-2**.

Drainage 2 extends along the southeastern project border. This channel would be extended by 25 linear feet to discharge into a proposed stormwater drain that leads to an existing drainage system at Camille Lane. By discharging directly into this storm drain system, Drainage 2 would no longer contribute water to Wetlands 2 and 3. These wetlands would be filled to accommodate development on this portion of the site. Refer to **Section 4.4, Biological Resources**, for additional detail on these wetlands.

Modifications to the drainage channels allow the gradient of the channel to be lessened, thus reducing water velocity. The channel width will also be enlarged to increase capacity. Creek modifications would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Drainage Area Modification

In response to the Notice of Preparation, a local resident commented that the southeast corner of the project site is prone to flooding, which may be exacerbated by added impervious area resulting from the project. Currently, runoff from the 27.28 acres in Drainage Area III is channeled to Camille Lane before flowing under Escondido Court to the Camille Avenue system. With project implementation, drainage from the lower 5.97 acres of Drainage Area III would be rerouted directly to the Camille Avenue. Project modifications would redirect runoff flowing to this area, therefore alleviating flooding on the southeast corner of the project site. This change is shown in **Figure 4.10-2**. The development of the lots and homes would occur within the lower 5.97 acres of Drainage III. Thus, additional impervious surfaces resulting from the project would bypass the Camille Lane system and drain directly into the Camille Avenue system.

Implementation of the project would also reroute 27.07 acres of Drainage Area I to the Camille Avenue drainage system. As mentioned before, this drainage system was originally sized based on zoning that, at the time, planned for development of single-family homes in the entire 157-acre Drainage Area II. Since much this area is currently zoned as open space, the existing Camille Avenue drainage system is sufficient to carry post-project flows. The remaining 0.83 acres of Drainage Area I would maintain its pre-project flow pattern to the Hemme Avenue drainage system. Refer to **Appendix N** for further discussion of pre-development and post-development site drainage.

As described above, drainage modifications would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. This impact would be less than significant.

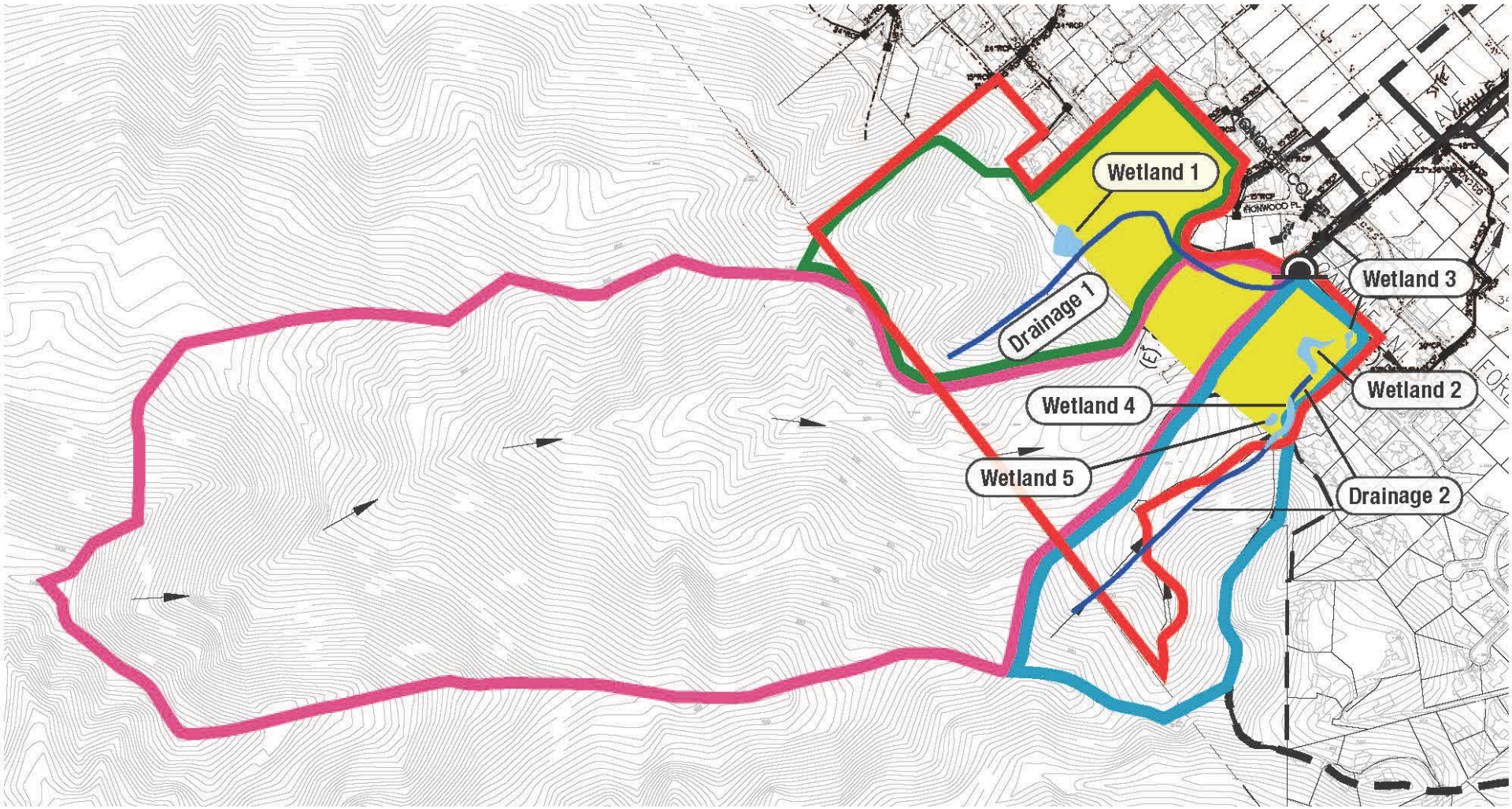
Discussion of Significant Impacts

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Impact HYD-1: Project construction activities could substantially alter the existing drainage pattern of the project site in a manner which would result in substantial offsite erosion or siltation (Less than Significant with Mitigation).

For the purposes of this draft environmental impact report, project construction is conservatively assumed to occur over a 30-month period, which includes grading, infrastructure installation (including streets and storm drain facilities), and the construction of the residential homes. However, actual construction of the single-family homes will be market driven, and may extend over a 10-year period.

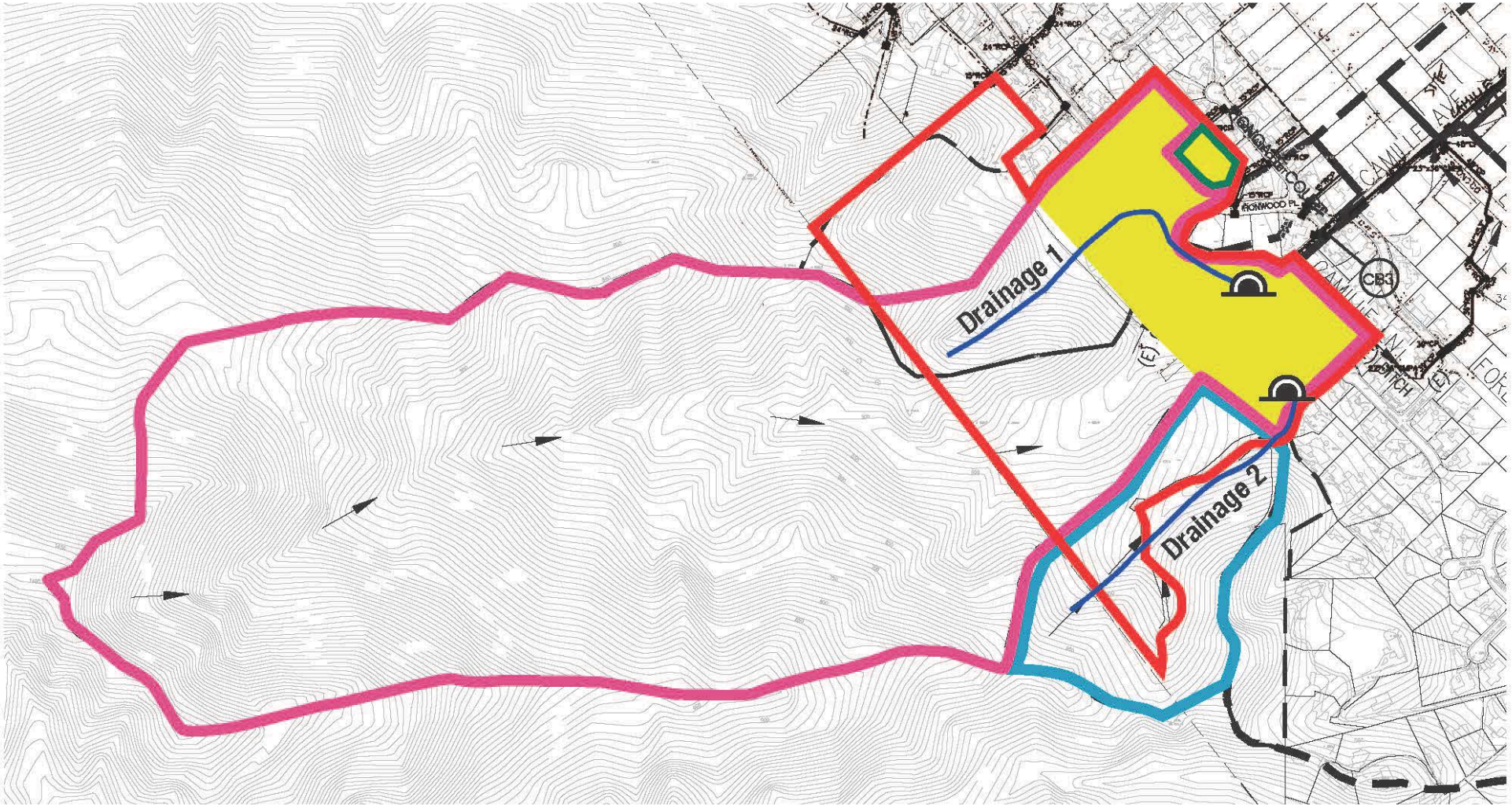
Construction of the project would involve earthmoving activities such as excavation, grading, soil stockpiling, and filling as a result of site preparation and drainage channel relocation. Approximately 26,000 cubic yards of material would be excavated and balanced onsite. Disturbance of soil during construction activities could result in erosion that could temporarily degrade water quality in the nearby waterways, including the onsite drainages. Prior to the issuance of a grading permit, the Contra Costa County Public Works Department and/or the Contra Costa County Department of Conservation and development shall approve a SWPPP prepared by the project proponent (see **Mitigation Measure BIO-7**). This SWPPP shall comply with current RWQCB guidelines and shall adopt acceptable best management practices (BMPs) for control of sediment and stabilization of erosion in the project area. The SWPPP shall include acceptable BMPs for the protection of water quality during construction activities. In addition, the Preliminary Drainage Study includes an Erosion Control Plan outlining features to slow runoff, increase infiltration, and monitor the quality and efficacy of erosion control measures and throughout the 10-year construction period. With implementation of the SWPPP and Erosion Control Plan, this impact would be less than significant.



Pre-Development Drainage

Figure **4.10-1**

Source: Aliquot, 2016.



Legend

- Development Area
- Project Site
- Drainage Channel
- Wetlands
- Drainage Area I
- Drainage Area II
- Drainage Area III
- Enters Stormwater System
- Direction of Water Flow

N

0 300 600 900
FEET

Post-Development Drainage

Figure **4.10-2**

Source: Aliquot, 2016.

Would the project otherwise substantially degrade water quality?

Impact HYD-2: Construction activities could substantially degrade water quality (Less than Significant with Mitigation).

Construction

The project would require the construction of roads, driveways, building pads and associated facilities. Construction and grading would remove some existing vegetation, leaving the soil barren and vulnerable to erosion. Eroded soil can be carried as sediment in surface runoff to be deposited in on-site drainages or downstream waterways. The SWPPP and Erosion Control Plan prepared for the project will include BMPs to minimize the potential for sediment input to the nearby waterways. The SWPPP would also outline practices to minimize the contact of fuels, waste products, building materials, and other potential construction period pollutants from surface water. Although the SWPPP would adequately reduce construction-period water quality impacts to a less-than-significant level, application of **Mitigation Measure BIO-6b** and **Mitigation Measure BIO-7** would provide additional procedures to further prevent adverse impacts to water quality.

Operation

Residential developments typically discharge pollutants from vehicles, landscape maintenance, and pest control into the storm drain system. Without proper water treatment, the project could contribute sediments, heavy metals, oils and greases, and pesticides into the on-site drainages or downstream waterways. These pollutants have the potential to degrade the water quality of local receiving waters.

As discussed above, bioretention facilities shall be implemented throughout the project site to catch and filter runoff from impervious surfaces. This proposed drainage system has been designed to comply with NPDES and the County's C.3 requirements. This impact would be less than significant.

As discussed in **Chapter 3.0, Project Description**, project operation will include vegetation management to maintain 100 feet of defensible space to reduce the risk of wildfires. Vegetation management activities include annual mowing, grazing, pruning lower limbs from trees and removing dead vegetation (with mowing permitted only insofar as the 100-foot buffer overlaps private backyards of project residents). The vegetation management activities contemplated for the project do not involve the disturbance of any soils, and would not have any potential to impact site hydrology. Woody debris would be removed from the site, while other detritus from implementation of this measure would remain to compost in place, which would not change run-off coefficients, thus Impacts are therefore deemed less than significant.

4.10.4 CUMULATIVE IMPACTS

The General Plan identified that an increase in urban runoff due to urban development would contribute pollutants and sediments to surface waters such as rivers and creeks.

The discharge of stormwater runoff from new development in California is highly regulated by local, State, and Federal laws specifically to ensure that they do not result in the gradual degradation of water quality. The General Plan includes policies that specifically reinforce these regulations by establishing the County's active role in water quality programs. Point sources of pollution are required to be identified and controlled in order to protect adopted beneficial uses of water. Implementation of these policies occur as part of the development review and construction permitting process.

The project hydrologic analysis, which assumes buildout of the drainage basin, demonstrates the adequacy of the downstream drainage infrastructure to carry the design discharge, thus complying with the County Ordinance, Title-9, Section 914-2.004 Offsite Collect and Convey. Consistent with the above, the project's drainage system would comply with the hydromodification criteria developed by the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (MRP), where such criteria was developed to mitigate potential cumulative impacts from increased flow from new development. Accordingly, the project will not make any considerable contribution to a significant cumulative impact. Separately, each of the projects considered under the cumulative scenario incorporate storm water control features that would retain storm water on site during rain events, thereby reducing the quantity and improving the quality of offsite flow to San Ramon Creek. These enhancements are in conformance with the County's C.3 guidelines. Thus, no cumulative impact would occur.

4.10.5 REFERENCES

Aliquot Associates Incorporated, 2018a. *Stormwater Control Plan for Ball Estates*.

Aliquot Associates Incorporated, 2018b. *Preliminary Drainage Study for Ball Estates.*

California Department of Water Resources, 2014. *California Statewide Groundwater Elevation Monitoring Groundwater Basin Prioritization*.

California Environmental Protection Agency State Water Resources Control Board, 2015. *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report – Statewide*. Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed September 9, 2015.

Contra Costa County Community Development Department, 2004. Contra Costa Watershed Atlas.

Contra Costa County Mapping Information Center, 2015. *Interactive Maps.* Available: http://www.ccmap.us/interactive_maps.aspx. Accessed September 9, 2015.

ENGEO Incorporated, 2013. *Preliminary Geotechnical Exploration.*

Federal Emergency Management Agency, 2009. *Flood Insurance Rate Map, Map Numbers 06013C0433F and 06013C0434F.*

Mosaic Associates LLC, 2013, Revised June 2016. *Biological Resources Report Ball Family Property.*

Ramsdell, Brooks. Engineering Geologist. ENGEO Incorporated. San Jose, CA. October 17, 2015 - Email.

Walnut Creek Watershed Council, 2013. Walnut Creek Watershed Inventory.

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4.11 LAND USE AND PLANNING

This section describes the existing land uses and land use designations on the project site and in the project vicinity and evaluates the project's land use and planning impacts. Information in this section was collected from the following documents:

- *The Contra Costa County General Plan 2005-2020* (General Plan)
- Zoning Ordinance (Title 8 of the Contra Costa County Code)

The above-mentioned reports are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Street, Martinez, California.

No comments related to land use and planning were received in response to the Notice of Preparation for this draft environmental impact report (EIR).

4.11.1 EXISTING CONDITIONS

Regional Land Uses

The County is comprised of three areas: West County, Central County, and East County. The project site is located within Central Contra Central County (Central County), which is generally defined by low-density development in the flat valleys between the East Bay Hills and Mount Diablo Range. Residential development in Central County covers approximately 30 percent of the total developed land, and commercial use accounts for 11 percent (County, 2005a).

Central County is further comprised of three subregions: North Central County, Lamorinda, and the San Ramon Valley. The project site is located in the San Ramon Valley subregion, which includes unincorporated Alamo, the Town of Danville, the City of San Ramon, and the unincorporated Blackhawk and Tassajara areas.

Project Site Land Uses

Located at 300 and 333 Camille Avenue, Alamo, the approximately 61-acre project site is owned by Camille Avenue, LLC and Camille Ironwood Properties, LLC. The property consists of two parcels as shown on **Figure 3-2**:

- APN 198-170-006 is the 6.9-acre easterly parcel with a Single Family Residential – Low Density (1.0-2.9 net units per acre) land use designation.

- APN 198-170-008 is the 54-acre westerly parcel at the foot of Las Trampas Ridge. Approximately 15 acres, along the eastern portion of this lot, is designated as Single Family Residential – Low Density (1.0-2.9 net units per acre) land use designation, and the remaining acreage is *Open Space* (County, 2005a).

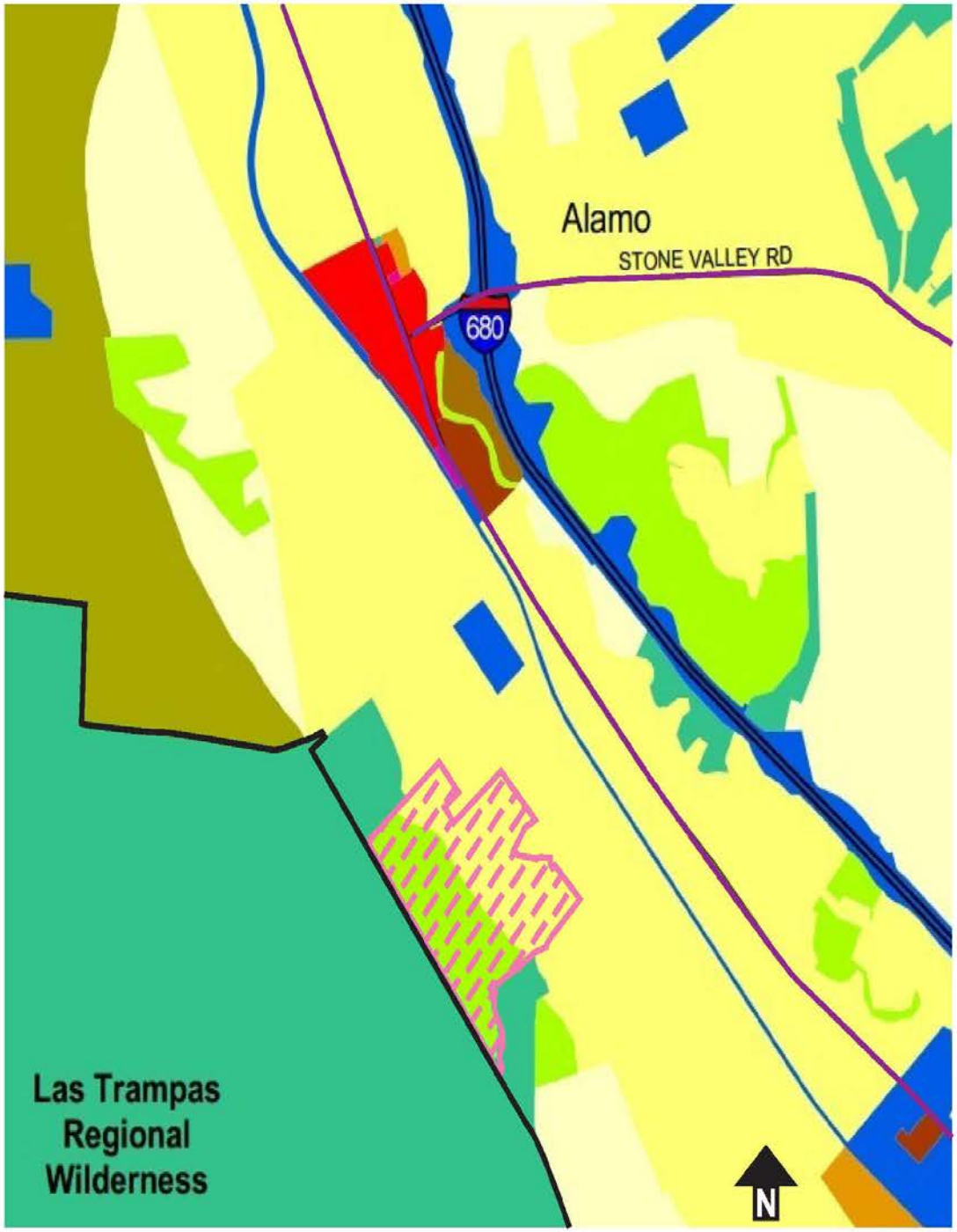
The entire project site is zoned as Single Family Residential – Lot Size 20,000 square foot minimum (R-20) by the County Zoning Map (Contra Costa County, 2015).

The project site currently consists of a residential estate, caretaker's living quarters, barn and horse pasture area, office building, two non-producing walnut orchards, and open space. The open space area, which encompasses the western two thirds of the project site, was designated as open space by the Contra Costa County Board of Supervisors through a General Plan Amendment adopted in January 2005.

The office building is currently leased by Gordon N. Ball, Inc. A use permit for this structure was granted by the County so that the office could be erected on land typically zoned for low-density residential.

Surrounding Land Uses

Figure 4.11-1 shows the land uses surrounding the project site. Most of the Alamo area is designated as Single Family Residential – Low Density (SL), with scattered Single-Family Residential – Very Low Density (SV), Public/Semi-Public (PS), Parks and Recreation (PR), and Open Space (OS) areas. Large tracts of PR border the western side of the project site, and small blocks of OS exist to the northwest and southeast. A stretch of Agricultural Land (AL) and SV exist roughly 0.3 miles northwest of the project area. To the northeast, Alamo's town center contains Commercial (CO), Single-Family Residential – High Density (SH), Multiple Family Residential – Low Density (ML), and Multiple Family Residential – Medium Density (MM). Danville's urban fridge begins 1.5 miles southeast with SH, MM, and PS (Contra Costa County, 2015).



Legend

- Interstate 680
- Urban Limit Line
- Major Road
- Project Site
- San Ramon Creek

- SV (Single Family Residential - Very Low)
- SL (Single Family Residential - Low)
- SH (Single Family Residential - High)
- PS (Public/Semi-Public)
- PR (Parks and Recreation)
- OS (Open Space)
- AL (Agricultural Lands)
- CO (Commercial)
- OF (Office)
- ML (Multiple Family Residential - Low)
- MM (Multiple Family Residential - Medium)

Regional Land Uses Figure **4.11-1**

Source: Contra Costa County General Plan Land Use Element, 2005.

4.11.2 REGULATORY SETTING

Local

Contra Costa County General Plan

The General Plan provides goals, policies, and specific implementation measures that will guide decisions on future growth, development, and conservation of resources within the County. The current General Plan was adopted in 2005 and provides policies to guide development through year 2020.

As previously noted, the General Plan land use designations for the project site are SL and OS. These designations are defined in the General Plan as follows:

- *Single-Family Residential – Low Density (SL)*. This designation allows between 1.0 and 2.9 single family units per net acre. Sites can be as large as 43,560 square feet. Unique environmental characteristics of a parcel may justify larger lot sizes. With an average of 2.5 persons per household, population densities would normally range from about 2 to about 7.5 persons per acre. Primary land uses permitted in this designation include detached single-family homes and accessory structures. Secondary uses that are compatible with low density homes may also be allowed, including home occupations, small residential care and childcare facilities, churches and other similar places of worship, secondary dwelling units, and other uses and structures incidental to the primary uses.
- *Open Space (OS)* – This designation includes publicly owned open space lands which are not designated as "Public and Semi-Public," "Watershed", or "Parks and Recreation." Lands designated "Open Space" includes wetlands, tidelands, and other areas of significant ecological resources or geologic hazard.

  The OS designation also includes privately-owned properties for which future development rights have been deeded to a public or private agency. For example, significant open space areas owned and maintained by a homeowners association fall under this designation. Also included are the steep, unbuildable portions of approved subdivisions which may be deeded to agencies, but which have not been developed as park facilities.

  The most appropriate uses in OS areas involve resource management, such as maintaining critical marsh and other endangered habitats or establishing "safety zones" around identified geologic hazards. Other appropriate uses are low intensity, private recreation for nearby residents. The construction of permanent structures not oriented towards recreation or resource conservation is inconsistent with this open space designation. One single-family residence on an existing legal lot is consistent with this designation.

Project Consistency Analysis

The project will be developed to a density of 1.76 units per acre with lots ranging from 20,000 square feet to approximately 52,000 square feet. These uses fall within the SL designation.

Zoning Ordinance

Parcels on the site are zoned R-20 by the Zoning Ordinance (Title 8 of County Code). Permitted uses within the R-20 districts include:

- A detached single-family dwelling on each lot and the accessory structures and uses normally auxiliary to it.
- Crop and tree farming, and horticulture.
- A temporary stand for the sale of agricultural products grown on the premises, with two and one-half acres per stand, set back at least thirty-five feet from the front property line, and operated not more than three months in any calendar year.
- Small farming; including the raising of poultry and rabbits or other grain-fed rodents, primarily for home consumption thereon.
- Keeping livestock on lots forty thousand or more square feet in area (with at least forty thousand square feet for each two head of livestock) and all contiguous and in one fee ownership.
- Publicly owned parks and playgrounds.
- A residential care facility for the elderly, operated by a person with all required state and local agency approvals or licenses, where not more than six persons reside or receive care, not including the licensee or members of the licensee's family or persons employed as facility staff.
- A family day care home where care, protection and supervision of twelve or fewer children in the provider's own home are provided for periods of less than twenty-four hours per day, while the parents or guardians are away.
- Aviaries, which shall be not over twelve feet high nor exceeding one square foot (not over 1,600) in area for each fifty square feet of net land area per lot, and unless otherwise provided herein, shall be set back at least twenty-five feet from the front property line or any street line and at least ten feet from any side or rear property line, and shall be maintained in a sanitary manner as determined by the county health department.

Project Consistency Analysis

The R-20 classification sets forth the specific development standards of the project, including lot size, width, setbacks, building heights, etc. The project would be consistent with these standards, with the exception of the 8-foot Emergency Vehicle Access gate and fence along Ironwood Place at the northern boundary of the project

site. Whereas the Zoning Ordinance ordinarily allows for a maximum fence height of 7 feet, the proposed 8-foot fence located on the property line would require a variance permit.

Subdivision Ordinance and Building Code

The Subdivision Ordinance (Title 9 of the County Code) is intended to guide the adoption of subdivision regulations in accordance with the Subdivision Map Act, Division 2 of Title 7 of the Government Code of the State of California. The Subdivision Ordinance includes development standards related to site improvements, streets and roadways, and utilities.

The Building Code (Title 7 of the County Code) establishes the regulations and standards that apply to all buildings or structures within the County.

Project Consistency Analysis

The project applicant would be required to submit Final Subdivision Maps to the County for approval. Project plans are required to comply with the County's Building Code.

Urban Limit Line – 65/35 Contra Costa County Land Preservation Plan

County voters approved the 65/35 Contra Costa County Land Preservation Plan (Plan) as part of Measure C – 1990, was adopted on November 6, 1990. The Plan limits urban development to 35 percent of land within the County and requires that at least 65 percent of all land within the County be preserved for agriculture, open space, wetlands, parks, and other non-urban uses. According to the General Plan, 168,500 acres (35 percent) of land within the County could potentially be devoted to an urban use under the 65/35 standard [1] (County, 2005a).

The purpose of the Urban Limit Line (ULL) is two-fold:

- To ensure the preservation of identified non-urban agricultural, open space, and other areas by establishing a line beyond which no urban land uses can be designated during the term of the General Plan; and,
- To facilitate the enforcement of the 65/35 Land Preservation Standard Plan, which limits urban development to 35 percent of land within the County and requires that at least 65 percent of all land within the County be preserved for agriculture, open space, wetlands, parks, and other non-urban uses.

Project Consistency Analysis

As shown in **Figure 4.11-1**, the project site is located within the ULL. No adjustment to the ULL boundary is required.

[1] Of the 481,430 acres of land in Contra Costa County.

Applicable General Plan Goals and Policies

This section evaluates policies contained in the Land Use Element of the General Plan that are applicable to the project and determines whether the project conforms to those policies. Project consistency with policies in other elements of the General Plan is provided throughout the applicable technical sections of this draft environmental impact report.

Land Use Element

3-5: New development within unincorporated areas of the County may be approved, providing growth management standards and criteria are met or can be assured of being met prior to the issuance of building permits in accordance with the growth management.

3-8: Infilling of already developed areas shall be encouraged. Proposals that would prematurely extend development into areas lacking requisite services, facilities, and infrastructure shall be opposed. In accommodating new development, preference shall generally be given to vacant or under-used sites within urbanized areas, which have necessary utilities installed with available remaining capacity, before undeveloped suburban land is utilized.

3-115: The character of the area as one of predominantly single family residences shall be developed, and multiple family residential units shall be provided in suitable densities and locations. A range of densities shall be offered in order to provide for a variety of family sizes, income levels, and age groups.

Project Consistency Analysis

The portions of the project site proposed for residential development are located within the ULL and are designated for future urban uses. The project can be considered an infill development because the lower portions are surrounded by existing development and have access to necessary utility connections.

4.11.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan,

specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Discussion of No Impacts

Would the project physically divide an established community?

Implementation of the project would continue the area's existing residential development pattern. Single-family residential development borders the project site to the northwest, northeast, and southeast. These communities extend to the ULL, then transition into open space. Development along the project site will conform to adjacent land uses, establishing a single-family neighborhood within the ULL. The project will not sever existing roads or introduce any access modifications for adjacent properties, and therefore would not divide the existing community.

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No local, regional, or statewide habitat conservation plans have been adopted for the area in which the proposed project is located. No impact would occur.

Discussion of Less-Than-Significant Impacts

Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

The project is consistent with allowable uses in the General Plan. The 35 residential lots to be developed on the lower portions of the project site are within the SL land use designation and ULL. Though staging areas are not specifically identified as an allowed use within SL areas, this facility would be compatible with the prevailing character of a single-family neighborhood adjacent to public open space. The Parcel D staging area would be located within an area designated as OS, and as a recreation- oriented facility, it would be consistent with the open space designation. The remaining portions of the site would remain OS.

The project would generally comply with the Zoning Ordinance, with the exception of a proposed variance permit to build an 8-foot-high Emergency Vehicle Access gate and fence along Ironwood Place at the northern boundary of the project site. Though the Zoning Ordinance establishes a 7-foot maximum allowable fence height, the proposed variance to allow the 8-foot fence on the property line would not represent a conflict with a regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Each of the consistency analyses set forth in other topical sections of this draft EIR are incorporated herein. This impact would be less than significant.

4.11.4 CUMULATIVE IMPACTS

The cumulative context for land use and planning includes development projects listed in **Chapter 4.0, Setting, Impacts, and Mitigation Measures**.

The General Plan EIR (County, 2005b) noted the change in land use patterns that would occur with implementation of the ULL; namely, a concentration of growth within areas designated for urban development and a preservation of the agricultural core for purely agricultural uses.

The project site is included within the ULL as part of the urban/suburban corridor extending along either side of I-680. All projects listed in **Chapter 4.0, Setting, Impacts, and Mitigation Measures** are within the ULL and have been designated for urban development; therefore, the combined development of these properties would not result in a cumulative land use impact.

4.11.5 REFERENCES

Contra Costa County, 2005a. *Contra Costa County General Plan 2005-2020.*

Contra Costa County, 2005b. *General Plan EIR.* Available: http://www.co.contra-costa.ca.us/4732/General-Plan. Accessed December 29, 2015.

Contra Costa County, 2015. *Zoning Code and Ordinances.* Available: http://www.cccounty.us/4736/Zoning-Code-and-Ordinances. Accessed September 9, 2015.

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4.12 MINERAL RESOURCES

This section describes the existing mineral resources available on and in the vicinity of the project site, and assesses the potential for the project to result in a significant environmental impact to mineral resources. Information regarding mineral resources was obtained from:

- The Contra Costa County General Plan 2005-2020 (General Plan)
- California Department of Conservation
- The United States Department of Agriculture (USDA)

These reports are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Street, Martinez, California.

No comments regarding mineral resources were submitted in response to the Notice of Preparation for this draft EIR.

4.12.1 EXISTING CONDITIONS

The most valuable mineral resources mined within the County are crushed rock in the Concord area, shale in the Port Costa area, and sand and sandstone in the Byron area. There are also regionally significant deposits of diabase, an intrusive igneous rock used as roadbase and rip-rap to prevent streambank erosion, found in the Mount Zion area near the cities of Concord and Clayton (Contra Costa County, 2005). There are no mines or quarries located within the project site and its vicinity.

The USDA Web Soil Survey identified five types of soil present on the project site (USDA, 2015). Soils at the project site include Clear Lake clay, Garretson loam, Lodo clay loam, Millsholm loam, and Tierra loam. The majority of the site is Millsholm loam, with fingers of Lodo clay loam encroaching from the western hills. Garrestson loam dominates the low lying eastern portions before transitioning into Clear Lake clay at the northeastern border of the project site. Tierra loam is only present to the northwest corner of the site. Official soil series descriptions were assigned by the USDA Natural Resources Conservation Service, and are provided below.

- *Clear Lake clay* is characterized by very deep, poorly drained soils formed in fine textured alluvium derived from sandstone and shale. It is typically found in flat basins or swales, and has very low permeability. This soil is used for rangeland, dry farmed pasture, and row crops.
- *Garretson loam* has slightly acid, gravelly, very fine sandy loam and gravelly loam surface characteristics, and slightly acid/neutral gravelly loam substratum. This soil is well drained with slow to medium runoff and moderate permeability.

Uses include production of deciduous fruit, citrus fruit, irrigated field crops, and homesites. Vegetation includes annual grasses, forbs, and scattered oaks. Native vegetation includes chamise, scattered oak trees, and shrubs.

- *Lodo clay loam* exists on mountainous regions and characterized by shallow, somewhat excessively drained soils, moderate permeability, and medium to rapid runoff. Vegetation commonly found growing on this soil series includes buckwheat, scattered oak trees, Foothill pine, chaparral, annual grasses, and forbs. This soil type is mainly used for livestock grazing.
- *Millsholm loam* is a high-elevation shallow soil that formed in material weathered from sandstone, mudstone, and shale. This well-drained soil has moderate permeability and low to very high runoff. Millsholm soils provide livestock grazing, and host a range of native plants such as annual grasses, blue oak, manzanita, ceanothus, and Foothill pine.
- *Tierra loam* is a deep, moderately well drained soil formed in alluvial materials from sedimentary rocks. Runoff is slow to rapid and permeability is very slow. This soil is used for grazing and growing small grains, but many cultivated areas have reverted to grass.

4.12.2 REGULATORY SETTING

State

California Surface Mining and Reclamation Act of 1975

The California Surface Mining and Reclamation Act (SMARA) was enacted in 1975 and updated in January 2007 to limit new development in areas with significant mineral deposits. Through SMARA, the California Geological Survey identifies geologic deposits of valuable minerals used in manufacturing processes and the production of construction materials. SMARA classifies lands into mineral resource zones (MRZs) according to the known or inferred mineral potential.

The criteria for establishing the zones are based on four general categories, discussed below:

MRZ 1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ 2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ 3: Areas containing mineral deposits, the significance of which cannot be evaluated.

MRZ 4: Areas where available information is inadequate for assignment to any other MRZ zone.

Project Consistency Analysis

The project is not located within an identified mineral resource zone.

Contra Costa County General Plan

General Plan Chapter 8, Conservation Element, contains the following policies related to mineral resources.

Conservation Element

8-54: Mining and quarrying shall be a permitted use in certain privately owned areas which are in an open space designation in the General Plan (e.g. Open Space, Agricultural lands, etc.) and which contain known mineral deposits with potential commercial value. These deposits include, but are not limited to, rocks, gravel, sand, salt, and clay.

8-56: Incompatible land uses shall not be permitted within the mineral resource impact areas identified as containing significant sand and gravel deposits (as shown in Figure 8-4 of the General Plan).

8-57: Incompatible uses are defined as land uses inherently incompatible with mining and/or uses that require high public or private investment in structures, land improvements, and landscaping that prevent mining because of the higher economic value of the land and its improvements.

8-58: Future development in the vicinity of valuable mineral resource zones shall be planned and designed to minimize disturbance to residential areas or other sensitive land uses and to permit the safe passage of quarry trucks.

8-59: Development of compatible land uses shall be encouraged within 1,000 feet of the quarrying sites. Compatible uses include secondary activity related to the quarry operation, recreation facilities, parks, agricultural uses, and permanent open space.

Policy Consistency Analysis

The project is not located within an identified mineral resources zone and thus would not cause an incompatible land use near a mine or quarry. The project would be consistent with the General Plan mineral resources policies.

4.12.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- 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.
- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Discussion of No Impacts

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

According to the General Plan, the project site is not within an area of known mineral importance. The closest region of mineral importance is a diabase deposit on the north side of Mount Diablo. Furthermore, the project site is not classified or designated within a mineral resource zone (California Department of Conservation, 1996). The project would not impact mineral resources.

Would the project result in the loss of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Neither the project site nor the project vicinity has a history of mining. The project site is not identified as a mineral resource recovery site. Therefore, the project would not result in the loss of a locally important mineral resource recovery site and no impact would occur.

4.12.4 CUMULATIVE IMPACTS

The cumulative setting for mineral resources includes the project in combination with the cumulative projects listed in **Table 4-1**. None of these projects are within an area of known mineral importance. Therefore, the project, in combination with other projects in the area would have no potential to impact state-designated regionally significant mineral resources. No cumulative impact would occur.

4.12.5 REFERENCES

California Department of Conservation - Division of Mines and Geology, 1996. *Update of Mineral Land Classification: Aggregate Materials in the South San Francisco Bay Production-Consumption Region*. Prepared by Susan Kohler-Antablin.

Contra Costa County, 2005. *Contra Costa County General Plan 2005-2020: Conservation Element.*

United States Department of Agriculture, 2015. *Custom Soil Resource Report for Contra Costa County, California*.

United States Department of Agriculture - Natural Resources Conservation Service, 2003. *Official Soil Series Descriptions*. Available: https://soilseries.sc.egov.usda.gov/. Accessed September 4, 2015.

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4.13 NOISE

This section describes existing sources of noise within the project vicinity and evaluates whether construction and operational noise generated by the project would exceed applicable noise standards. The section also evaluates potential vibration impacts associated with project construction.

Information presented in this section was obtained from:

- A Noise and Vibration Assessment prepared by Illingworth & Rodkin, Inc. in January 2016
- A Construction Noise Assessment prepared by Wilson Ihrig in June 2018
- *The Contra Costa County General Plan 2005-2020* (General Plan)

These reports are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation submitted for the project, residents from the surrounding neighborhood expressed concern regarding the potential noise and vibration impacts that would be generated during construction. These concerns are addressed in this section of the draft environmental impact report.

Noise and Vibration Concepts

Noise

Noise can be defined as unwanted sound and is commonly measured with an instrument called a sound level meter. The sound level meter "captures" sound with a microphone and converts it into a number called a sound level. Sound levels are expressed in units called decibels (dB). To correlate this signal to a level that corresponds to the way humans perceive noise, an A-weighting filter is used to deemphasize low-frequency and very high-frequency sound in a manner similar to human hearing. The abbreviation dBA is often used when the A-weighted sound level is reported.

In environmental noise, a change in the noise level of 3 dBA is considered a just noticeable difference. A 5-dBA change is clearly noticeable, but not dramatic. A 10-dBA change is perceived as a halving or doubling in loudness.

Because of the time-varying nature of environmental sound, there are many descriptors that are used to quantify the sound level. Although one individual descriptor alone does not fully describe a particular noise environment, taken together, they can more accurately represent the noise environment. There are four descriptors that are commonly used in environmental studies:

- Maximum instantaneous noise level (L_{max}) is used to identify the loudness of a single event such as a car pass-by or airplane flyover.
- Equivalent noise level (L_{eq}) is used to express the average noise level. The L_{eq} can be measured over any length of time but it is typically reported for periods of 15 minutes to 1 hour.
- Sound level exceeded 90 percent of the time (L_{90}) refers to background noise level (or residual noise level) during the quietest moments. It is usually generated by steady sources such as distant freeway traffic.
- Day/Night Average Sound Level (L_{dn}) is used as an A-weighted sound pressure unit to quantify noise levels over a 24-hour period. L_{dn} is used in place of community noise equivalent level (CNEL), which includes a 5dB penalty to the evening (7 p.m. – 10 p.m.) noise levels. For L_{dn}, these hours are considered daytime hours. Both measurements include a 10dB penalty to nocturnal (10 p.m. – 7 a.m.) noise levels.

Traffic Noise

The source level of traffic noise depends on four primary factors, including the volume of the traffic, speed of the traffic, number of trucks, and the road surface condition. Generally, the loudness of traffic noise is increased by higher traffic volumes, faster speeds, more trucks, and rougher pavement. Noise generally increases 3 dB with each doubling of traffic volume and 6 dB with each doubling of speed. Higher ratios of trucks and rougher pavement do not have as direct of an effect on the noise levels.

Noise Attenuation

Most noise sources can be classified as either point sources (e.g., stationary equipment), or line sources (e.g., a roadway). Sound generated by a point source nominally diminishes (attenuates) at a rate of 6 dBA for each doubling of distance away from the source. For example, a 60 dBA noise level measured at 50 feet from a point source would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Noise from a line source normally attenuates at 3 dBA per doubling of distance.

Sound levels can also be attenuated by man-made or natural barriers. Solid walls, berms, or elevation differences typically reduce noise levels by 5 to 10 dBA. Closed windows can reduce interior levels anywhere from 20 to 40 dBA, while buildings with partially open windows can reduce interior noise levels around 15 dBA.

Vibration

Ground vibrations are small oscillatory disturbances to the soil, which are transmitted outwards from their source and reduce in magnitude with increasing distance. The vibration source stimulates the adjacent ground, creating vibration waves that travel through the various soil and rock strata to the foundations of nearby buildings. The vibration then travels from the building foundation throughout the remainder of the building structure. Vibration levels are expressed in inches per second (in/sec) as units called peak particle velocity (PPV), which is defined as the maximum instantaneous peak of the vibration amplitude.

The vibration of floors and walls may cause perceptible vibration, rattling of items such as windows or dishes on shelves, or a rumble noise. The rumble is the noise radiated from the motion of the room surfaces. In essence, the room surfaces act like a giant loudspeaker. This is called groundborne noise.

Groundborne vibration is harder to perceive by people who are outdoors. Although the motion of the ground may be felt, the motion does not provoke the same adverse human reaction without the effects associated with the shaking of a building. In addition, the rumble noise that usually accompanies the building vibration can only occur inside buildings.

4.13.1 EXISTING CONDITIONS

Noise Environment

Some land uses, including schools, hospitals, rest homes, long-term care facilities, mental care facilities, residences, places of worship, libraries, and passive recreation areas depend on low noise levels to ensure the wellbeing of the occupants. The closest sensitive land uses to the project site are the residential communities on the northern, northeastern, eastern, and southeastern borders of the property site.

The noise environment in the project vicinity is primarily the result of distant traffic, construction, and natural noises such as wind and animals. There are few sources of noise in the immediate project vicinity, most notably vehicular traffic along Camille Avenue and nearby ancillary roadways.

Noise Measurements

A noise monitoring survey was performed at the project site from October 23, 2015 to October 28, 2015.[1] This survey included two long-term noise measurements and two short-term measurements (see **Figure 4-13.1**).

[1] Site conditions, land uses, and the noise environment surrounding the project site have not substantially changed since the 2015 noise measurements.

Long-term noise measurement LT-1 was located at the end of Ironwood Place. Hourly average noise levels at this location typically ranged from 40 to 53 dBA L_{eq} during the day and were as low as 34 dBA L_{eq} at night. Occasionally, high maximum instantaneous noise levels, likely due to localized noise sources, raised the average hourly daytime noise levels to between 59 and 63 dBA L_{eq}. The day-night average noise level ranged from 45 to 53 dBA L_{dn}.

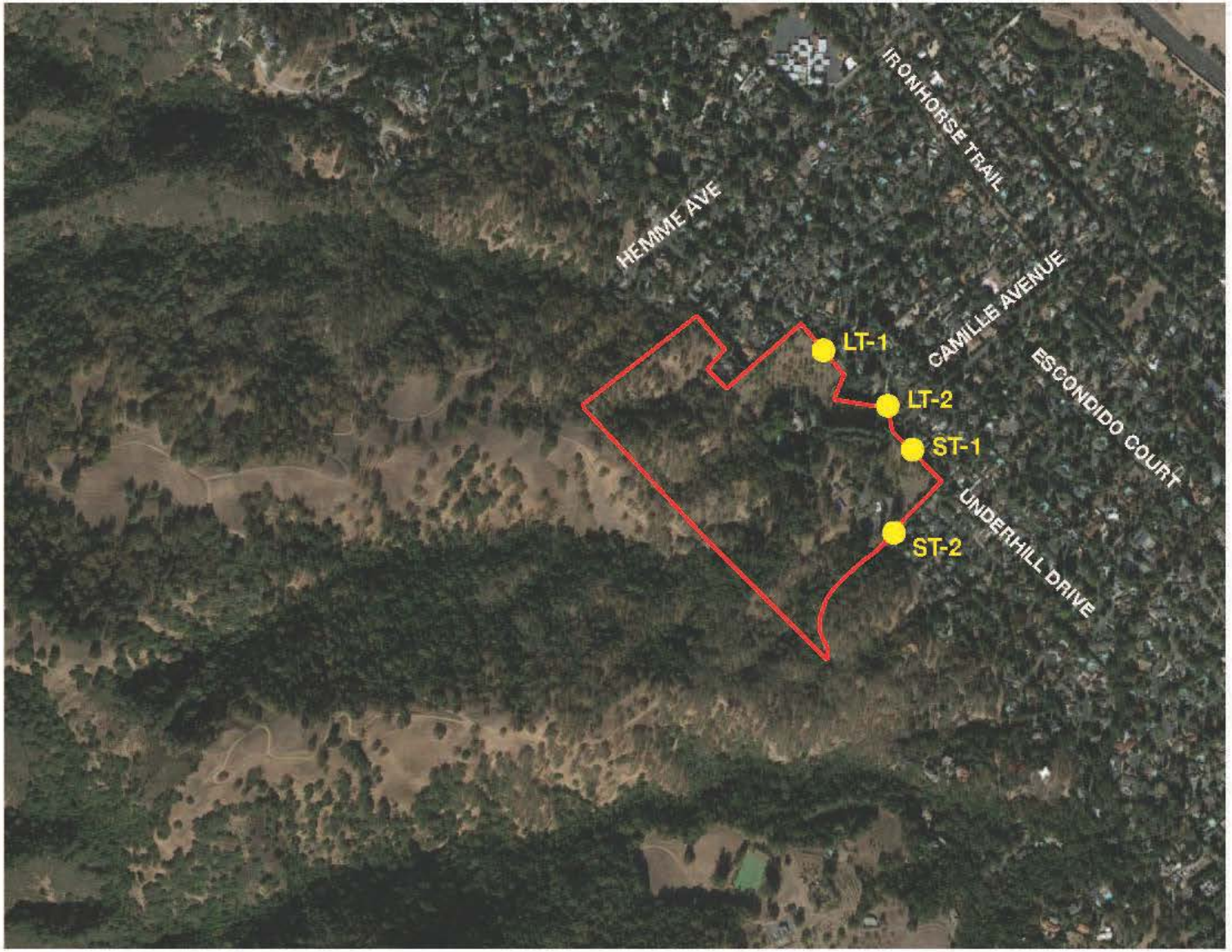
Noise measurement LT-2 was taken about 60 feet south of Camille Avenue and 80 feet west of the eastern property line of the site. Hourly average noise levels at this location typically ranged from 40 to 48 dBA L_{eq} during the day and were as low as 37 dBA L_{eq} at night. Occasionally, high maximum noise levels, likely due to localized noise sources, raised the average hourly daytime noise levels to between 54 and 65 dBA L_{eq}. The day-night average noise level ranged from 48 to 56 dBA L_{dn}.

The two short-term measurements were made on October 23, 2015 in concurrent intervals to the long-term measurements. These measurements were attended by a noise technician who documented maximum noise levels at each location. **Table 4.13-1** summarizes short-term noise measurement results.

Table 4.13-1 Summary of Short-Term Noise Measurement Results

Location (Time)	Measured Daytime Noise Levels, dBA					Primary Noise Sources
	L_{eq}	L_1	L_{10}	L_{50}	L_{90}	
ST-1: Path on eastern corner of site, 11:10 a.m. to 11:20 a.m.	40	61	47	41	39	Distant traffic and construction, occasional local traffic, hikers, natural noises
ST-2: Path on southern portion of site, 11:30 a.m. to 11:40 a.m.	44	54	46	42	40	Distant traffic and construction, natural noises

Source: Illingworth & Rodkin, 2016.



Legend

Project Area

Measurement Location:
LT-1: Long Term Measurement 1
LT-2: Long Term Measurement 2
ST-1: Short Term Measurement 1
ST-2: Short Term Measurement 2

N

0 487 974 1947
FEET

Noise Measurement Locations **Figure 4.13-1**

Source: Illingworth and Rodkin, 2016.

4.13.2 REGULATORY SETTING

State

California Code of Regulations

California's Model Community Noise Ordinance (Construction Noise)

The State of California's Model Community Noise Ordinance (Office of Noise Control 1977) contains noise level limits of 75 dBA for mobile construction equipment and 60 dBA for stationary construction equipment at single-family residential areas.

Project Consistency Analysis

Although these standards have not been adopted by the County, the noise study conducted for the project used California's Model Community Noise Ordinance limits to assess the construction noise impacts at residences. The County does not have quantitative noise performance standards for construction activities.

As discussed below in **Subsection 4.13.3**, project construction would cause a temporary increase in noise levels that would have significant noise impacts on the surrounding residential development. Implementation of **Mitigation Measure NOI-1** would impose specific hours for construction and would include other measures to attenuate sound during the construction period such as temporary barriers, truck routing, and location of stationary equipment. Implementation of these measures would ensure consistency with California's Model Noise Ordinance.

Local

Contra Costa County Ordinance Code

Title 7 – Building Regulations, Section 716-8.1004

Pursuant to Title 7 of the Contra Costa County Ordinance Code, grader operations are limited to weekdays between the hours of 7:30 a.m. and 5:30 p.m. This is required for all grading activities located within 500 feet of residential and commercial occupancies. Exceptions are allowed through conditions of approval for a project.

The Contra Costa County General Plan

An objective of the General Plan Noise Element is to provide guidelines to achieve noise/land use compatibility. Relevant policies from this element are listed below.

Noise Element

11-1: New projects shall be required to meet acceptable exterior noise level standards as established in the Noise and Land Use Compatibility Guidelines contained in Figure 11-6. These guidelines, along with the future noise levels shown in the future noise contours maps, should be used by the county as a

guide for evaluating the compatibility of "noise sensitive" projects in potentially noisy areas.

11-2: The standard for outdoor noise levels in residential areas is a L_{dn} of 60 dB. However, a L_{dn} of 60 dB or less may not be achievable in all residential areas due to economic or aesthetic constraints. One example is small balconies associated with multi-family housing. In this case, second and third story balconies may be difficult to control to the goal. A common outdoor use area that meets the goal can be provided as an alternative.

11-4: Title 24, Part 2, of the California Code of Regulations requires that new multiple family housing projects, hotels, and motels exposed to a L_{dn} of 60 dB or greater have a detailed acoustical analysis describing how the project will provide an interior L_{dn} of 45 dB or less. The County also shall require new single-family housing projects to provide for an interior L_{dn} of 45 dB or less.

11-6: If an area is currently below the maximum "normally acceptable" noise level, an increase in noise up to the maximum should not be allowed necessarily.

11-8: Construction activities should be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses and should be commissioned to occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods.

11-9: Sensitive land uses shall be encouraged to be located away from noise areas, or the impacts of noise on these uses shall be mitigated.

11-11: Noise impacts upon the natural environment, including impacts on wildlife, shall be evaluated and considered in review of development projects.

Project Consistency Analysis

The General Plan Noise Element provides guidance for acceptable levels of construction noise. Figure 11-6 of the Noise Element shows that noise levels 60 dBA L_{dn} or lower are Normally Acceptable, while noise levels up to 70 dBA L_{dn} are Conditionally Acceptable.[2] Accordingly, a noise threshold of 70 dBA L_{dn} has been selected to evaluate the significance of temporary project construction noise on nearby sensitive receptors. Where the noise threshold of 70 dBA L_{dn} is exceeded, proper mitigation is recommended to reduce construction noise below the significance threshold (see **Section 4.13.3**).

[2] According to the General Plan Noise Element, when a project is anticipated to produce noise levels in the Conditionally Acceptable range, "new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design". For noise levels in the Normally Acceptable range, the "specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements".

With regard to operational noise, this analysis uses a 60 dBA L_{dn} noise threshold. An increase in operational noise of 5 dBA L_{dn} or more while maintaining a maximum noise level of 60 dBA L_{dn} or of 3 dBA L_{dn} or more while exceeding 60 dBA L_{dn} would warrant mitigation to reduce operational noise below the significance threshold. Through the application of these construction and operation noise level significance criteria, the project would generally maintain the noise level standards identified in policies 11-1, 11-2, 11-4, and 11-6 of the General Plan Noise Element, presented above.

The project site is located within an existing residential area that does not experience high noise levels. As such, the project would be consistent with policy 11-9. The residential land uses proposed on the project site would not introduce significant increases in noise levels that could impact the natural environment.

4.13.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing of working in the project area to excessive noise levels.
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.
- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Expose persons to or generate excessive ground borne vibration or ground borne noise levels.
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project.

CEQA does not define what noise level increase would be considered substantial. Rather, the standards established in the General Plan Noise Element were used to establish quantitative significance thresholds. According to the Noise Element, residential noise levels up to 60 dBA L_{dn} are considered Normally Acceptable while

noise levels up to 70 dBA L_{dn} are considered Conditionally Acceptable. Accordingly, a significance threshold of 70 dBA L_{dn} was used to evaluate the significance of temporary construction noise on nearby sensitive receptors. Exceedance of the 70 dBA L_{dn} threshold would be considered a significant impact and would require mitigation. Additionally, a significant impact would be identified if the construction of the project would generate groundborne vibration levels at adjacent structures exceeding 0.3 inch per second (in/sec) PPV because these levels would have the potential to result in architectural damage to normal buildings.[3]

For operational noise, an exterior threshold of 60 dBA L_{dn} was used in residential areas. Project-generated noise level increases of 3 dBA L_{dn} or greater would be considered significant where exterior noise levels would permanently exceed 60 dBA L_{dn}. Where noise levels would remain at or below 60 dBA L_{dn} with the project, noise level increases of 5 dBA L_{dn} or greater would be considered significant. For noise levels inside residences, a threshold of 45 dBA L_{dn} was used.

Discussion of No Impacts

For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, exposure of people residing of working in the project area to excessive noise levels;

and

For a project within the vicinity of a private airstrip, exposure of people residing or working in the project area to excessive noise levels;

The project is located approximately 10 miles southeast of the Buchanan Airport. A review of the Contra Costa County Airport Land Use Compatibility Plan indicates that the project site is not located within the airport sphere of influence. The Little Hands private airstrip, the nearest private airstrip, is located approximately 2 miles south of the project site in the San Ramon area. The airstrip is owned by Little Hands Ranch, which operates three single-engine aircraft on the property. Air traffic in and out of this airport is expected to be minimal as the owner has chosen not to chart the airport, and permission is required from the owner for any aircraft to utilize the airstrip.

Aircraft noise exposure would be considered significant if the project site were exposed to aircraft noise levels exceeding 60 dBA L_{dn}. Noise levels throughout the project site are below 60 dBA L_{dn} and would be considered to be compatible with residential and open space. Therefore, implementation of the project would not

[3] Normal buildings defined as those that are not historic and not documented to be structurally weakened.

expose people residing in, or working on, the project area to excessive noise levels, and no impact would occur.

Discussion of Less-than-Significant Impacts

Would the project result in the exposure of persons to or generation of, excessive ground borne vibration or ground borne noise levels?

As stated in **Section 4.13.3,** significant impact would be identified if the construction of the project would generate groundborne vibration levels at adjacent structures exceeding 0.3 inch per second (in/sec) PPV because these levels would have the potential to result in architectural damage to normal buildings. The nearest structures to the project construction areas include existing residences bordering the northern and eastern portions of the site; these structures are located as close as 40 feet to the shared property lines.

Phases of the 30-month construction period may require activities that generate substantial vibration in the immediate vicinity of the work area, such as drilling, the use of jackhammers, rock drills and other high-power or vibratory tools, and rolling stock equipment (tracked vehicles, compactors, etc.). Impact or vibratory pile driving is not anticipated as part of project construction activities. Vibration levels would vary depending on soil conditions, construction methods, and equipment used.

The nearest structures to the project construction areas include existing residences bordering the northern and eastern portions of the site; these residential structures are located as close as 40 feet to the shared property lines. Vibration levels produced by heavy equipment during construction are calculated to be 0.13 in/sec PPV or less at a distance of 40 feet. Vibration levels during heavy construction may occasionally be perceptible at the nearest residences when construction is located directly adjacent to these areas, but would not approach the 0.3 in/sec PPV threshold for architectural damage. Vibration levels would be lower at structures located further from the project site and as construction moves away from the eastern and northern property lines of the site. Given that groundborne vibration would not approach the 0.3 in/sec PPV threshold, this impact would be less than significant.

Discussion of Significant Impacts

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact NOI-1: The project would substantially increase ambient noise levels in the project vicinity above existing levels (Less than Significant with Mitigation).

A substantial permanent noise impact would occur if noise generated by the project would increase noise levels by 5 dBA L_{dn} or greater, if noise levels increased by 3 dBA L_{dn} where exterior noise levels would exceed 60 dBA L_{dn}, or if the existing noise levels are below 60 dBA but would be increased to above this threshold.

Existing traffic noise levels at residences in the vicinity of the project are currently below 60 dBA L_{dn}. Existing noise measurements averaged between 45 to 56 dBA L_{dn}. Projected traffic volumes associated with project operation were prepared for the project by Abrams Associates Traffic Engineering, Inc. for five intersections in the project vicinity (see **Appendix P**). The anticipated traffic volumes associated with the project were evaluated against the existing traffic volumes to calculate the relative increase in traffic noise attributable to the project. According to the traffic report, the project, as proposed, would generate approximately 32 AM peak hour trips, and 43 PM peak hour trips (see **Section 4.16, Transportation and Traffic**). Traffic noise levels are anticipated to increase by less than 1 dBA at all study intersections as a result of the project.

The project would include new stationary noise sources such as landscape maintenance activities, ventilation systems, and other noise-generating sources related to single-family residential development. These activities are generally intermittent and are consistent with other noise events occurring in the community. For example, typical noise levels from a gas lawn mower averages up to 70 dBA Lmax at a distance of 100 feet, whereas typical new residential mechanical ventilation systems (such as exterior air conditioning units) generate noise levels from 50 dBA to 65 dBA Leq at 10 feet.

Individual residences constructed on the property could potentially include outdoor air-conditioning equipment and pool pumps, which would represent more consistent noise sources. Typically, single family residential use air conditioning equipment would be anticipated to generate noise levels of 50 to 65 dBA L_{eq} at a distance of 10 feet from the equipment. Noise levels would drop off as distance increases between the source and receptor. Equipment located inside the residence or in a fully enclosed room with a roof would not be anticipated to be audible at off-site locations (Illingworth &Rodkin, 2018).

The project would be subject to all noise-related regulations, plans, and policies established within documents prepared by the State of California and Contra Costa

County. However, Contra Costa County does not have a noise ordinance, nor does the County's General Plan provide any quantifiable noise limits directly applicable to mechanical equipment noise (see **Section 4.13.2, Regulatory Setting**). Based on the Land Use Compatibility thresholds identified in the General Plan Noise Element, the Normally Acceptable threshold for outdoor noise levels in residential areas is a L_{dn} of 60 dBA. However, ambient noise levels at adjacent existing residences are generally below 55 dBA L_{dn}.

Existing residences surround the site to the north, east, and west. Based on review of aerial images, most of these existing residences include air conditioning units and backyard pools, with lot sizes similar to those proposed with the project. Residential property lines could be located within 50 feet of proposed mechanical equipment and/or pumps. Noise generated by project mechanical equipment would be similar could exceed applicable thresholds for residential areas. This represents a potentially significant impact, which would be reduced to a less-than-significant level with implementation of **Mitigation Measure NOI-1**.

> ***Mitigation Measure NOI-1:*** Prior to the issuance of building permits, any outdoor mechanical equipment, air conditioning units, or pumps shall be selected and designed to reduce impacts on surrounding uses. A qualified acoustical consultant shall be retained by the project applicant to review mechanical noise as the equipment systems are selected in order to determine specific noise reduction measures necessary to reduce noise to 55 dBA L_{dn} at the shared property line. Noise reduction measures could include, but are not limited to, locating equipment in shielded and/or less noise-sensitive areas, selection of equipment that emits low noise levels, and/or installation of noise barriers such as enclosures to block the line of sight between the noise source and the nearest receptors. Other feasible controls could include, but shall not be limited to, fan silencers, enclosures, and mechanical equipment screen walls.

Significance after Mitigation: With implementation of **Mitigation Measure NOI-1**, operational noise sources would not exceed applicable noise thresholds. This impact would be less than significant

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project?

For the purposes of this analysis, construction of the project (from demolition to construction of future residences) is conservatively anticipated to occur over a 30-month period.[4] Under this assumption, the project has the potential to expose sensitive receptors to a substantial temporary increase in ambient noise levels.

[4] In reality, project construction could last up to 10 years, but this 30-month assumption provides a conservative approach because it would expose receptors to a more constant increase in noise levels for a continuous duration.

Impact NOI-2: Existing noise-sensitive land uses would be exposed to construction noise levels in excess of 70 dBA L_{dn} during construction (Less than Significant with Mitigation).

Construction would entail two main phases: project site preparation and home construction. Project site preparation would include demolition, construction of a keyway at the toe of the slopes along the western residential lots, grading and compaction, utility installation, construction of the curbs and gutters, and road paving. Home construction can be divided into exterior work (such as construction of the foundations or erection of the building envelope) and interior work. Noise generated by interior work would be substantially attenuated by the natural acoustical shielding provided by the building envelope.

The loudest construction phase would be the construction of a keyway and would reach a maximum of 78 dBA L_{dn} at residences located 35 to 53 feet from the perimeter of the project site and would last for 6 days. Impacts from keyway construction would be less severe at residences located farther away from the site perimeter. The longest construction phases would be the construction of the exterior and interior of the new buildings (395 days and 402 days, respectively). Of the two phases, noise levels during exterior construction would be louder, reach a maximum of 72 dBA L_{dn} at a distance of 68 feet. These levels can be considered worst-case, as they do not take into account additional shielding that is normally provided by typical residential fencing, shrubbery, and sound absorption by porous soil. Furthermore, these levels assume that equipment would be stationary at the property line and operating at or close to full speed for the duration of the work. In reality, construction equipment is expected to continuously move around the work area and be shielded at times by other equipment, so actual dBA L_{dn} levels would be slightly lower depending on the degree of temporary shielding (Wilson Ihrig, 2018).

In addition to general construction activities, the transport of workers, equipment, and materials to the project site would introduce noise on access roads leading to the site. However, the noise generated by construction related-traffic would be minimal and lower than the noise levels expected during demolition and construction activities.

Construction noise levels predicted to occur from off-road construction equipment would exceed the 70 dBA L_{dn} threshold at residences adjacent to the project site. In order to reduce noise impacts associated with all construction activities, **Mitigation Measures NOI-2** and **NOI-3** would be implemented.

> ***Mitigation Measure NOI-2***: Abatement of excessive noise from off-road construction equipment would be accomplished by means of temporary acoustical screens of suitable height and extent. Such screens would completely interrupt the line-of-sight between the equipment and receptors of the noise and would have no gaps or openings. Efficacy would be maximized by placing screens as close to noise sources as possible. Sound screens will be

approximately 12 feet in height and will provide approximately 8 decibels reduction in noise levels at the first and second stories of nearby homes.[5] When construction noise impacts reach a level below 70 dBA L_{dn}/CNEL at the nearest homes, the temporary screens can be removed.

Construction is likely to be concentrated in one or a few contiguous areas at a time during each phase. Therefore, sound screens need not extend along the entire site perimeter at once, but could be shorter and moved following the work so as to provide shielding to one or more sensitive receptors near the work area. However, in order to maintain the full acoustic benefit, these screens will extend at least 1.5 times their height past each side of the area where construction equipment is to operate. This will minimize sound escaping around the ends of the screens.

Mitigation Measure NOI-3: The applicant shall develop a construction mitigation plan with input from County staff to minimize construction noise disturbance. Considering the potential for substantial increases in noise at adjacent residences as a result of project construction, the following conditions shall be incorporated into contract agreements to reduce construction noise impacts:

- Restrict noise-generating activities including construction traffic at the construction site or in areas adjacent to the construction site to the hours of 8:00 a.m. to 5:30 p.m., Monday through Friday, with no construction allowed on Federal and State weekends and holidays.
- Potential contractors shall be requested to submit information on their noise management procedures and demonstrate a successful track record of construction noise management on prior projects.
- The selected contractor will equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- The selected contractor will prohibit unnecessary idling of internal combustion engines.
- The selected contractor will locate stationary noise generating equipment such as air compressors or portable power generators as far as practical from sensitive receptors.
- The selected contractor will utilize “quiet” air compressors and other stationary noise sources where technology exists.
- The selected contractor shall limit the allowable hours for the delivery of materials or equipment to the site and truck traffic coming to and

[5] Refer to the Construction Noise Assessment (Wilson Ihrig, 2018) for more information regarding noise screens.

from the site for any purpose to Monday through Friday between 8:00 a.m. and 5:30 p.m.

- The selected contractor will establish construction staging areas and material stockpiles at locations that will create the greatest distance between the construction-related noise sources and noise-sensitive receptors nearest the project site during all project construction as is feasible.
- During tree demolition, the woodchipper shall be located on Lot 30 to reduce the effect of noise levels to sensitive receptors. If the chipper is to be moved into other areas of the site, a qualified registered professional Noise Consultant shall determine the allowable distance from sensitive receptors so as to ensure consistency with the County's noise thresholds. A noise contour map will be provided defining the boundaries of the chipper access on the project.
- The selected contractor will route all construction traffic to and from the project site via designated truck routes where possible and prohibit construction related heavy truck traffic in residential areas where feasible.
- The selected contractor will control noise from construction workers' radios to a point where they are not audible at existing residences bordering the project site.
- After grading is complete and during construction of site improvements, the contractor will limit use of the property a distance of 75 feet from adjacent neighbor's properties. Stockpiles and equipment storage shall be predominately on interior lots.
- The selected contractor will notify neighbors located adjacent to the construction site of the construction schedule in writing.
- The selected contractor will designate a project liaison that will be responsible for responding to noise complaints during the construction phase. The name and phone number of the liaison will be conspicuously posted at construction areas and on all advanced notifications. This person will take steps to resolve complaints, including periodic noise monitoring, if necessary. Results of noise monitoring will be presented at regular project meetings with the project contractor, and the liaison will coordinate with the contractor to modify any construction activities that generated excessive noise levels to the extent feasible.
- The selected contractor will hold a preconstruction meeting with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, construction schedule, and noise coordinator) are completed.

- Neighboring property owners within 300 feet of construction activity shall be notified in writing of the construction schedule and at least 30 days prior to loud noise-generating activities. Notification will include the nature and estimated duration of the activity.
- A qualified acoustical professional shall be retained as needed to address neighbor complaints as they occur. If complaints occur, noise measurements could be conducted to determine if construction noise levels at adjacent property lines are within acceptable performance standards. Short-term construction noise monitoring could also be utilized to diagnose complaints and determine if additional reductionary measures are required for certain phases of construction.

Further, temporary increases in noise levels during construction could affect nesting birds and other sensitive wildlife, which is inconsistent with policy 11-11. Impacts to the natural environment, including wildlife, are discussed in **Section 4.4, Biological Resources**. Implementation of pre-construction surveys, as identified in **Mitigation Measures BIO-1** through **BIO-5,** would reduce potential noise impacts to the natural environment to a less-than-significant level, consistent with policy 11-11.

Significance after Mitigation: Implementation of **Mitigation Measure NOI-2**, **Mitigation Measure NOI-3, and Mitigation Measures BIO-1** through **BIO-5** would reduce on-site construction noise levels. With implementation of these mitigation measures, temporary noise impacts resulting from project construction would be less than significant.

Would the project expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact NOI-3: The project would generate noise levels in excess of standards established in the General Plan Noise Element (Less than Significant with Mitigation)

Pursuant to the General Plan Noise Element, a significant noise and land use compatibility impact would occur if exterior noise levels in the surrounding single-family residential areas exceeded 60 dBA L_{dn}, if interior noise levels inside potential homes exceeded 45 dBA L_{dn}.

As discussed above, existing ambient noise levels at the easternmost portion of the site range from 45 to 56 dBA L_{dn}. The western portion of the site is located further from area noise sources (traffic and residential noise) and would be exposed to lower noise levels. As discussion in **Impact NOI-**1, project-related traffic would increase noise levels by approximately 1 dBA and therefore would not exposure sensitive receptors to noise levels in excess of applicable standards.

The operation of outdoor air-conditioning equipment and pool pumps could generate noise between 50 to 65 dBA L_{eq} at a distance of 10 feet, which could exceed the exterior noise significance threshold at nearby residences. As discussed in **Impact NOI-1**, the implementation of **Mitigation Measure NOI-1** would ensure that operational noise sources would not increase average noise levels by or to unacceptable levels.

With respect to interior noise levels, a typical residential structure would provide about 15 dBA of noise reduction from exterior noise sources with windows open and 20 to 25 dBA of noise reduction with windows closed. Because project operation would not cause any exterior noise levels to exceed 57 dBA L_{dn}, future residences built on the project site would meet the County's interior noise level standard of 45 dBA L_{dn}.

Pursuant to the General Plan Noise Element, a significant construction noise impact would occur if exterior noise levels in the single-family residential areas around the project site exceed 70 dBA L_{dn}. As discussed in **Impact NOI-2**, implementation of **Mitigation Measures NOI-2** and **NOI-3** would reduce construction noise to less-than-significant levels. In addition to this quantitative threshold, the General Plan Noise Element indicates that (1) construction activities should be concentrated during the hours of the day that are not noise-sensitive for adjacent land uses, and (2) should occur during normal work hours of the day to provide relative quiet during the more sensitive evening and early morning periods. As addressed in **Mitigation Measure NOI-3**, construction will be limited to the hours of 8:00 a.m. and 5:30 p.m., Monday through Friday, with no construction allowed on weekends or holidays. Therefore, the project would not exceed applicable noise standards.

Implementation of **Mitigation Measure NOI-2** and **NOI-3** would ensure compliance with applicable noise standards established in the General Plan Noise Element. Therefore, this impact would be less than significant.

4.13.4 CUMULATIVE IMPACTS

The cumulative setting for noise impacts is specifically the project and the three proposed developments within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**). The closest cumulative project is located at 513 Hemme Avenue, approximately 1,000 feet northwest of the project site. Cumulative construction and operational noise could affect sensitive receptors located between 513 Hemme Avenue and the Ball Estates project. However, both projects would implement construction noise management practices to reduce substantial construction noise, and neither project would contribute considerable amounts of operational noises. Other projects on the cumulative project list are located too far from the project site to result in cumulative noise impacts. Given this, cumulative noise impacts would be less than significant.

4.13.5 REFERENCES

Abrams Associates Traffic Engineering Inc., 2015. *Transportation Impact Study, Ball Propert*y. Prepared for Aliquot Associates, July 7, 2015.

Illingworth and Rodkin Inc., 2016. Ball Estates Project Noise and Vibration Assessment.

Wilson Ihrig, 2018. *Construction Noise Assessment, Ball Estates Single-Family Development*. Prepared for Aliquot Associates, June 7, 2018.

4.14 POPULATION AND HOUSING

This section evaluates the potential population and housing impacts from implementation of the project. For the purposes of this analysis, the project is anticipated to be fully operational after 18 months. Analysis is based on existing and projected demographic information for the unincorporated Alamo community (Alamo) drawn from multiple sources, including:

- The *Contra Costa County General Plan 2005-2020* (General Plan)
- Association of Bay Area Governments (ABAG) Projections, 2013
- ABAG Regional Housing Need Plan for the San Francisco bay Area: 2014-2022, 2013
- AGAB San Francisco Bay Area State of the Region; Economy Population Housing 2015, 2015

These documents are available for review at the Contra Costa County (County) Department of Conservation and Development, Community Development Division, 30 Muir Street, Martinez, California.

No comments regarding population and housing were submitted in response to the Notice of Preparation for this draft environmental impact report (draft EIR).

4.14.1 EXISTING CONDITIONS

Population

The project site is located in Alamo, an unincorporated community in Central Contra Costa County (Central County) subregion between the cities of Walnut Creek and Danville. Central County is an urbanized area and had a population of approximately 491,232 in 2015 (United States Census Bureau, 2015). Alamo's population was 16,301 according to the same survey.

Table 4.14-1 summarizes regional population and housing statistics as well as projections through 2040. According to ABAG, growth in the County will primarily occur in 38 Priority Development Areas (PDAs), which are projected to accommodate about 60 percent of the County's household growth and 57 percent of job growth by 2040 (ABAG, 2013a). The Central County PDAs are located in regional urban hubs, such as the cities of Concord, San Ramon, and Walnut Creek.

Table 4.14-1 Demographic Information for Contra Costa County

Jurisdiction	Estimated 2015	Projected 2040	Percent Increase
Contra Costa County			
Population	1,085,700	1,338,400	14%
Households	387,870	464,150	16%
Average Household Size	2.77	2.85	5%
Total Jobs	374,610	467,390	20%
Unincorporated Contra Costa County			
Population	162,900	182,500	12%
Households	58,700	63,790	1%
Average Household Size	2.76	2.84	3%
Total Jobs	43,760	54,040	26%

Source: ABAG, 2013a; Contra Costa County, 2014.

Housing

Single family homes are the predominant housing type in the Unincorporated Contra Costa County (Unincorporated County), comprising 80 percent of the housing stock.[1] Countywide, single-family homes account for 74.4 percent of the housing stock. As shown in **Table 4.14-1**, the total estimated number of Unincorporated County households in 2015 was 58,700. The number of households is expected to grow modestly to 63,790 by 2040 (a 1 percent increase). Countywide, the number of households is expected to grow by 16 percent (ABAG, 2013a). This discrepancy in housing growth between Unincorporated County and County can be attributed to the PDA focus in incorporated cities.

Average Household Size

The number of persons per household in Unincorporated County in 2015 was 2.72 persons, slightly lower than the countywide estimate of 2.86 persons per household. In order to account for growth based on the larger-size single family homes that characterize development in much of Alamo, a conservative multiplier of 3.0 persons per household is assumed for the project, compared to the ABAG estimate of 2.73 persons per household in 2020 for Unincorporated County (ABAG, 2013a).

[1] Multi-family units accounts for 15.5 percent of housing stock; mobile homes account for 4.5 percent of housing stock.

Regional Housing Need Determination

In 2013, ABAG released the Regional Housing Needs Allocation (RHNA), which projects each County's share of the Bay Area's future growth and housing demand based on forecasts from the *San Francisco Bay Area Housing Needs Plan 2007-2014.* As illustrated in **Table 4.14-2**, the total RNHA allocation for the County between 2014-2022 is 20,630, down from 27,072 in the previous planning period. From 2007-2014, Contra Costa County issued 14,844 affordable housing permits and met 55 percent of their RHNA (ABAG, 2015). For the 2014-2022 planning period, Unincorporated County is assigned approximately 1,367 affordable housing units, approximately seven percent of the entire housing allocated to the County.

Table 4.14-2 Share of Regional Housing Needs for 2014-2022

Income Group	Total RHNA Allocation for Contra Costa County	RHNA Allocation for Unincorporated Areas	RNHA units provided in Unincorporated Areas (2007-2014)
Very Low	5,264	374	88
Low	3,086	218	53
Moderate	3,496	243	330
Above Moderate	8,784	532	1,672
Total	20,630	1,367	2,143

Source: ABAG, 2013b; Contra Costa County, 2014.

Employment

The County has a fast growing workforce and is projected to add 45,450 new jobs between 2015 and 2025. However, ABAG expects the region will primarily provide "bedroom communities" for the workforce of other Bay area counties, as the County is expected to gain an estimated 14,050 more employed residents than jobs between 2010 and 2040 (Contra Costa County, 2014). **Table 4.14-1** illustrates the number of jobs projected for the entire County.

4.14.2 REGULATORY SETTING

Contra Costa County General Plan

The Land Use Element of the General Plan contains the following relevant policies related to population and housing.

Land Use Element

3-21: The predominantly single-family character of substantially developed portions of the County shall be retained. Multiple-family housing shall be

dispersed throughout the County and not concentrated in single locations. Multiple-family housing shall generally be located in proximity to facilities such as arterial roads, transit corridors, and shopping areas.

3-25: Innovation in site planning and design of housing developments shall be encouraged in order to upgrade quality and efficiency of residential living arrangements and to protect the surrounding environment.

3-27: Existing residential neighborhoods shall be protected from incompatible land uses and traffic levels exceeding adopted service standards.

3-28: New residential development shall be accommodated only in areas where it will avoid creating severe unmitigated adverse impacts upon the environment and upon the existing community.

3-29: New housing projects shall be located on stable and secure lands or shall be designed to mitigate adverse or potentially adverse conditions. Residential densities of conventional construction shall generally decrease as the natural slope increases.

Housing Element

An Updated Housing Element was adopted by the County in 2014. This document identifies state, regional, and local housing policies, assesses the County's housing needs, and inventories the resources and constraints relevant to the meeting those needs.

State law requires that this assessment include an analysis of population, household characteristics, employment trends, regional housing needs, and an inventory of suitable land for residential development. The assessment should also include an analysis of governmental and non-governmental constraints, special housing needs, opportunities for energy conservation, and publicly-assisted housing developments that may convert to non-assisted housing developments. The purpose of these requirements is to develop an understanding of the existing and projected housing needs within the County and to set forth policies that promote preservation, improvement, and development of diverse types and costs of housing throughout the County.

The Updated Housing Element contains the following relevant policies associated with population and housing:

7.1: Establish and maintain development standards that support housing development while protecting quality of life goals.

7.4: Continue to provide for timely and coordinated processing of residential development projects in order to minimize project holding costs and encourage housing production.

Policy Consistency Analysis

The project would be consistent with the applicable General Plan policies of the Land Use and Housing Elements related to population and housing. The project site is located within the Urban Limit Line (ULL), which identifies the project site and surrounding properties for urban development, consistent with policies 7.1 and 7.4.

As the project proposes 35 residential lots for single family homes, it would retain the predominantly single-family character of the County and be consistent with policy 3-21.

In reference to policy 3-27, the proposed single-family detached residential units would be designed for compatibility with the Alamo community.

The project design also includes dedication of open space areas and, as documented throughout this draft EIR, the project would not create severe unmitigated adverse effects upon the environment and upon the existing community, consistent with policies 3-28 and 3-25.

Contra Costa County Inclusionary Housing Ordinance

In 2006, The Contra Costa County Board of Supervisors adopted an ordinance that requires new residential developments to include a minimum percentage of dwelling units that are affordable to very low, lower, and moderate income households. In residential developments of 5 through 125 units, 15 percent of the dwelling units must be affordable, or a fee may be paid in lieu of providing some or all of the required units.

Policy Consistency Analysis

The project does not propose dwelling units that would be affordable to very low, lower, or moderate income households. The project application would pay a fee in lieu. The fee in lieu amount would be established by the Contra Costa County Department of Conservation and Development, and paid before the issuance of building permits.

4.14.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Induce substantial 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).

- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Discussion of No Impacts

Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

The project would remove the existing single family estate and caretaker's residence. Both of these units would be replaced with new housing as part of the project, which would result in a net increase of 33 units to the County's housing stock. No other replacement housing would be required, and no impact would occur.

Discussion of Less-Than-Significant Impacts

Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The project would remove the existing single family estate and caretaker living quarters. Their removal would not displace a substantial number of people that would trigger the construction of replacement housing elsewhere in the region. This impact would be less than significant, and no mitigation is required.

Would the project induce substantial 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)?

Direct Growth

This draft EIR assumes the construction of 35 custom residential homes, which would directly increase the Unincorporated County population by an estimated 105 people.[2] Between 2015 and 2025, ABAG projects a Countywide population increase of 86,900 and an increase in population in Unincorporated County of approximately 6,800 (ABAG, 2013a). Population generated by the project represents approximately 1.5 percent of the projected growth in the Unincorporated County and 0.1 percent of the projected growth estimated Countywide for the same period.

[2] This number was determined using the Contra Costa County projected number of 3.0 persons per household for the Alamo area. It is anticipated that some of the residential units would be occupied by persons that already work and/or live in the County.

The project site and surrounding properties were included within the ULL to indicate an intention for future conversion to urban uses.[3]

Non-residential development is not included in this project, and few new jobs would be created onsite. In addition, the approximately 30 jobs in the existing office building onsite would be relocated offsite. There would be no substantial direct job growth as a result of the project.

Given that the direct population increase of 105 people associated with the project would not be substantial, this impact is considered less than significant and no mitigation would be required.

4.14.4 CUMULATIVE IMPACTS

The cumulative setting for population growth and housing includes the County as a whole. The General Plan stated that build-out of the General Plan could result in up to 145,206 new residents in the County by the end of the planning period (2020). The *Contra Costa County General Plan EIR Impacts and Mitigation Summary* also noted that adoption of the General Plan would concentrate population in urban areas, and would preclude development and extension of urban services and facilities outside of the ULL.

The General Plan did not identify a significant impact related to population growth, and therefore a cumulative impact related to population and housing does not exist.

The project is located within the ULL and would not require an extension of services outside the ULL boundary. The project in conjunction with other projects located within the ULL would therefore not generate a cumulatively significant impact related to direct or indirect growth.

[3] The timing for the development of these areas is speculative. Regional population projections have attempted to account for a reasonable growth rate based on market conditions.

4.14.5 REFERENCES

Association of Bay Area Governments, 2013a. *Projections*, 2013.

Association of Bay Area Governments, 2013b. *Regional Housing Need Plan, San Francisco Bay Area: 2014-2022*.

Association of Bay Area Governments, 2015. *San Francisco Bay Area State of the Region; Economy Population Housing 2015*. Available: http://reports.abag.ca.gov/sotr/2015/section4-housing-goals-progress.php#section4_3. Accessed September 17, 2015.

Contra Costa County, 2014. Contra Costa County Housing Element Update. Revised Draft.

United States Census Bureau, 2015. *American Fact Finder*. Available: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_S0101&prodType=table. Accessed July 12, 2017.

4.15 PUBLIC SERVICES AND RECREATION

This section describes the existing public services and recreational facilities that serve the project area to identify potential impacts to these services from construction and occupancy of the project. Public services addressed in this section include police and fire protection, schools, parks and recreation, libraries, and hospitals. Sources of information used to prepare the analysis in this section include

- Personal communications with service providers
- Service provider websites and online resources
- The *Contra Costa County General Plan 2005-2020* (General Plan)

These reports are available for review at the Contra Costa County (County), Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

No comments regarding public services and recreation were submitted in response to the Notice of Preparation for this draft environmental impact report (draft EIR).

4.15.1 EXISTING CONDITIONS

Law Enforcement

Contra Costa County Sheriff's Department

Police services in the project vicinity are provided by the Contra Costa County Sheriff's Department (CSD), located at 1150 Alamo Plaza #C, Alamo, CA 94507. The County Service Area P-2 provides police services to Blackhawk and Alamo. Alamo and the project site are in Zone B of the service area (Contra Costa LAFCO, 2013).

The Alamo Station manages 12 separate patrol deputy sheriff shifts per 24 hour period, Monday through Thursday, with an additional 3 patrol sergeants and 1 Station House Commander, Lieutenant, and a daily rotating volunteer/support staff of 1 to 5. The weekend shifts covering Friday through Sunday manage seven separate patrol duty shifts for a 24-hour period with an additional two patrol sergeants. The average response time to priority one and two calls in Alamo is approximately six minutes, from the time that the calls are dispatched to arrival on scene (Livingston, 2015).

The CSD does not employ a ratio method of deputies per civilian due to the varying area service needs in County. Staffing levels in geographic areas vary from station to station and are based on the size of the area policed, calls for service, and crime

statistics. These factors are reviewed monthly by the Station House Commanders and Command Staff. However, the General Plan includes a sheriff facility standard of 155 square feet of station per 1,000 people within the unincorporated area of the County. There are no plans to increase or expand staff in this district (Haynes, 2017a).

Fire Protection and Emergency Services

Fire protection and emergency medical response services for the project area are provided by the San Ramon Valley Fire Protection District (SRVFPD). Fire protection to the project site would be provided by Fire Station 32. While this station is currently located at 1101 Stone Valley Road, construction is underway for a new station site located at 2100 Stone Valley Road. This new station site will provide the same level of service with equipment including two structural fire engines, one wildland fire engine, and one ambulance (SRVFPD, 2017). According to the Public Facilities/Services Element in the County's General Plan, the County strives to have a minimum of three firefighters at each fire station, and to locate a fire station within 3 minutes and/or 1.5 miles of all non-rural areas. In suburban areas, the County strives to achieve a total response time of 5 minutes for 90 percent of all emergency calls (SRVFPD, 2010).

Fire Station 32 is staffed by 15 full-time personnel and is equipped with 2 structural fire engines, 1 wildland fire engine, and one ambulance. Daily staffing at Station 32 consists of two Captains, two Engineers, and one firefighter, all of whom are career firefighters and qualified paramedics (Kiefer, 2015). The project site is approximately 2.5 miles from the new Station 32 site. In 2011, SRVFPD estimated travel time to be 3.66 minutes from unit dispatch from the existing Station 32 site to arrival. The new Station 32 site is located 0.5 mile farther away from the project site. However, according to the SRVFPD website, response times will be improved at the new site due to its location at a signalized intersection. The new site is located on one corner of a major controlled intersection at the very center of the Alamo response zone (SRVFPD, 2017). Crews will be able to control the traffic lights at this intersection remotely, thereby decreasing departure time from the station.

Schools

The San Ramon Valley Unified School District (SRVUSD) provides public education services to students in the Alamo area. Students living within the neighborhoods surrounding the project site attend Rancho Romero Elementary School, Stone Valley Middle School, and San Ramon Valley High School (Perault, 2017). **Figure 4.15-1** shows the location of the schools in the project vicinity. **Table 4.15-1** details the current enrollment statistics for schools in the project vicinity.

Table 4.15-1 Schools within the Project Vicinity

School	Distance from Project Site	Current Enrollment
Rancho Romero Elementary	0.36 mile	504
Stone Valley Middle School	1.64 miles	593
San Ramon Valley High School	1.50 miles	2,059

Source: Perault, 2017.

Planned Improvements

According to the SRVUSD, all three schools that serve the project site will be renovated as part of the Measure D General Election bond, passed in 2012 (Perault, 2017). These planned improvements are independent of project implementation, and include the following:

- Kitchen improvements at Rancho Romero Elementary School. As of January 2017, construction at Rancho Romero is underway but an estimated completion date is yet to be set (Perault, 2017).
- The replacement of existing classroom buildings at Stone Valley Middle School with a new single two story classroom building and a single Multi-Purpose Room (anticipated completion before the 2017-2018 school year).
- The replacement of existing classroom buildings at San Ramon Valley High School with a single three-story classroom building (under construction; anticipated completion in August 2018).

Parks and Recreation

Local Parks

Local parks and recreational services are provided by Alamo Department of Parks and Recreation. Several local parks are located in the project vicinity as shown in **Table 4.15-2**. Hap Magee Ranch Park is located approximately 0.63 mile northeast of the project site, and Livorna Park is located approximately 2.3 miles north-by-northeast of the project site. Recreational facilities within the project vicinity include the Alamo School Sports Field and Batting Cages and the Ranch Romero Sports Field and Park, approximately 2.13 and 0.36 mile from the project site respectively. Hemme Station Park will be located approximately one half mile from the project site and is scheduled to open in late summer 2017. The new 0.7 acre park will be accessible from Iron Horse Trail and will include restrooms, benches, picnic tables, and playground.

Regional Parks

Regional parks and recreational services are provided by the East Bay Regional Park District (EBRPD). As listed in **Table 4.15-2**, the closest regional parks to the project site include the Las Trampas Regional Wilderness Trail, Little Hills Recreation Area, Diablo Foothills Regional Park, and Sycamore Valley Open Space Preserve.

Park Dedication and Fee Requirements

State law authorizes local governments to require the dedication of parkland or impose a fee (in lieu of land dedication) to offset the additional demand for parks and recreational facilities generated by new development. The Quimby Act (Assembly Bill 1191) recommends dedication requirements to at most 3 acres of parkland per 1,000 residents.[1]

The General Plan Growth Management Element requires new development to provide 3 acres of neighborhood parkland per 1,000 people. The estimated population of the project site is 105 people. However, the Proposed Vesting Tentative Map already includes the dedication of over 38-acres (comprising "Parcel B" of the Proposed Vesting Tentative Map) of open space to the Land Conservancy Trust, the homeowner association (HOA) or a public agency. This dedication thus meets the standard outlined by the County Code, Division 920 Article 920-6.2.

Libraries

Contra Costa County Library operates 26 libraries in the County, including Danville Library located at 400 Front Street in Danville, approximately 2 miles from the project site. The Danville Library opened in 1996. The Contra Costa County Library system is primarily funded by local property taxes, with additional revenue from intergovernmental sources.

Hospitals

Contra Costa County Health Services District (CCCHSD) operates 10 health facilities in the County. CCCHSD is primarily funded by federal and state funding programs, with additional revenue from local tax resources. County health facilities generally serve low-income and uninsured patients. The closest public health center to the project site is San Ramon Regional Medical Center located at 6001 Norris Canyon

[1] With the following exception, stated in Assembly Bill 1191, Section 1, Subsection 66477(a)(2): "*. . . unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed five acres per 1,000 persons residing within a subdivision subject to this section.*"

Road in San Ramon, approximately 7 miles southeast of the project site. The San Ramon Medical Center is a comprehensive medical facility offering a full range of services, including 24 hour emergency services, internal medicine, pediatrics, prenatal care, cardiology, outpatients surgery, and women's health care departments.

Table 4.15-2 Parks within the Project Vicinity

Park	Acreage	Distance from Project Site
Local Parks		
Rancho Romero School Facilities	5.37	0.36 mile
Hemme Station Park (opening late Summer, 2017)	0.7	0.55 mile
Hap Magee Ranch Park	16.3	0.63 mile
Alamo School Facilities	2.5	2.13 miles
Livorna Park	4.4	2.3 miles
Regional Parks		
Las Trampas Regional Wilderness Trail	5,342	0.10 mile
Little Hills Regional Recreation Area	100	1.90 miles
Diablo Foothills Regional Park	1,060	3.9 miles
Sycamore Valley Open Space Preserve	696	4.9 miles

Source: County, 2017; East Bay Regional Parks District, 2017.

PUBLIC SCHOOLS WITHIN THE PROJECT VICINITY

Figure 4.15-1

Source: Google Earth, 2015; Circlepoint, 2015.

4.15.2 REGULATORY SETTING

Federal

Senate Bill 50

The Leroy F. Greene School Facilities Act of 1998, or Senate Bill 50 (SB 50), restricts the ability of local agencies to deny project approvals on the basis that public school facilities (classrooms, auditoriums, etc.) are inadequate. School impact fees are collected at the time when building permits are issued. Payment of school fees is required by SB 50 for all new residential development projects and is considered "full and complete mitigation" of any school impacts. School impact fees are payments to offset capital cost impacts associated with new developments, which result primarily from costs of additional school facilities, related furnishings and equipment, and projected capital maintenance requirements. As such, agencies cannot require additional mitigation for any school impacts.

Project Consistency Analysis

The project would be developed within the SRVUSD boundary, and would be subject to school impact fees for this school district. For the SRVUSD, the project proponent would pay the standard developer fees for new housing. The payment of monetary funds would satisfy local and state laws related to school impacts and school impact fees. Therefore, the project would be consistent with SB 50.

Local

Contra Costa County General Plan

The Public Facilities/Services and Open Space Elements of the General Plan contain the following relevant public services and recreation goals and policies.

Public Facilities/Services Element

7-1: New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based upon the demand for these facilities which can be attributed to new development.

7-2: New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.

7-4: The financial impacts of new development or public facilities should generally be determined during the project review process and may be based on the analysis contemplated under the Growth Management Element or otherwise. As part of the project approval, specific findings shall be adopted which relate to the demand for new public facilities and how

the demand affects the service standards included in the growth management program.

Public Protection

7-57: A sheriff facility standard of 155 square feet of station per 1,000 population shall be maintained within the unincorporated area of the County.

7-58: Sheriff patrol beats shall be configured to assure minimum response times and efficient use of resources.

7-59: A maximum response time goal for priority 1 or 2 calls of five minutes for 90 percent of all emergency responses in central business district, urban and suburban areas, shall be strived for by the sheriff when making staffing and beat configuration decisions.

7-60: Levels of service above the county-wide standard requested by unincorporated communities shall be provided through the creation of a County Service Area or other special government unit.

Fire Protection Policies

7-62: The County shall strive to reach a maximum running time of 3 minutes and/or 1.5 miles from the first-due station, and a minimum of 3 firefighters to be maintained in all central business district (CBD), urban and suburban areas.

7-63: The County shall strive to achieve a total response time (dispatch plus running and set-up time) of five minutes in CBD, urban, and suburban areas for 90 percent of all emergency responses.

7-64: New development shall pay its fair share of costs for new fire protection facilities and services.

7-70: The effectiveness of existing and proposed fire protection facilities shall be maximized by incorporating analysis of optimum fire and emergency service access into circulation system design.

7-75: Fire stations and facilities shall be considered consistent with all land use designations used in the General Plan and all zoning districts.

Open Space Element

9-1: Permanent open space shall be provided within the County for a variety of open space uses.

9-36: To develop a sufficient amount of conveniently located, properly designed park and recreational facilities to serve the needs of all residents.

9-38: To promote active and passive recreational enjoyment of the County's physical amenities for the continued health, safety, and welfare of the citizens of the County.

9-39: To achieve a level of park facilities of 3 acres per 1,000 population.

9-40: Major park lands shall be reserved to ensure that the present and future needs of the County's residents will be met and to preserve areas of natural beauty or historical interest for future generations. Apply the parks and recreation performance standards in the Growth Management Element.

9-41: A well-balanced distribution of local parks, based on character and intensity of present and planned residential development and future recreation needs, shall be preserved.

9-47: Recreational development shall be allowed only in a manner which complements the natural features of the area, including the topography, waterways, vegetation, and soil characteristics.

Project Consistency Analysis

To ensure conformance with General Plan policies related to emergency service response and staffing, the project would include additional public service elements designed to ensure the continued efficiency of emergency and protection services to the project site and adjacent community. The project would include the construction of an emergency vehicle access route between proposed Lots 5 and 6 to link the public and private sections of Ironwood Place Road, and serve as an emergency response access route for the project site. Parcel C would serve as a buffer zone between the open space and residential lots so as to minimize wildland fire hazards to the property site and adjacent communities. Additionally, the Proposed Vesting Tentative Map would be submitted to the SRVFPD for approval prior to the issuance of a building permit.

The project would create additional parklands through the dedication of approximately 41 acres of open space to the Land Conservancy Trust, the HOA, or a public agency, and therefore it would comply with the County's parks dedication requirements.

4.15.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the California Environmental Quality Act Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service

ratios, response times or other performance objectives for any of the following public services:

- Fire Protection
- Police Protection
- Schools
- Parks
- Other public facilities

- 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.
- Include recreational facilities or require the construction or expansion of recreational facilities, which would have an adverse physical effect on the environment.

Discussion of Less-than-Significant Impacts

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

Police Protection

The CSD would provide police protection services to the project. Due to the small population increase (approximately 105 residents) within the police protection service area, the CSD determined that the project would not require the construction of new police facilities (Hayes, 2017b). As discussed in **Chapter 3.0, Project Description**, project operation will include vegetation management to maintain 100 feet of defensible space to reduce the risk of wildfires. Vegetation management activities would not place additional demand on police services, but are intended to mitigate fire risks and potentially lessen the demand on fire services. This impact would be less than significant.

Fire Protection and Emergency Services

The SRVFPD would provide fire and emergency services to the project site. A new location for Station 32, which would serve the project site, is currently under construction (SRVRPD, 2017b). Due to the small population increase (approximately 105 residents), and the fact that a new SRVFPD facility is already being constructed near the project site, the SRVFPD determined that the project would not require the construction of additional fire department facilities (Kiefer, 2017). As discussed in

Chapter 3.0, Project Description, project operation will include vegetation management to maintain 100 feet of defensible space to reduce the risk of wildfires. Vegetation management activities would not place additional demand on fire protection or emergency services, but are intended to mitigate fire risks and potentially lessen the demand on fire services. This impact would be less than significant.

Schools

The capacity of Rancho Romero Elementary School is approximately 600 students, Stone Valley Middle School is approximately 700 to 800, and San Ramon Valley High School is approximately 2,100 to 2,200 students (Perault, 2017). As of January 2017, all three schools have enrollments below their respective capacities (see **Table 4.15-1**). For single-family detached homes, SRVUSD uses a student generation rate of 0.43 students for grades Kindergarten-5, 0.23 students for 6-8, and 0.19 students for 9-12. Based on these rates, the project would induce the enrollment of approximately 15 new Kindergarten-5 students, 8 new 6th-8th grade students, and 7 additional high-school students. Therefore, the project would not cause any of the schools to exceed their respective capacities. In addition, payment of school fees is required by SB 50 for all new residential development projects is considered full and complete mitigation of all impacts associated with new development. This impact would be less than significant.

Parks and Recreation

There are nine parks and open space areas within 5 miles of the project site. The parks include the 17-acre Hap Magee Ranch Park, the 1-acre Livorna Park, the 1,060-acre Diablo Foothills Regional Park, the 696-acre Las Trampas Regional Wilderness Trail, and the 5,342-acre Sycamore Valley Open Space Preserve. These regional parks are large enough that the General Plan park facilities ratio of 3 acres per 1,000 residents would not be affected by the additional 105 residents associated with project buildout. Additionally, the project would dedicate approximately 41 acres of open space. As a result, parkland performance objectives would not be affected by project implementation. This impact would be less than significant.

As stated **in Chapter 3.0, Project Description**, the project includes the construction of a staging area to access the Madrone Trail and EBRPD lands west of the project site. The potential physical environmental effects associated with the construction of the Parcel D staging area are incorporated into this draft EIR. As such, impacts associated with the construction of the staging area would not result in impacts beyond those disclosed in this draft EIR.

Other Facilities

The project would provide housing for approximately 105 residents, which could increase the demand for library services, including facilities, media, and staff time.

The Danville Library, located at 400 Front Street in Danville, approximately 2 miles from the project site, serves the project site and other residents in the area. It contains a collection of over 78,000 children's, teens, and adult materials. There are six catalog computers, 33 public internet terminals, and several computer programs available for use, and in recent years has offered a host of electronic services, including offering its patrons the option of downloading e-books and a virtual reference library. Currently the library serves a population of over 40,000. Given that the projected increase in population would represent less than 0.003 percent of the existing population served, impacts to libraries associated with project implementation would be less than significant.

The additional 105 residents in Alamo could also increase the demand for health services, including facilities, equipment, and staff time. CCCHSD operates 10 health facilities in the County. The closest public health center to the project site is San Ramon Regional Medical Center located at 6001 Norris Canyon Road in San Ramon, approximately 7 miles southeast of the project site. CCCHSD is primarily funded by federal and state funding programs, with additional revenue from local tax resources. County health facilities generally serve low-income and uninsured patients. Residents acquiring private property within the new development would not be of a lower income bracket, and would therefore not generally demand or require County Health Services. As a result, impacts to health services associated implementation of the project would be less than significant.

Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

As stated above, there are currently five local and four regional parks and open space areas within 5 miles of the project site. These regional parks are large enough that the General Plan's park facilities ratio of 3 acres per 1,000 residents would not be affected by the additional 105 residents associated with project buildout (which would be associated with a demand of 0.315 acre of parkland). The parks within the vicinity of the project site may be used more frequently with project implementation; however, considering the combined acreage of regional and local parks within the area (approximately 7,227 acres), the addition of 105 residents would not impact existing neighborhood or regional parks such that substantial deterioration would occur. Additionally, the project applicant proposes an open space dedication of approximately 41 acres to an appropriate public lands organization, which would further ensure that no substantial adverse impacts associated with project buildout would occur. This impact would be less than significant.

Would the project include recreational facilities or require the construction or expansion of recreational facilities, which would have an adverse physical effect on the environment?

As above, potential physical environmental effects associated with the construction of the Parcel D staging area are incorporated into this draft EIR. As such, impacts associated with the construction of the staging area would not result in impacts beyond those disclosed in this draft EIR.

4.15.4 CUMULATIVE IMPACTS

The cumulative setting for public services includes the project and three proposed developments, within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**). According to the Alamo Municipal Advisory Council records, the development at 902 Danville Boulevard entailed the addition of a 7,935 square-foot multi-purpose recreational building, minor adjustments to the existing church building and associated parking lot and lighting (Alamo Municipal Advisory Council, 2013). This project would not add new residents to the area and cause an increase in demand on public services. The proposed development at 512 Hemme Avenue entails the subdivision of a single lot into three (3) single-family homes (Contra Costa Zoning Administrator, 2015). Likewise, the proposed development at 805/813 La Gonda entails the subdivision of a 3.73 acre lot into five (5) single-family homes (Town of Danville Planning Commission, 2014). Based on the County's average household size of three (3) people per household, the four projects, including the project, would generate approximately 43 new single-family homes occupied by 134 new residents. All three of these foreseeable projects would be located within urban areas currently served by existing public services.

Emergency Services

Significant impacts to emergency services are usually associated with large-scale developments that generate a significant increase in a local population, whether it be on a permanent (as in a residential development), or temporary (such as a large commercial or office building that generates day-time employees) basis. The project is expected to bring 105 new residents to the area, generating demands for police and fire services at those levels identified earlier in this chapter. Both the SRVFPD and the CSD confirmed that the project, which would generate approximately 105 of the new residents, would not impact emergency services, staffing levels or facilities. The remaining three foreseeable projects, which are expected to generate an additional 29 residents within areas currently served by emergency services. The project, along with reasonably foreseeable projects would not generate substantial population or conditions that would necessitate the construction of a new fire or police facility. Therefore, no cumulative impact to police and fire protection services would occur.

Schools

The cumulative setting for schools is the SRVUSD boundary, as all four projects considered within the cumulative scenario fall within the jurisdiction of the SRVUSD. These proposed developments would be required pay development impact fees to the SRVUSD, consistent with the requirements of SB 50. Payment of these fees is considered sufficient contribution to provide for expanding facilities and staffing levels, and completely mitigates any potentially significant impacts to schools. Therefore, no cumulative impact would occur.

Parks and Recreation

The cumulative setting to parks and recreation includes the project and the three proposed developments within a one-mile radius of the project site (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**). Significant impacts to parks and recreation arise from the overuse and subsequent degradation of the park facilities usually associated with the local population to park facilities ratio exceeding its threshold. The parks within the vicinity of the project site may be used more frequently with buildout of the cumulative scenario; however, considering the combined acreage of regional and local parks within a 5-mile radius, the cumulative addition of the approximate 134 residents is not expected to have an impact on any existing neighborhood or regional parks such that substantial deterioration would occur. The General Plan's park facilities ratio of 3 acres per 1,000 residents would not be affected by the additional 134 residents associated with the cumulative scenario. Therefore, no cumulative impact would occur.

Additionally, the project applicant proposes an open space dedication of approximately 41 acres to an appropriate public lands organization, which would further ensure that the project makes no considerable contribution to a cumulative impact.

Other Facilities

The cumulative setting for other facilities includes the project and the three proposed developments within a 1-mile radius of the project site (see **Chapter 4.0, Setting, Impacts and Mitigation Measures**).

The Contra Costa County Library system serves a population of over 40,000 and is primarily funded by local property taxes with additional revenue from intergovernmental sources. As discussed above, the library contains a collection of over 78,000 children's, teens, and adult materials. There are six catalog computers, 33 public internet terminals, and several computer programs available for use, and in recent years has offered a host of electronic services, including offering its patrons the option of downloading e-books and a virtual reference library. Given that buildout of the cumulative scenario would only add approximately 134 residents to the area, which is equivalent to about a 0.3 percent of the library's service population, and given trends toward an increase in demand for electronic

resources, the cumulative scenario would not significantly impact library service conformance levels. Therefore, no cumulative impact would occur.

The additional 134 residents generated by the cumulative scenario could also increase the demand for health services, including facilities, equipment, and staff time. Neither California nor Contra Costa County has formal health service standards for facilities. As stated above, CCCHSD operates 10 health facilities in the County. CCCHSD is primarily funded by federal and state funding programs, with additional revenue from local tax resources. County health facilities generally serve low-income and uninsured patients. The closest public health center to all four developments within the cumulative scenario is San Ramon Regional Medical Center located at 6001 Norris Canyon Road in San Ramon. There are numerous medical/health centers located within 10 miles of Alamo, all of which would be able to provide for the small population increase of 134 residents resulting from buildout of the developments comprising the cumulative scenario. No cumulative impact would occur.

4.15.5 REFERENCES

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4.16 TRANSPORTATION AND TRAFFIC

This section describes the existing transportation and traffic circulation patterns in and around the project site, and provides an analysis of the potential impacts of the project. The information in this section was obtained from:

- A Traffic Impact Study (TIS) prepared by Abrams Associates Inc. in February 2017(see **Appendix P**)
- A Traffic Impact Study Addendum (TIS Addendum) prepared by Abrams Associates Inc. in February 2017 (see **Appendix P**)
- A TIS Addendum addressing Equestrian, Pedestrian and Bicycle Safety in February 2017 (see **Appendix P**)
- The Contra Costa County General Plan 2005-2020 (General Plan)

These documents are available for review at the Contra Costa County Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation for this draft environmental impact report (EIR), the California Department of Transportation (Caltrans) submitted a comment letter requesting that the project's fair share contribution, financing, scheduling, implementation responsibilities, and lead agency monitoring should be discussed for all proposed mitigation measures and should be presented in the Mitigation Monitoring and Reporting Plan. Caltrans also noted that traffic impact fees should be identified if used for mitigation.

The East Bay Regional Park District (EBRPD) also submitted a comment letter expressing concern over additional traffic and congestion on Camille Avenue that may result from the project, parking issues associated with Las Trampas Regional Wilderness trail users, and recommend that a full traffic study should be undertaken. An individual also commented on parking adequacy for trail users, and safety and access issues associated with Camille Lane. These issues are addressed in the section.

4.16.1 METHODOLOGY

Study Area

The traffic study intersections are shown in **Figure 4.16-1** and include the project site and the adjacent roadway network in Alamo, an unincorporated area of Contra Costa County (County). This analysis considers the following five intersections:

- Danville Boulevard and Stone Valley Road
- Danville Boulevard and Hemme Avenue
- Danville Boulevard and Camille Avenue
- Danville Boulevard and El Portal
- Danville Boulevard and El Cerro Boulevard

Each of these intersections is signalized except El Portal, which is controlled by a stop sign on El Portal at the Danville Boulevard intersection.

In addition to these intersections, the segment of Danville Boulevard between Stone Valley Road and El Cerro Boulevard was also studied, along with the segment of Camille Avenue between Danville Boulevard and the project site.

Analysis Scenarios

Traffic impacts were evaluated for the weekday peak commute periods (i.e., AM and PM) using the following four condition scenarios:

- *Existing* – Level of Service (LOS) based on existing peak hour volumes and existing intersection configurations.
- *Baseline* – Existing traffic plus anticipated traffic from approved developments in the study area
- *Baseline Plus Project* – Baseline conditions peak-hour volumes plus trips from the project.
- *Cumulative No Project* – Future (Year 2030) forecast conditions based on the Contra Costa County General Plan EIR.
- *Cumulative With Project* – Future (Year 2030) forecast conditions based on the Contra Costa County General Plan EIR plus project-related traffic.

Analysis Method

Transportation engineers and planners use the term level of service (LOS) to qualitatively describe the operations of transportation facilities. Level of service is an expression, in the form of a scale, of the relationship between the capacity of an intersection (or roadway segment) to accommodate the volume of traffic moving through it at any given time. The level of service scale describes traffic flow with six ratings ranging from A to F, with "A" indicating relatively free flow of traffic and "F" indicating stop-and-go traffic characterized by traffic jams. The analysis methods for each of the transportation facilities evaluated in this section are described below.

Intersection Analysis

Operations of the five study intersections were evaluated using the 2010 *Highway Capacity Manual* (HCM) Level of Service (LOS) methodology.

As the amount of traffic moving through a given intersection or roadway segment increases, the traffic flow conditions that motorists experience rapidly deteriorate as the capacity of the intersection or roadway segment is reached. Under such conditions, there is general instability in the traffic flow, which means that relatively small incidents (e.g., momentary engine stall) can cause considerable fluctuations in speeds and delays that lead to traffic congestion. This near capacity situation is labeled level of service (LOS) E. Beyond LOS E, the intersection or roadway segment capacity has been exceeded, and arriving traffic will exceed the ability of the intersection to accommodate it.

For signalized intersections, the HCM methodology determines the capacity of each lane group approaching the intersection. LOS is then based on average control delay (in seconds per vehicle) for the various movements within the intersection. A combined weighted average control delay and LOS are presented for the intersection. **Table 4.16-1** summarizes the relationship between LOS and average control delay at signalized intersections. As per the requirements set forth by the Contra Costa County Transportation Authority (CCTA) all signalized intersections have also been analyzed using the methodology set forth in the Final Technical Procedures Update (dated January 16, 2013).

Table 4.16-1 Signalized Intersection Level of Service Definitions

LOS	Description of Operations	Average Delay (sec/veh)
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	< or = 10
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10 to 20
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20 to 35
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 to 55
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	> 55 to 80
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Transportation Research Board, 2010

Note: As part of the HCM methodology, adjustments are typically made for various factors that reduce the ability of the streets to accommodate vehicles (such as the downtown nature of the area, number of pedestrians, vehicle types, lane widths, grades, on-street parking, and queues). These adjustments are performed to ensure that the LOS analysis results reflect the operating conditions that are observed in the field.

For unsignalized intersections (all-way stop controlled and two-way stop controlled), the average control delay and LOS operating conditions are calculated by approach (e.g., northbound) and movement (e.g., northbound left-turn) for those movements that are subject to delay. In general, the operating conditions for unsignalized intersections are presented for the worst approach. **Table 4.16-2** summarizes the relationship between LOS and average control delay at unsignalized intersections.

Table 4.16-2 Unsignalized Intersection Level of Service Definitions

LOS	Description of Operations	Average Delay (sec/veh)
A	No delay for stop-controlled approaches.	0 to 10
B	Operations with minor delays.	> 10 to 15
C	Operations with moderate delays.	> 15 to 25
D	Operations with some delays.	> 25 to 35
E	Operations with high delays and long queues.	> 35 to 50
F	Operations with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Source: Transportation Research Board, 2010

4.16.2 EXISTING CONDITIONS

This section describes the roadways, traffic conditions, and other existing transportation characteristics in the vicinity of the project site. The primary basis of the analysis is the peak hour LOS for the key intersections. The morning peak hour is 8:00 AM to 9:00 AM and the afternoon peak hour is 5:00 PM to 6:00 PM for all of the transportation facilities described. Throughout this report, these peak hours will be identified as the AM and PM peak hours, respectively.

Roadway System

The project site is located in the unincorporated Alamo area west of Danville Boulevard. Entry to the project site is at the western terminus of Camille Avenue (a public street), and the western terminus of Ironwood Place (a public street). Regional access to the project site is provided by Interstate 680 (I-680), located 0.5 miles to the northeast.

Highways

I-680 is an eight-lane divided highway that is north-south oriented in the vicinity of the project site. It has paved shoulders and a retaining wall is located along portion of the south edge of the highway. I-680 is designated a California Scenic Highway from the Alameda County line to State Route (SR) 24 as it affords views of Mount Diablo, located approximately 5 miles northeast of the project site.

SR 24 is located approximately 5 miles northwest of the project site and is oriented in an east-west direction. It contains six- to ten-lanes depending on the segment of the highway. It is a divided highway with paved shoulders. SR 24 is also a State

Scenic Highway from the east portal of the Caldecott tunnel to I-680 near Walnut Creek.

Major Roadways

Camille Avenue is the roadway that would serve the project site. It is a two-lane residential street, which intersects with Danville Boulevard. The neighborhood that it serves contains about 160 homes, all of which use Camille Avenue for access. Other streets that connect to Camille Avenue for access include Daniel Drive, Gary Court, Camille Court, Escondido Court, and Ironwood Lane.

An office building is currently located within the project site at the terminus of Camille Avenue. Occupancy of this building has fluctuated from 100 percent capacity in the 1970s, to 76 percent capacity in 2010, to 40 percent occupancy when traffic surveys were conducted in May, 2012. At the time of the preparation of the TIS, the office building had approximately 15,751 square feet usable office space leased and about 45 parking spaces. Traffic levels observed in August 2013 and September 2016 were consistent with the May 2012 levels, and so 40 percent occupancy was assumed for existing conditions.

Danville Boulevard is a two-lane roadway with turn lanes at all major intersections. It runs north-south to the west of and parallel to I-680. It is the major local arterial through this part of Alamo, and is considered a Route of Regional Significance in the Tri-Valley Transportation Council Action Plan. Danville Boulevard has traffic signals at Stone Valley Road, Hemme Avenue, Camille Avenue, and El Cerro Boulevard.

Other Roadways

Hemme Avenue is a two lane residential street that provides access to Rancho Romero Elementary School. There are turn lanes and a traffic signal at its intersection with Danville Boulevard.

El Portal is also a two lane residential street with a stop sign where it intersects with Danville Boulevard. It provides access to La Gonda Way and Hap Magee Ranch Park. It also provides access to a partial interchange at El Pintado Road, and is used as a local route to and from the I-680 interchange.

El Cerro Boulevard is an arterial street that connects with an interchange with I-680. All approaches have two or more lanes at the intersection with Danville Boulevard. This intersection is located in the town of Danville.
Figure 4.16-1 illustrates the local roadways and lane configurations in the vicinity of the project site.

Existing Traffic and Circulation

AM and PM peak hour turning movement counts were conducted at each of the study intersections in May 2012 at times when local schools were in session.

Existing Intersection Operations

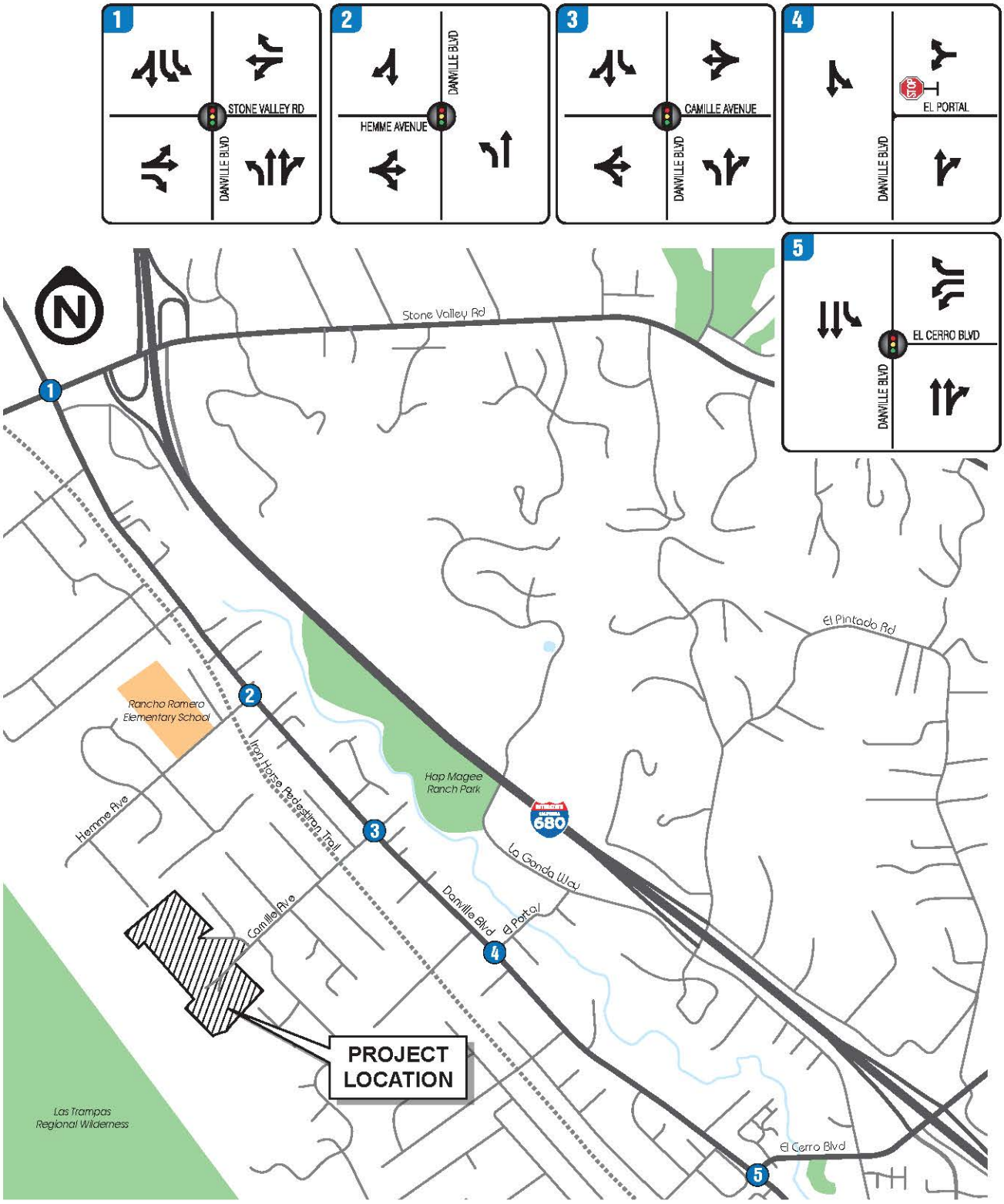
Table 4.16-3 summarizes the results of the existing conditions at the intersections evaluated. These conditions were observed in May 2012 and observed again in August 2013 and September 2016. The intersection capacity results reveals that all of the signalized intersections currently have acceptable conditions (LOS D or better) during both the weekday AM and PM peak hours.

Table 4.16-3 Existing Peak Hour Intersection Level of Service

Intersection	Control	Peak Hour	Existing	
			Measure (seconds/ vehicle)	LOS
Danville Boulevard and Stone Valley Road	Traffic signal	AM PM	22.2 28.2	C C
Danville Boulevard and Hemme Avenue	Traffic signal	AM PM	35.1 6.4	D A
Danville Boulevard and Camille Avenue	Traffic signal	AM PM	9.1 6.6	A A
Danville Boulevard and El Portal	Side street stop sign	AM PM	20.6 22.6	C C
Danville Boulevard and El Cerro Boulevard	Traffic signal	AM PM	13.1 19.2	B B

Note: At traffic signals, the delay is the average for all vehicles at the intersection, and is presented in terms of seconds per vehicle. At unsignalized intersections, the delay is calculated for the single most critical movement.

Source: Abrams Associates, 2017a



Traffic Study Intersections and Lane Configurations

Figure **4.16-1**

Source: Abrams Associates, 2015.

Existing Multi-Modal Facilities

Public Transportation

Public transportation in the project vicinity is limited. The closest bus station is located at the intersection of Danville Boulevard and Camille Avenue, which is served by County Connection route 21 traveling along Danville Boulevard. Several bus routes also travel along I-680, but do not have stations in the project vicinity.

Bicycle, Pedestrian, and Equestrian Facilities

Existing pedestrian and bicycle activity on Camille Avenue west of the Iron Horse Trail is extremely limited, as it is on other local streets in the vicinity of the proposed project. There is significant bicycle traffic on Danville Boulevard and mixed bicycle and pedestrian traffic on the Iron Horse Trail; however, Camille Avenue experiences limited bicycle and pedestrian activity and virtually no equestrian activity (Abrams Associates, 2018).

The EBRPD Master Plan shows Camille Avenue and Camille Lane as a part of the Las Trampas to Mount Diablo Regional Trail, connecting the EBRPD Trail System on Mount Diablo to that in the Las Trampas area. The trail proceeds westerly through Hap Magee Park then along and across Danville Boulevard and up Camille Avenue to the Madrone Trail ties into the EBRPD Las Trampas Regional Wilderness. The Diablo Regional Trail is meant to accommodate equestrian, pedestrian and bicycle traffic but is lightly travelled, limited to a very few equestrians, pedestrians or bicyclists each day. The existing trailhead is currently used by hikers, who arrive by driving, particularly on weekends. Users generally park along the end of Camille Avenue. Vehicles parked at the trailhead ranges from 6 to 8 on weekdays and 14 on a weekend morning, with the highest concentration in the morning. The trip generation from the existing trailhead is estimated to be about two vehicle trips during the weekday AM peak hour and one vehicle trip during the weekday PM peak hour.

4.16.3 REGULATORY SETTING

Contra Costa County General Plan

The Transportation & Circulation Element of the General Plan contains the following relevant policies related to transportation and circulation:

Transportation & Circulation Element

5-3: Transportation facilities serving new urban development shall be linked to and compatible with existing and planned roads, bicycle facilities, pedestrian facilities, and pathways of adjoining areas, and such facilities shall use presently available public and semi-public right of way where feasible.

5-4: Development shall be allowed only when transportation performance criteria are met and necessary facilities and/or programs are in place or committed to be developed within a specific period of time.

5-8: Direct frontage and access points on arterials and collectors shall be minimized.

5-14: Physical conflicts between vehicular traffic, bicyclists, and pedestrians shall be minimized.

5-15: Adequate lighting shall be provided for vehicular, pedestrian and bicyclist's safety, consistent with neighborhood desires.

5-16: Curbs and sidewalks shall be provided in appropriate areas.

5-17: Emergency response vehicles shall be accommodated in development project design.

5-22: New subdivisions should be designed to permit convenient pedestrian access to bus transit and efficient bus circulation patterns.

5-32: Local road dimensions shall complement the scale and appearance of adjoining properties.

5-33: Landscaping and maintenance of street medians and curb areas shall be provided where appropriate.

Growth Management Element

4-1: New development shall not be approved in unincorporated areas unless the applicant can provide the infrastructure which meets the traffic level of service and performance standards outlined in Policy 4-3, or a funding mechanism has been established which will provide the infrastructure to

meet the standards or as is stated in other portions of this Growth Management Element.

4-2: If it cannot be demonstrated prior to project approval that levels of service will be met per Policy 4-1, development will be temporarily deferred until the standards can be met or assured. Projects which do not, or will not, meet the standards shall be scheduled for hearing before the appropriate hearing body with a staff recommendation for denial, on the grounds that the project is inconsistent with the goals, policies, and objectives of the Growth Management Element of the County General Plan.

4-3: In the event that a signalized intersection on a Basic Route exceeds the applicable level of service standard, the County may approve projects if the County can establish appropriate mitigation measures, or determine that the intersection or portion of roadway is subject to a finding of special circumstances, or is a Route of Regional Significance, consistent with those findings and/or action plans adopted by the Contra Costa Transportation Authority pursuant to Measure C - 1988. Mitigation measures specified in the action plans shall be applied to all projects which would create significant impacts on such regional routes, as defined by the Authority in consultation with local agencies and as permitted by law. For the purpose of reporting to the Contra Costa Transportation Authority in compliance with the Growth Management Program, a list of intersections that will be reported on Basic Routes will be prepared and maintained by the Conservation and Development Department.

4-4: The County shall institute an ongoing growth management program process.

Project Consistency Analysis

The development of the project site would generate new traffic volumes that would reduce the LOS ratings for some of the nearby intersections. However, all intersection would operate at LOS D or better with project implementation. Streets would be designed in compliance with County standards and requirements of emergency service providers. Consistent with General Plan Policy 5-17, emergency vehicle access (EVA) would be provided at the project site. Thus, the project would be consistent with both the Transportation and Circulation Element and the Growth Management Element of the General Plan.

Contra Costa Transportation Authority

The purpose of the Contra Costa Transportation Authority (CCTA) is to relieve existing congestion created by past development through road, transit, pedestrian and bicycle improvements funded by the Measure C sales tax increase (approved on

November 8, 1988) and to prevent future development from creating new traffic congestion or deteriorating service levels for fire, police, parks, and other public services in Contra Costa through the Growth Management Program.

Congestion Management Plan

CCTA serves as the Congestion Management Agency (CMA) for the County. As the CMA, CCTA must, under State law, prepare a Congestion Management Program (CMP) and update it every two years. The CMP is meant to outline the CMA's strategies for managing the performance of the regional transportation within its county. The CMP must include a road network designated by CCTA that includes, at a minimum, all State highways and principal arterials. SR 24 and I-680 are both included in the CMP network.

Pertinent components of the CMP include:

1. Traffic level-of-service (LOS) standards that apply to a system of designated routes.
2. A performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods.
3. A seven year capital improvement program (CIP) that maintains or improves the performance of the multi-modal system or mitigates regional transportation impacts.
4. A program to analyze the impacts of local land use decisions on the regional transportation system.
5. A travel demand element that promotes transportation alternatives to the single-occupant vehicle.

Project Consistency Analysis

SR 24 and I-680 are both included in the CMP network. The Contra Costa CMP legislation requires that CMP roadways operate at established LOS thresholds. Given that the project would generate a low volume of trips (32 trips during the AM peak hour and 43 vehicle trips during the PM peak hour), and that those trips would not be traveling to the established CMP roadways in the vicinity of the project, the project would not introduce new traffic that could substantially reduce LOS. As such, the project would not conflict with the applicable CMP.

CCTA Technical Procedures and Implementation Guide

The CCTA Technical Procedures establish a uniform methodology that public agencies may apply to evaluate the impacts of land use decisions and related transportation projects on the local and regional transportation system. This

document also describes in detail the key considerations and requirements for conducting traffic impact analyses, which is required for projects that exceed a trip generation threshold of 100 net new peak hour vehicle trips. The CCTA Implementation Guide establishes the roles, responsibilities, and procedures to be undertaken by local jurisdictions, to implement sound land use and transportation planning.

Project Consistency Analysis

CCTA requires preparation of a traffic study when a proposed development project has the potential to generate more than 100 peak hour vehicle trips. This project would generate a low volume of trips (32 trips during the AM peak hour and 43 vehicle trips during the PM peak hour, plus additional trips that could be generated by the proposed staging area), but a traffic study was nevertheless undertaken for purposes of presenting a conservative analysis.

Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance

The Tri-Valley Transportation Council (TVTC) – made up of the Cities of Dublin, Livermore, Pleasanton, and San Ramon, the Town of Danville, and the Counties of Alameda and Contra Costa – adopted its first Tri-Valley Transportation Plan/Action Plan in 1995 as a guide for transportation planning throughout the Tri-Valley. This document identified a coordinated approach to addressing the pressing transportation problems in the Tri-Valley. The 2014 TVTC Plan is the third major update, reassesses transportation issues within the Tri-Valley area, refines the vision statements, goals, and policies, and updates programs that will help to achieve the plan objectives.

This document identifies I-680 as an interregional route of regional significance, and Danville Boulevard as an intraregional route of regional significance. The Iron Horse Trail is also important to regional pedestrian and bicycle mobility and requires interjurisdictional planning. The TVTC dictates that member jurisdictions must analyze the impacts of any development project that generates more than 100 peak hour vehicle trips.

Project Consistency Analysis

TVTC requires preparation of a traffic study when a proposed development project has the potential to generate more than 100 peak hour vehicle trips. This project would generate a low volume of trips (32 trips during the AM peak hour and 43 vehicle trips during the PM peak hour, plus additional trips that could be generated by the proposed staging area), but a traffic study was nevertheless undertaken for purposes of presenting a conservative analysis.

4.16.4 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

Standards of Significance

The County's LOS standards, as established by the General Plan, are used to determine whether the project would result in a significant impact to the study intersections and/or roadway segments. These standards are listed below:

- Rural Areas: Peak LOS of low C (volume/capacity ratio [V/C] = 0.70-0.74)
- Semi-Rural Areas: Peak LOS of high C (V/C = 0.74-0.79)
- Suburban Areas: Peak LOS of low D (V/C = 0.80-0.84)
- Urban Areas: Peak LOS of high D (V/C = 0.85-0.89)
- Central Business: Peak LOS of low E (V/C = 0.90-0.94)

In addition, Transportation Improvement Measures C and J and the Growth Management Plan (GMP) both require the use of the CCTA methods to determine LOS conditions. The time of stopped delay used in this technical evaluation is based on the HCM 2010 procedures to calculate LOS. The LOS standards and volume to capacity (V/C) ratios are consistent with the requirements of the CCTA Measure C GMP.

Signalized Intersections

Project-related operational impacts on signalized intersections are considered significant if project-related traffic causes the LOS rating to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F.

Unsignalized Intersections

Project-related operational impacts on unsignalized intersections are considered significant if project generated traffic causes the worst-case movement (or average of all movements for all-way stop-controlled intersections and roundabouts) to deteriorate from LOS D or better to LOS E or F.

Discussion of No Impacts

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The closest airport to the project site is the Buchanan Field Airport, located approximately 10 miles north of the project site in the City of Concord. The Little Hands private airstrip, the nearest private airstrip, is located approximately 2 miles south of the project site in the San Ramon area. The project does not include any towers or other vertical obstructions that would extend beyond the existing height of surrounding structure or topography, and does not represent a unique hazard to the operations of this airstrip.

Based on the project site's significant distance from public airports and private airstrips, and that the project would not introduce a new use that would affect air traffic patterns the project would not introduce any foreseeable hazards to aircraft or to people residing or working in the vicinity of the project site.

Discussion of Less-than-Significant Impacts

Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?

As shown on **Figure 3-4** and described in **Chapter 3.0, Project Description**, the project would create new roads, gates, turnarounds, an access road, and a trail easement, listed below.

- **Ironwood Place (private):** Ironwood Place would be extended north and west, approximately 760 feet from its current terminus. The new road would be approximately 28 feet wide. A gate would be installed between Lots 1 and 14.
- **Turnaround on Ironwood Place (public):** A turnaround would be constructed on Ironwood Place on the public side of the proposed gate. This improvement would occur outside of the project boundary and be dedicated to Contra Costa County. A lot line adjustment between three parcels (APN: 198-262-002; 198-262-003; and 198-262-004) would be filed separately to accommodate the turnaround.
- **Emergency Access Road (EVA):** A 20-foot-wide paved EVA would be constructed between Lots 5 and 6, connecting the existing Ironwood Place (terminating at the northwest project site boundary) to the proposed extension of Ironwood Place. An eight-foot-tall EVA gate attached to an 8-foot fence would be installed on the common property line between the project and the existing Ironwood Place.
- **Turnaround on Camille Avenue (public):** A turnaround would be constructed at the end of Camille Avenue located on the public side of the proposed gate that would be installed between Lots 15 and 21. This improvement would occur mostly within and partly outside the project boundary, and would be dedicated to the County.
- **"A" Drive (private):** A 28-foot-wide roadway would be constructed south of Camille Avenue. The new road would be approximately 420 feet in length. A gate would be installed at its entryway at the end of the proposed Camille Avenue turnaround.
- **"A" Court (private):** A 28-foot-wide roadway would be constructed south of A Drive. The new road would be approximately 250 feet in length.
- **"B" Lane (private):** A 20-foot-wide roadway would be constructed at the end of A Drive to the south. The new road would be approximately 140 feet in length.
- **"B" Court (private):** A new roadway would be constructed at the end of A Drive to the north. The new road would be 20-to 28-feet wide and approximately 640 feet in length. The "B" Court alignment would have a 20-foot by 40-foot bridge over a drainage channel on the project site.

- **Access easement from "B" Court:** An easement from "B" court that extends over Lot 28 would provide access to the Parcel D staging area, and would be 22-feet wide and approximately 250 feet in length.
- **Parcel B and C Access Easements:** Two easements for emergency access and maintenance would be provided to parcels B and C from Ironwood Place and crosses over Lots 8 and 9.
- **EBRPD Trail Easement:** EBRPD would continue to maintain an existing 10-foot-wide trail easement along Camille Lane and Lots 15 through 18, 27, and 28.
- **Connector Trail:** The Parcel D staging area would include an 8-foot-wide, approximately 100-foot-long connector trail constructed from the staging area to the existing Madrone Trail. The connector trail would travel across property owned by EBRPD and include a pedestrian bridge to cross a small drainage.

Improvements located on the publically accessible periphery of the project site would not present any new or increased hazards. Turnarounds located at Ironwood Place and Camille Avenue would facilitate safe redirection. The EVA gate would be located where there is an existing fence at the end of a cul-de-sac, where improvements would result in negligible e effects. No internal site circulation or access issues have been identified that would cause a public safety concern. Given the above, this impact would be less than significant.

Would the project result in inadequate emergency access?

As previously discussed, the internal roadway system at the project site is designed in coordination with traffic engineers to ensure safe and efficient circulation, and will comply with all modern standards of the Fire Code and other applicable ordinances and regulations. The project would also incorporate an EVA connection between the project site and the existing segment of Ironwood Place north of the project site. As such, the impact to emergency access would be less than significant.

Would the project conflict with an applicable congestion management program?

SR 24 and I-680 are both included in the CMP network. The Contra Costa CMP legislation requires that CMP roadways operate at established LOS thresholds. Given that the project would generate a low volume of trips (i.e., 32 trips during the AM peak hour, and 42 vehicle trips during the PM peak hour), and that not all of those trips would travel directly onto the established CMP roadways in the vicinity of the project, the project would not introduce new traffic that could substantially reduce LOS. As such, the project would not conflict with the applicable CMP and the impact would be less than significant.

Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system?

Trip Generation

The amount of traffic predicted to enter and exit a site is referred to as the project's trip generation. Operational trip generation estimates for the project were calculated using data published in the Institute of Transportation Engineers' (ITE) *Trip Generation (9th Edition)*, as presented below in **Table 4.16-4**. Construction-period trip generation estimates for the project were based on assumptions regarding the number of daily construction workers required on site.

Operational Trip Generation

According to standard ITE trip generations for single-family homes, the project would generate approximately 20 AM peak hour trips, and 30 PM peak hour trips. The ITE Trip Generation Manual acknowledges that larger homes, such as those proposed under the project, typically have a higher trip generation per unit. Therefore, the TIS uses a 1.28 trip multiplier (representing a 27 percent increase over the average ITE rates for a single-family dwelling) to more accurately estimate maximum traffic generation. In addition, traffic generated from the office building will no longer exist with completion of the project, because the office building within the project site would be removed. As shown in **Table 4.16-4**, the project's total trip generation during the peak hours is approximately 34 vehicle trips in the AM peak hour and 43 trips in the PM peak hour.

The existing office building at the end of Camille Avenue was only about 40 percent occupied at the time of the May 2012 traffic counts. This building will be vacated and removed when the proposed project is developed, and the traffic generated from the office building will no longer exist. Based on traffic counts taken in May 2012, which reflects conditions consistent with the building's historical 40 percent occupancy, there were approximately 110 vehicle trips per day, with 13 of the vehicle trips occurring during the PM peak hours (4 inbound and 9 outbound). The office has very little or no traffic during the day or on weekends.

These trips are deducted from the project's trip generation, resulting in the total net new trips associated with the project (see **Table 4.16-4**). The 40 percent occupancy rate provides a relatively conservative estimate in the net change in traffic trips on the project site. If trips associated with 100 percent occupancy had been used for this analysis, the deduction of trips associated with the office building would have been higher, resulting in a reduced estimate of net new trips.

Table 4.16-4 Trip Generation Calculations

Land Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Trip Generation Rate for Single-family Homes	0.19	0.56	0.75	0.68	0.37	1.01
Total Project Trip Generation	6	19	25	21	12	33
Total Project Trip Generation plus 28 percent factor	8	24	32	27	16	43
Trips associated with Existing Office Building	-9	-3	-12	-4	-9	-13
Total Net New Trips	**-1**	**21**	**20**	**23**	**7**	**30**

Source: Abrams Associates, 2017a

Note: At traffic signals, the delay is the average for all vehicles at the intersection, and is presented in terms of seconds per vehicle. At unsignalized intersections, the delay is calculated for the single most critical movement.

[a] While the project includes 35 lots, two of these lots, the residential estate home and the caretaker's residence, currently exist. The traffic study was based on 33 units to reflect the net new trip generation from the project. Nonetheless, the conclusion of the report is equivalent to 35 residential homes in total.

The proposed staging area would provide 19 public parking stalls. Currently, recreationalists using the Madrone Trail and the EBRPD Las Trampas Regional Wilderness areas park vehicles along Camille Avenue and enter Madrone Trail by walking west along Camille Avenue (see **Figure 3-3**). The May 2014 and June 2015 traffic observations noted 6 to 8 cars parked along Camille Avenue on weekdays, and 14 cars parked along Camille Avenue on weekends, with the highest concentration of parked cars in the morning. The proposed staging area could encourage increased usage of Madrone Trail and could result in small amount of new trips along Camille Avenue.

Intersection Level of Service

Table 4.16-5 summarizes the existing, baseline, baseline plus project, cumulative no project (Year 2030), and cumulative with project (Year 2030) scenario LOS conditions for each of the five study intersections in the project site vicinity.

Baseline Conditions

The 2015 baseline year assumed an annual average trip growth rate of 1.5 percent per year since 2012. Traffic levels were checked in August 2013 and September 2016 and were determined to be unchanged since 2012. Under baseline conditions, operation of the study intersections would remain identical to Existing Conditions. Baseline plus project would also remain largely identical to existing conditions with the exception of the intersection at El Portal, where the PM peak hour LOS would decline from C to D.

Cumulative Conditions (Year 2030)

Under 2030 cumulative conditions, LOS at three study intersections would decline relative to existing conditions:

- Danville Boulevard and Camille Avenue (LOS A to LOS B, AM peak hour)
- Danville Boulevard and El Portal (LOS C to LOS D, AM and PM peak hour)
- Danville Boulevard and El Cerro Boulevard (LOS B to LOC C, PM peak hour)

Project-related operational impacts on signalized intersections are considered significant if project-related traffic causes the LOS rating to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F. Project-related operational impacts on unsignalized intersections are considered significant if project generated traffic causes the worst-case movement to deteriorate from LOS D or better to LOS E or F. As discussed in **Appendix P** and demonstrated in **Table 4.16-5**, all of the study intersections would operate at LOS D or better with project implementation. This impact would be less than significant.

Table 4.16-5 Peak Hour Intersection Level of Service

Intersection	Control	Peak Hour	Level of Service (seconds per vehicle)			
			Baseline	Baseline Plus Project	Future Year, No Project (2030)	Future Year, With Project (2030)
Danville Blvd and Stone Valley Rd	Traffic Signal	AM PM	C (23.1) C (29.6)	C (23.2) C (29.9)	C (24.4) C (32.8)	C (25.5) C (33.2)
Danville Blvd and Hemme Ave	Traffic Signal	AM PM	D (38.2) A (6.4)	D (39.2) A (6.4)	D (46.6) A (6.5)	D (48.0) A (6.5)
Danville Blvd and Camille Ave	Traffic Signal	AM PM	A (9.3) A (6.6)	B (10.0) A (7.3)	B (10.0) A (6.8)	B (10.9) A (7.5)
Danville Blvd and El Portal	Side Street Stop Sign	AM PM	C (22.2) C (24.6)	C (22.4) D (25.1)	D (26.0) D (30.4)	D (26.5) D (31.3)
Danville Blvd and El Cerro Blvd	Traffic Signal	AM PM	B (13.9) B (19.2)	B (14.0) B (19.6)	B (15.7) C (24.1)	B (15.9) C (24.7)

Note: At traffic signals, the delay is the average for all vehicles at the intersection, and is presented in terms of seconds per vehicle. At unsignalized intersections, the delay is calculated for the single most critical movement.

Source: Abrams Associates, 2017a

As discussed in **Chapter 3.0, Project Description**, project operation would include vegetation management to maintain 100 feet of defensible space to reduce the risk of wildfires. Vegetation management activities would necessitate a handful of truck or car trips once per year to deliver employees and/or equipment to the project site. Given the small size and infrequency of trips associated with the vegetation clearing, these trips would not substantially contribute to traffic in the project area.

As stated above, trips to and from the proposed staging area, when combined with traffic generated by the project's single-family homes (**Table 4.16-4**), would be unlikely to add substantial new trips. The trips that would occur during the peak hour associated with this staging area would likely travel against the flow of peak-hour commuters. Recreationalists visiting Las Trampas Regional Wilderness would aim to spend daylight hours in the park. Thus, arrivals to the staging area would occur during the AM peak hour, when most trips on the local roadway network are driving away from the project site (**Appendix P, Figure 4**). Departures from the staging area would occur during the PM peak hour, when most trips on the local roadway network are driving towards the project site (**Appendix P, Figure 4**). Given this, trips associated with the staging area, combined the trips associated with the single-family development, would not substantially impact LOS in the area.

Construction Trip Generation

Construction workers could require parking for up to 20 vehicles during the peak construction period. Additionally, deliveries, visits, and other activities may generate peak non-worker parking demand of 5 to 10 automobiles per day. Therefore, up to 30 vehicle parking spaces may be required during the peak construction period for the construction employees, generating up to 60 total daily trips. The number of trips generated during construction be temporary and substantially below trips generation during project operation. Given this, trips associated with project construction would not substantially impact LOS in the project area.

Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

As discussed above, public transit, pedestrian, and bicycle activity is relatively light in the proposed project area. There is a significant amount of bicycle traffic on Danville Boulevard, and the Iron Horse Trail carries relatively large numbers of bicycle, pedestrian and other non-motorized vehicles, particularly on weekends. However, limited bicycle pedestrian activity occurs west of Iron Horse Trail, along on Camille Avenue, or on local streets in the project vicinity.

The EBRPD identifies Camille Avenue and Camille Lane as part of the Mount Diablo Regional Trail, connecting Madrone Trail to the trail system in Mount Diablo State Park across Danville Boulevard to the east. In general, pedestrian traffic along

Camille Avenue and Camille Lane is limited. According to monitoring visits conducted for the TIA, hikers typically park vehicles at the west end of Camille Avenue or along Camille Lane for access to Madrone Trail.

Potential safety impacts to pedestrian, bicycle, and public transit facilities include the addition of new vehicle trips, as identified above (see **Table 4.16-4**). However, the low number of new trips associated with the project would be unlikely to substantially delay or impact pedestrian, bicycle, or public transit facilities along Danville Boulevard or the Iron Horse Trail. In addition, Madrone Trail users currently parking on Camille Avenue and Camille Lane would benefit from the EBRPD staging area, thus reducing pedestrian traffic along local roadways. Moreover, sidewalks would be installed on one side of the street from the two project entrances, extending along A Drive, B Court, and Ironwood Place to end at the cul-de-sacs of B Court and Ironwood Place, which would provide safe pedestrian access within the project.

Section 96-8.402 of the Contra Costa County Code requires sidewalks along all streets in subdivisions zoned R-12 or zoning districts with a higher density. The project is located within the R-20 zoning designation and, therefore, this provision does not apply. However, the section of the Contra Costa County Code also requires sidewalks along all arterials, collector and minor streets serving as a direct access to schools within one mile of the project. Rancho Romero Elementary School located on Hemme Drive is within one mile of the project site.

The location of the proposed sidewalks in the project has been reviewed both in accordance with the provisions of the Contra Costa County Code and in accordance with the requirements of the State's Safe Routes to School Program and the suggestions of the Federal Highway Administration Bicycle and Pedestrian Program (e.g., Section 3.21 of the Federal Highway Administration Bicycle and Pedestrian Program Guide). The streets which will not have sidewalks in the project are two minor streets serving six lots or less which fall within the County's definition of roadways. They are all streets that dead end within the project and will not be subject to through traffic from any other locations. The traffic generated by these minor streets within the project will be very light. Accordingly, the project traffic consultant has determined that the sidewalk construction will adequately protect the health and safety of all of the project's residents, including school-aged children who will be walking to school (Abrams Associates, 2018).

In summary, the bicycle, pedestrian, and equestrian use of Camille Avenue and Camille Lane following the development of the project will continue to be very low, and the project traffic would not be expected to have a significant impact upon equestrian, pedestrian or bicycle activity. Likewise, the sidewalk system proposed for the project is consistent with applicable regulations to adequately protects

residents and users of that system. Given the above, this impact would be less than significant.

4.16.5 CUMULATIVE IMPACTS

The cumulative impact area for transportation and traffic includes the intersections and roadways identified and studied above and within the TIS. As previously described, the project would result in a continuation of acceptable automotive traffic LOS for all intersections and roadways studied.

For the traffic cumulative impact analysis, the intersection traffic volumes are based on the existing turning movements plus the addition of growth estimated by CCTA's traffic model. Based on the model forecasts, the 2030 cumulative traffic volumes were developed by applying a 0.5 percent per year increase to the baseline traffic volumes.

Table 4.16-5 summarizes the associated LOS computation results for all study scenarios, including the Future Year (or cumulative) year 2030 weekday AM and PM peak hour traffic conditions with implementation of the project. The corresponding LOS analysis calculation sheets are presented in **Appendix P**. As shown in **Table 4.16-5**, all of the signalized study intersections would continue to have acceptable conditions (LOS D or better) during the weekday AM and PM peak hours in the Future Year (cumulative year) 2030, both with and without the project. The project would have a negligible contribution to this cumulative impact.

4.16.6 REFERENCES

Abrams Associates, 2017a. *Traffic Impact Study*.

Abrams Associates, 2017b. *Traffic Impact Study Addendum*.

Abrams Associates, 2018. *Addendum to Traffic Impact Study Addressing Equestrian, Pedestrian and Bicycle Saftey.*

Contra Costa County, 2005. *Contra Costa County General Plan 2005-2020, Transportation and Circulation Element*.

Contra Costa County, 2005. *Contra Costa County General Plan 2005-2020, Growth Management Element.*

County Connection. *County Connection System Map Weekday Routes.* Available: https://countyconnection.com/wp-content/themes/countyconnection/schedules/CCCTA_Weekday.pdf. Accessed March 27, 2017.

Contra Costa Transportation Authority, 2010. *Contra Costa Growth Management Program Implementation Guide.*

Contra Costa Transportation Authority, 2013. *Contra Costa Growth Management Program Technical Procedures.*

Transportation Research Board, 2010. *Highway Capacity Manual.*

Tri-Valley Transportation Council, 2014. *Tri-Valley Transportation Plan and Action Plan Update*.

4.17 UTILITIES AND SERVICE SYSTEMS

This section describes utilities and service systems in the project vicinity and analyzes the potential for the project to impact water supply, wastewater, stormwater, and solid waste services and capacities. The analysis of this section is based on the following sources:

- CalRecycle's Regionwide and Statewide Jurisdiction Diversion/Disposal Progress Report
- Central Contra Costa Sanitary District's Collection System Master Plan Update
- East Bay Municipal Utility District's Urban Water Management Plan
- East Bay Municipal Utility District's Water Conservation Management Plan
- Personal communication with utility providers, and utility provider websites
- The Contra Costa County General Plan 2005-2020 (General Plan)
- United States Environmental Protection Agency, Advancing Sustainable Materials Management: Facts and Figures

These reports are available for review at Contra Costa County, Department of Conservation and Development, Community Development Division, 30 Muir Road, Martinez, California.

In response to the Notice of Preparation for this draft environmental impact report (EIR), the East Bay Municipal Utilities District (EBMUD) submitted a request that the project comply with the California Model Water Efficient Landscape Ordinance. This comment is discussed in this section.

4.17.1 EXISTING CONDITIONS

Solid Waste

The Central Contra Costa Solid Waste Authority (CCCSWA) provides solid waste and residential recycling services for unincorporated Alamo. CCCSWA holds a franchise agreement with Allied Waste (a division of Republic Services Inc.) for the collection, transfer, and disposal of residential and commercial garbage, recycling, and organics. CCCSWA also holds a franchise agreement with Mt. Diablo Recycling for the processing of residential and commercial recyclable materials.

Garbage and yard waste collected in Alamo is taken to the Contra Costa Transfer & Recovery Station, located at 951 Waterbird Way in Martinez. From there, solid waste is transported to the Keller Canyon Landfill, a 2,600-acre landfill located at 901 Bailey Rd, Bay Point, CA 94565. Keller Canyon Landfill's maximum permitted

capacity is approximately 75 million cubic yards (mcy), and currently has a remaining capacity of 55 mcy (King, 2015). The landfill receives approximately 3,000 tons per day (tpd) out of a total 3,500 tpd daily capacity, and is expected to close in 2065. In 2015, County issued a Notice of Preparation of an environmental impact report to evaluate the impacts of increasing the maximum daily amount of tonnage the landfill may accept from 3,500 tpd to 4,900 tpd. The County has not prepared the EIR at this time and whether this application will be approved is uncertain. Based on current permitted daily tonnage amounts, it can be anticipated that closure of the landfill would occur no sooner than 2065. Recycling is taken to the Mount Diablo Recycling Center, a 90,000 square-foot facility at 1300 Loveridge Rd, Pittsburg, CA. This facility currently receives 300 tpd, and is permitted for a maximum of 500 tpd (Nejedly, 2015).

The California Integrated Waste Management Act of 1989 mandated that cities and counties divert 50 percent of all solid waste by 2000 through source reduction, recycling, and composting activities. In 2013, the diversion rate goal was increased to 75 percent by 2020. In 2015 unincorporated County had an annual disposal rate of 2.4 pounds per resident per day, well below the 3.9 pounds per resident per day threshold (Calrecycle, 2017).

Stormwater

Contra Costa County Public Works Department (CCCPW) maintains unincorporated county public drainage facilities. Two drainage systems convey runoff from the project site:

- The drainage system under Camille Avenue (Camille Avenue system) conveys stormwater through a 48-inch culvert from the project, then enlarged to a 60" culvert that crosses Danville Boulevard before emptying into San Ramon Creek. This system drains runoff from 184.5 acres, including the southern part of the project site and upland portions to Las Trampas Ridge. This system was designed in 1969 based on zoning that considered the entire drainage area up to Las Trampas Ridge as R-20.[1] Most of these upland portions of are now owned by East Bay Regional Park District (EBRPD) and zoned as open space. No future development is expected in this area.
- The drainage system under Hemme Avenue (Hemme Avenue system) conveys stormwater through a 30 inch culvert that empties into San Ramon Creek. This system collects runoff from approximately 19 acres of the northern portions of the project site. Runoff is drained to the Hemme Avenue system through an earthen ditch along the rear property lines north of Irongate Court. According

[1] R-20 zoning designates single-family residential districts where lot sizes must be at least 20,000 square feet.

to the preliminary Drainage Study (**Appendix H**) this ditch is inadequate and drainage to Hemme Avenue is poor.

Refer to **Section 4.10, Hydrology and Water Quality**, for more information on the drainage areas that convey runoff to and through the project site.

The project site is located within the County's Unformed Drainage Area 12. In Drainage Areas, new development projects must pay fees for the construction of drainage and flood control facilities that will mitigate the increased storm runoff resulting from the overall development of the area. Drainage Areas have a boundary that coincides with a subwatershed area, a Drainage Plan (showing assumed land use, where areas are to drain, and planned facilities), and a Fee Ordinance.

Water

Water to the project site is provided by the East Bay Municipal Utility District (EBMUD), which supplies water and provides wastewater treatment for significant parts of Alameda and Contra Costa counties. Approximately 1.4 million people are served by EBMUD's water system (East Bay Municipal Utilities District, 2015). Approximately 90 percent of EBMUD's water originates in the Mokelumne River watershed, with the rest originating as runoff from protected watershed lands in the East Bay Area. Mokelumne River water is transported approximately 91 miles via aqueduct from the Pardee Reservoir across the Sacramento-San Joaquin River Delta to local storage and treatment facilities. Water not immediately distributed is stored in five EBMUD reservoirs, with a total maximum capacity of 151,066 acre feet.[2] EBMUD has water rights that allow for delivery of up to a maximum of 325 million gallons per day (mgd) from the Mokelumne River, subject to the availability of Mokelumne River runoff and to the senior water rights of other users.

Water supply information and analysis are based on the EBMUD's 2015 Urban Water Management Plan (UWMP), a long-term planning document reporting on EBMUD's current and projected water usage, water supply programs, and conservation programs. This plan was formally adopted by the EBMUD Board of Directors in June 2016. The UWMP evaluates EBMUD's ability to effectively supply their customers with water in the coming decades. Water demand projections are based on the 2040 Demand Study, completed in 2009 and updated in 2014, which relies on land uses designated by adopted general plans within the EBMUD service area to predict average annual water demands to 2040. Since the project is consistent with the General Plan land use designations, the project is considered within the UWMP analysis.

The UWMP states that EBMUD can meet customer demands through the year 2040 during normal and single dry year conditions (EBMUD, 2015). However, EBMUD will

[2] 1 acre-foot is equivalent to approximately 326,700 gallons.

need to develop supplemental supplies to meet projected customer demands during multi-year droughts. EBMUD's strategy is to pursue a variety of supplemental supply projects simultaneously to minimize the risks associated with implementation of any one project, which also improves EBMUD's ability to adapt to future changing conditions such as climate change or regulatory changes. Identified strategies include purchasing water through transfers, developing a regional desalination project, expanding surface water storage, and undertaking groundwater banking/exchange efforts. Meanwhile, EBMUD's aggressive conservation and recycled water programs are expected to meet a portion of the projected growth in customer demands

Wastewater

Sanitary sewer service for the project site will be provided by Central Contra Costa Sanitary District (CCCSD), which provides sewage collection, wastewater treatment, and household hazardous waste disposal for roughly 462,000 residents and over 3,000 businesses in central Contra Costa County (Central Contra Costa County Sanitary District, 2010a). CCCSD operates 1,500 miles of collection piping, 19 pumping stations, and a Waste Water Treatment Plant (WWTP) in Martinez. The WWTP processes an average daily flow of 45 mgd, and has a treatment capacity of 54 mgd (Central Contra Costa Sanitary District, 2009). Treated water is ultimately discharged in Suisun Bay.

CCCSD's Collection System Master Plan (CSMP), updated in May 2010, evaluates the capacity needs of CCCSD's entire collection system. This prediction is based on a comprehensive review of regional land use predictions derived from adopted general plans and specific plans in CCCSD's jurisdiction. Since the project is consistent with the General Plan land use designations, the project is considered within the CSMP analysis. In regards to future land uses in Alamo, CCCSD notes "no significantly sized developments are planned."(Central Contra Costa County Sanitary District, 2010a).

4.17.2 REGULATORY SETTING

State

State Assembly Bills 610 and 221

The purpose and legislative intent of Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) was to preclude projects from being approved without specific evaluations being performed and documented by the local water provider proving that water is available to serve the project. These laws took effect on January 1, 2002.

SB 610 requires the preparation of a Water Supply Assessment (WSA) for large-scale development projects. Both SB 610 and SB 221 apply to a 500-unit residential

development or a project that would increase the number of the public water system's existing service connections by 10 percent. SB 221 requires the local water provider to provide "written verification" of "sufficient water supplies" to serve the project prior to approval of a subdivision map. This requires a higher degree of certainty than is required for approval of a WSA.

Policy Consistency Analysis

At 35-units, the project is below the 500-unit threshold and would increase the number water service connections served by the EBMUD by less than 1 percent. Therefore, the project does not require the preparation of a WSA and does not need separate analysis.

California Model Water Efficient Landscape Ordinance

This regulation is designed to promote water efficiency standards for new developments and existing landscapes to ensure that California continues to have sufficient water to meet demand. Water savings can be achieved through efficient irrigation systems, greywater usage, onsite stormwater capture, and limiting the amount of landscape covered in turf. As of January 2010, all local agencies were required to adopt a water efficient landscape ordinance as effective as the Model Ordinance in regard to water conservation.

Policy Consistency Analysis

EBMUD's Water Service Regulations requires new development to adopt all applicable water-efficiency measures outlined in the California Model Water Efficient Landscape Ordinance. During landscape design and installation, the project proponent must ensure water conservation methods adhere to the Model regulation.

Assembly Bill 939

Assembly Bill 939 (AB 939), the California Integrated Waste Management Act of 1989, mandated the reduction of solid waste disposal in landfills. The bill mandated a minimum 50 percent diversion of material from landfills by 2000. In 2011, Assembly Bill 341 required that 75 percent of solid waste was diverted from landfills by 2020. Senate Bill 1016 implemented a simplified method of calculating diversion rates, using a 50 percent equivalent per capita disposal target.

Policy Consistency Analysis

In 2015, the unincorporated County had an annual disposal rate of 2.4 pounds per resident per day, well below the cap of 3.9 pounds per resident per day (Calrecycle, 2017). The project would be required to comply with the County's solid waste requirements, including the provisions of AB 939.

California Green Building Standards Code

The California Green Building Standards Code was enacted to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

- Planning and design
- Energy efficiency
- Water efficiency and conservation
- Material conservation and resource efficiency
- Environmental quality

Project Consistency Analysis

As required by law, the project would be subject to the operative provisions of the most recent California Green Building Code at the time that building permits are requested.

Local

Contra Costa County General Plan

The Growth Management Element of the General Plan identifies policies related to water and sanitary sewer. Policies related to stormwater drainage facilities are discussed in **Section 4.10, Hydrology and Water Quality**.

Growth Management Element

Water

The County, pursuant to its police power and as the proper governmental entity responsible for directly regulating land use density or intensity, property development, and the subdivision of property within the unincorporated areas of the County, shall require new development to demonstrate that adequate water quantity and quality can be provided. At the project approval stage, (subdivision map, land use permit, etc.), the County may consult with the appropriate water agency.

The County, based on information furnished or available from consultations with the appropriate water agency, the proponent, or other sources, should determine whether (1) capacity exists within the water system if a development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. Project approvals conditioned on (1) or (2) above, will lapse according to their terms if not satisfied by verification that capacity exists to serve the specific project ("will serve letters"), actual hook-ups or comparable evidence of adequate water quantity and quality availability.

Sanitary Sewer

The County, pursuant to its police power and as the proper governmental entity responsible for directly regulating land use density or intensity, property development and the subdivision of property within the unincorporated areas of the County, shall require new development to demonstrate that adequate sanitary sewer quantity and quality can be provided. At the project approval stage, (subdivision map, land use permit, etc.), the County may consult with the appropriate sewer agency.

The County, based on information furnished or available from consultations with the appropriate sewer agency, the proponent, or other sources, should determine whether (1) capacity exists within the sewer system if the development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. Project approvals conditioned on (1) or (2) above, will lapse according to their terms if not satisfied by verification that capacity exists to serve the specific project ("will serve letters"), actual hook-ups or comparable evidence of adequate sewage collection and wastewater treatment capacity availability.

Public Facilities/Services Element

7-1: New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, based on the demand for these facilities which can be attributed to new development.

7-2: New development, not existing residents, should be required to pay all costs of upgrading existing public facilities or constructing new facilities which are exclusively needed to serve new development.

7-4: The financial impacts of new development or public facilities should generally be determined during the project review process and may be based on the analysis contemplated under the Growth Management Element or otherwise. As part of the project approval, specific findings shall be adopted which relate to the demand for new public facilities and how the demand affects the service standards included in the growth management program.

7-19: Urban development shall be encouraged within the existing water Spheres of Influence adopted by the Local Agency Formation Commission; expansion into new areas within the Urban Limit Line beyond the Spheres should be restricted to those areas where urban development can meet all growth management standards included in this General Plan.

7-21: At the project approval stage, the County shall require new development to demonstrate that adequate water quantity and quality can be provided. The County shall determine whether (1) capacity exists within the water system if a development project is built within a set period of time, or (2)

capacity will be provided by a funded program or other mechanism. This finding will be based on information furnished or made available to the County from consultations with the appropriate water agency, the proponent, or other sources.

7-26: The need for water system improvements shall be reduced by encouraging new development to incorporate water conservation measures to decrease peak water use.

7-29: Sewer treatment facilities shall be required to operate in compliance with waste discharge requirements established by the Regional Water Quality Control Board. Development that would result in the violation of waste discharge requirements shall not be approved.

7-31: Urban development shall be encouraged within the sewer Spheres of Influence adopted by the Local Agency Formation Commission. Expansion into new areas within the Urban Limit Line but beyond the Spheres of Influence should be restricted to those areas where urban development can meet growth management standards included in this General Plan.

7-33: At the project approval stage, the County shall require new development to demonstrate that wastewater treatment capacity can be provided. The County shall determine whether (1) capacity exists within the wastewater treatment system is a development project is built within a set period of time, or (2) capacity will be provided by a funded program or other mechanism. This finding will be based in information furnished or made available to the County from consultations with the appropriate water agency, the applicant, or other sources.

7-37: The need for sewer system improvements shall be reduced by requiring new development to incorporate water conservation measures which reduce flows into the sanitary sewer system.

7-88: Solid waste disposal capacity shall be considered in County and city land use planning and permitting activities, along with other utility requirements, such as water and sewer service.

7-92: Waste diversion from landfills due to resource recovery activities shall be subject to goals included in the County Integrated Waste Management Plan. Public agencies and the private sector should strive to meet these aggressive goals.

Policy Consistency Analysis

New development shall be required to pay its fair share of the cost of all existing public facilities it utilizes, consistent with General Plan policies 7-1, 7-2, and 7-4 of the General Plan.

Solid Waste: The Keller Canyon Landfill has existing solid waste capacity to serve the project as required by General Plan policy 7-88. As a standard condition of approval, the County would include a requirement that the project be required to divert waste from the landfill through the use of recycle programs for residents. This condition would be in compliance with General Plan policy 7-92.

Water Supply: The project is within a Local Agency Formation Commission (LAFCO) water Sphere of Influence, consistent with General Plan policy 7-19. EBMUD has indicated that it anticipates having sufficient water supply to serve the project site, consistent with General Plan policy 7-21. Drought tolerant landscaping would be planted on the project site, which would conserve water consistent with policy 7-26. The project would also be subject to the water conservation measures outlined in the most recent California Building Code at the time that building permits are requested.

Wastewater: The project is within a LAFCO sewer Sphere of Influence, consistent with policy 7-31. The project would generate residential wastewater which would not violate RWQCB waste discharge requirements, consistent with policy 7-29. CCCSD has indicated that it anticipates having sufficient sewer system capacity supply to serve the project site, consistent with policy 7-33. The project would also be subject to the water conservation measures outlined in the most recent California Building Code, thereby achieving consistency with policy 7-37 by reducing flows to the sanitary system.

4.17.3 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines identifies environmental issues a lead agency can consider when determining whether a project could have significant effects on the environment. The project would have a significant impact if it would:

- Exceed wastewater treatment requirements for the applicable Regional Water Quality Control Board.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause signification environmental effects.
- Not have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Not comply with federal, state, and local statutes and regulations related to solid waste.

Discussion of Less-Than-Significant Impacts

Would the project exceed wastewater treatment requirements for the applicable Regional Water Quality Control Board?

Wastewater generated by the project would originate from residential sources. No industrial wastewater would be generated. Consistent with the determinations in Chapter 4.10, incorporated herein by this reference, the project's impacts to water quality will be less than significant.

Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause signification environmental effects?

CCCSD and EBMUD have determined that project-specific infrastructure improvements would be necessary. As part of the project, water and sewer line would be installed within the new access road right-of-ways serving the project. These new lines would intertie with existing infrastructure serving the project vicinity along Camille Avenue and Ironwood Place.[3] These onsite improvements would not result in any new physical environmental effects beyond those identified and evaluated in this EIR. Please see the discussions on pages 4.7-12 through 4.7-14, which are incorporated herein by this reference. A less-than-significant impact would occur.

Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

The project is expected to generate 105 residents.[4] According to CalRecycle, 2.4 pounds of trash were generated in Unincorporated County per person per day in 2015 (Calrecycle, 2017). Using this generation rate, the project would create approximately 231 pounds per day (0.116 tpd) of solid waste per day. The Keller Canyon Landfill currently receives 3,000 tpd of solid waste (out of a permitted operating capacity of 3,500 tpd), and has a total remaining capacity of 55 mcy. The

[3] Existing sewer and water lines running under Ironwood Place tie into the Camille Avenue infrastructure.

[4] Assuming a housing multiplier of 3; see **Section 4.14, Population and Housing**, for more information.

amount of solid waste generated by the project would be approximately 0.02 percent of this landfill's remaining daily capacity, and which is neither individually significant or a considerable contribution to any cumulative impact.

This draft EIR assumes an additional 33 percent of solid waste would be diverted to recycling per day (United States Environmental Protection Agency, 2015). Recycling services will be provided by the Mount Diablo Recycling Center, which currently receives 300 tpd, and is permitted for a maximum of 500 tpd. The project will generate 0.04 tpd of recycling. This represents a less than 0.001 percent increase in Mount Diablo Recycling Center's current tpd.

Existing solid waste services would sufficiently accommodate the project's disposal needs, resulting in a less-than-significant impact to solid waste services.

Would the project comply with federal, state, and local statutes and regulations related to solid waste?

The project consists of residential land uses that would not generate unique types of solid waste that conflict with existing regulations applicable to solid waste disposal. The project would be required to comply with the County's solid waste requirements, including the provisions of AB 939. Furthermore, the project would have to comply with County Ordinance 2004-16, which requires owners of all construction or demolition projects that are 5,000 square feet in size or greater to demonstrate that at least 50 percent of the construction and demolition debris generated on the jobsite are reused, recycled, or otherwise diverted.

In order to comply with the California Green Building Standards Code, the project proponent would be required to prepare and submit a Debris Recovery Plan to the County's Department of Conservation and Development prior to the issuance of a building or demolition permit. The plan would address major materials generated by a construction project of this size, including brush and other vegetative material, dimensional lumber, metal scraps, cardboard, packaging, and plastic wrap, and shall address opportunities to recycle such materials or divert them away from the Keller Canyon Landfill. Prior to final inspection, the project proponent shall submit a Debris Recovery Report that demonstrates that at least 50 percent of job site debris was diverted from disposal by providing receipts or gate-tags from facilities or service providers used for recycling, reuse and disposal of job site debris. In terms of operations, the project would comply with all applicable diversion requirements in state and local law, including without limitation AB 939. Given the above, this impact would be less than significant

Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Based on the residential demand factors utilized by CCCSD, the project would generate approximately 7,000 gpd (0.007 mgd) of wastewater (Leavitt, 2015). All project generated wastewater would be treated at the WWTP, which has a treatment capacity 53.8 mgd with current dry weather flows that average 30.45 mgd. Projected wastewater flows associated with the project would result in a negligible (0.002 percent) increase in wastewater volume to this facility. No new treatment facilities would be required to accommodate this demand.

CCCSD has identified that the existing wastewater sewer lines serving the project vicinity have sufficient capacity to accommodate projected wastewater flow volumes. CCCSD has established a number of impacts fees that represent a flow-based capacity charge that fund capital improvement projects. These fees are used for the maintenance, rehabilitation, and operation of CCCSD's facilities. The project will be required to pay all applicable CCCSD fees, as determined necessary by CCCSD.

Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause signification environmental effects?

Refer to **Section 4.10, Hydrology and Water Quality** for a detailed description of stormwater drainage on the project site.

Runoff from the majority of the project site (59.7 acres) would drain into a 48-inch storm line beneath Camille Avenue. According to the Preliminary Drainage Study (**Appendix H**), the Camille Avenue system is adequate to carry post-project flows with the required freeboard at all drainage structures.

The remaining 0.83 acres of the project site would drain to the Hemme Avenue system. Previously, the infrastructure leading to this system was inadequate to channel runoff. By rerouting 96 percent of this runoff to the Camille Avenue system, all drainage structures along the Hemme Avenue system would be adequate to carry post-project flows. The project would therefore be compliant with County Ordinance, Title-9, Section 914-2.004. The proposed drainage system would also comply with NPDES, the County's C.3 requirements, and the hydromodification criteria developed by the San Francisco Bay Region Municipal Regional Stormwater NPDES Permit.

Stormwater infrastructure would not result in any new physical environmental effects beyond those identified in this draft EIR. No new or expanded stormwater facilities would be required, and the impact would be less than significant.

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

The project would generate an increase in demand for water supply over existing uses on the project site. Based on water use in the area, EMBUD estimates that the average daily demand for a typical single family home is approximately 600 gpd (Wang, 2015). Assuming a housing multiplier of three residents per unit, the project's 35 homes would add a population of 105 to EBMUD's service area. Given this, the project would demand approximately 63,000 gpd, or 0.063 mgd. EBMUD's average system demand from 2006-2010 was approximately 197 mgd. Therefore, the project will increase demand by less than 0.1 percent, and project-related demand would account for 0.00125 percent of County-wide water demand.

The project would be consistent with the type and intensity of development allowed on this site by the County General Plan and the UWMP (McGowan, 2015). This action would promote slight population growth in the area, and is below the maximum allowable density for the project site. In addition, the project would permanently protect approximately 40 acres as open space. Thus, the project would result in no additional water demand nor require additional water supply capacity beyond what has already been projected and planned for as part of the UWMP). The project would have a less-than-significant impact to water supply.

In addition, EBMUD requires its customers to meet water conservation regulations before receiving service. For example, Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished unless all the applicable water-efficiency measures described in the California Model Water Efficient Landscape Ordinance are installed. Customers must also meet water-efficiency standards for indoor and outdoor water appliances in adherence with the EBMUD Water Conservation Master Plan. These water conservation measures would be incorporated into project design and would further reduce the demand for water supply by the project.

4.17.4 Cumulative Impacts

Water Supply

The UWMP accounts for potential demand created by the project as well as the reasonably foreseeable and relevant projects within the EBMUD service boundary. EBMUD anticipates meeting the projected water demand for its service area through 2040 for normal water years, but notes that EBMUD's current water supply is insufficient to meet customer needs during multiple-year droughts. In the event of a single drought year, EBMUD would follow the actions outlined in EBMUD's "Urban Water Shortage Contingency Plan." In the event of multiple drought years, EBMUD will impose a Drought Management Program to minimize drought impacts on EBMUD customers while continuing to meet obligations to downstream water

users. Depending on the length and severity of the drought, UWMP may take the following actions:

- Initiate public information campaign to explain water supply issues
- Conduct outreach with specific water users to employ water conservation measures
- Increase efficiency of system water supplies by intensifying maintenance and repairs
- Establish voluntary or mandatory customer water reduction goals
- Implement rate and water restriction changes to promote conservation

Incorporation of the EBMUD's Drought Management Program will minimize water use, resulting in a less-than-significant cumulative impact. A complete discussion of this program is available in the UWMP, which is incorporated herein by reference. Ultimately, there are no significant cumulative impacts, nor would the project make a considerable contribution to any cumulative impact.

Wastewater

The CSMP identified several deficient corridors within CCCSD's service boundary where the current sewer system may meet or exceed max capacity during 5-year or 20-year wet weather events. In a worst-case scenario, with full 2040 buildout and a 20-year flow scenario, CCCSD predicts that 162,228 feet of pipe - roughly 10 percent of the entire system – will meet or exceed capacity (Central Contra Costa Sanitary District, 2010a).

The CSMP identifies capacity relief solutions by upsizing pipes and providing new facilities to convey peak flows during extreme weather events. CCCSD plans to spend approximately $10.6 million in collection system improvements from 2010-2020 to address the most immediate capacity issues (Central Contra Costa Sanitary District, 2010a). Therefore, there are no significant cumulative impacts, nor would the project make a considerable contribution to any cumulative impact.

Stormwater

This analysis assesses impacts to stormwater utilities occurring within Unformed Drainage Area 12. The project, along with the three recent projects identified within the County, may cumulatively impact stormwater services within this drainage area. As previously discussed, new development projects must pay fees for the construction of drainage and flood control facilities that will mitigate any increased storm runoff resulting from the overall development of the area. Notwithstanding the above, as discussed in **Section 4.10, Hydrology and Water Quality**, the proposed drainage system has been designed to comply with NPDES and the County's C.3 requirements, ensuring that post-project runoff does not exceed pre-project runoff. Therefore, the project would not make a considerable contribution to any cumulative impact.

Solid Waste

The Keller Canyon Landfill is operating at 86 percent maximum daily capacity, and is not expected to close no sooner than 2065. The project, along with other recent and future foreseeable projects in Keller Canyon Landfill's service area, may generate enough solid waste to exceed this landfill's maximum daily capacity. However, the amount of solid waste generated by the project would be approximately 0.02 percent of this landfill's remaining daily capacity, which represents a negligible cumulative contribution.

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5.0 ALTERNATIVES

5.1 INTRODUCTION

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15126.6, this draft environmental impact report (draft EIR) contains a comparative impact assessment of alternatives to the proposed Ball Estates project (proposed project). The primary purpose of this section is to provide decision makers and the general public with a range of reasonable project alternatives that could feasibly attain most of the basic project objectives while avoiding or substantially lessening any of the project's significant adverse environmental effects. Important considerations for these alternatives analyses are noted below.

- An EIR need not consider every conceivable alternative to a project.
- An EIR should identify alternatives that were considered by the lead agency, but rejected as infeasible during the scoping process.
- Reasons for rejecting an alternative include:
  - Failure to meet most of the basic project objectives;
  - Infeasibility; or
  - Inability to avoid significant environmental impacts.

5.1.1 SIGNIFICANT IMPACTS WITHOUT MITIGATION

Typically, assessment of project alternatives focuses on avoiding or lessening significant unavoidable impacts. However, there are no significant unavoidable impacts relating to the environmental topics examined in this draft EIR.

The project is described and analyzed in the previous sections with an emphasis on significant impacts and mitigation measures to avoid these impacts. Mitigation measures have been identified to reduce all potentially significant and significant impacts to a less-than-significant level. **Table 5-1** identifies project impacts that would be significant and potentially significant prior to incorporation of mitigation measures.

Table 5-1 Significant Impacts Without Mitigation Measures

Resource Topic	Impact Number	Impact Text
Aesthetics	**Impact AES-1**	New homes on the project site could conflict with the character of existing residential neighborhoods in the area.
	Impact AES-2	New exterior lighting from the project could adversely impact nighttime views in the area.
Agriculture and Forestry	**Impact AG-1**	Implementation of the project would result in the loss of forest land at the project site and thus would conflict with forest land zoning as established by California Public Resources Code 12220(g).
Air Quality	**Impact AQ-1**	Site preparation and grading would temporarily generate fugitive dust in the form of PM10 and PM2.5.
Biological Resources	**Impact BIO-1**	Grading and construction of the project has the potential to result in harm or mortality to individual Alameda whipsnake, if present in woodpiles or under other debris along the western boundary of the project site.
	Impact BIO-2	Construction of the project during nesting season has the potential to result in a take of protected birds or create disturbance that could result in nest abandonment.
	Impact BIO-3	Building demolition and tree removal could result in a take of roosting bats, including a maternity colony, if present.
	Impact BIO-4	Project construction activities (i.e., ground disturbance, vegetation removal, and earthwork) could result in the take of an active San Francisco dusky-footed wood rat lodge.
	Impact BIO-5	If American badger establishes dens within the project site, construction activities could result in the take of an active den.
	Impact BIO-6	The project would require the filling and daylighting of drainages and seasonal wetland.
	Impact BIO-7	The project could result in the degradation of water quality in the intermittent drainages and downstream waters.
	Impact BIO-8	Several protected trees would be removed to allow for project construction.
Cultural and Tribal Cultural Resources	**Impact CUL-1**	Construction of the project could potentially cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.
	Impact CUL-2	Construction of the project could potentially cause a substantial adverse change in the significance of an unknown archaeological resource pursuant to Section 15064.5.

Resource Topic	Impact Number	Impact Text
	Impact CUL-3	Construction of the project potentially could directly or indirectly destroy a unique paleontological resource on site or unique geologic feature.
	Impact CUL-4	Construction of the project could potentially disturb human remains, including those interred outside of formal cemeteries.
	Impact CUL-5	Construction of the project could potentially cause a substantial adverse change in the significance of an unknown tribal cultural resource.
Geology and Soils	**Impact GEO-1**	The project may be subject to strong seismic shaking from regional geologic faults.
	Impact GEO-2	Soils on the project site are unstable and could experience soil failure or other geotechnical hazards.
	Impact GEO-3	The project site may have risks related to liquefaction or other seismic-related ground failure.
	Impact GEO-4	Evidence of landslide areas in the hills west of the project site suggests that the area experienced landslides in the past.
	Impact GEO-5	The project site may be located on expansive soils.
Hazards and Hazardous Materials	**Impact HAZ-1**	Soils within portions of the project site could contain residual agrichemicals.
	Impact HAZ-2	Demolition of existing structures on the site could result in the release of lead, asbestos, and other contaminants.
Hydrology and Water Quality	**Impact HYD-1**	Project construction activities could substantially alter the existing drainage pattern of the project site in a manner which would result in substantial offsite erosion or siltation.
	Impact HYD-2	Construction activities could substantially degrade water quality.
Noise and Vibration	**Impact NOI-1**	Existing noise-sensitive land uses would be exposed to construction noise levels for over one year.

5.1.2 ALTERNATIVES TO THE PROPOSED PROJECT

The three alternatives to the project analyzed in this section are as follows:

- **Alternative 1 – No Project Alternative:** The site would remain in its existing condition and no development would occur.
- **Alternative 2 – Wetland Avoidance Alternative:** This alternative would avoid most direct impacts to Wetlands 1, 2, and 3 (see **Figure 4.10-1** and **Section 4.4, Biological Resources**). Wetland 1 is an isolated feature located on the western

portion of proposed Lot 9 and the adjacent proposed Parcel C. Wetlands 2 and 3 are located on the southeastern portion of the project site between proposed Lots 16,17, 18, and 19. These wetlands are associated with runoff from the office building, irrigated landscape and parking area, and runoff from Drainage 2. Wetlands 4 and 5 are located on EBRPD property south of Lot 28 and Parcel D. In total, there are 0.282 acres of freshwater wetland habitat on the project site.

Alternative 2 proposes eliminating proposed Lots 17, 18, and 19 to prevent fill within Wetlands 2 and 3 and Drainage 2, and prohibiting development on a portion of Lots 9 and 16. Proposed Lot 27 could be sited to avoid hydrologic modifications to Drainage 2 and Wetlands 2 and 3, and proposed Lot 9 would be modified to ensure Wetland 1 has an adequate buffer (typically 50 to 100 feet) from any new structure. With preservation of proposed Lots 17, 18, 19 and portions of proposed Lots 9, 16, and 27, the remainder of the development area could be developed with a maximum of 35 single-family homes to a density of approximately 2.0 dwelling units per acre. This density is compatible with the development area's Single Family Residential – Low Density land use designation, which allows up to 2.9 dwelling units per acre. Like the proposed project, this alternative would retain the Parcel D staging area.

- **Alternative 3 – Lot 21 Staging Area:** Under this alternative, a staging area for nearby trails and open space would be located on proposed Lot 21, and would accommodate 19 parking spaces and about 8,200 square feet of gravel surfacing. Proposed Lot 28 would be split into two lots such that the project site would still include 35 residential lots.

The three alternatives to the project are analyzed below and include a comparison of the project and each individual project alternative. In several cases, the description of the impact may be the same under each alternative when compared with the CEQA thresholds of significance (i.e., both the project and the alternative would result in a less than significant impact). The actual degree of impact may be slightly different between the project and each alternative, and this relative difference is the basis for a conclusion of greater or lesser impacts. **Table 5-1** at the end of this chapter presents a comparative summary of the project impacts for the three alternatives.

CEQA Guidelines require identification of an environmentally superior alternative. If the alternative with the least environmental impact is determined to be the "no project alternative," the EIR shall also identify an environmentally superior alternative among the other alternatives.

5.2 PROJECT OBJECTIVES

As described in **Chapter 3.0, Project Description**, the project has the following objectives:

- Develop the property consistent with the existing General Plan and Zoning. The project as proposed would provide residential opportunities in accordance with the project site's existing Single Family Residential-Low Density General Plan land use designation and R-20 zoning designation. The open space area would be permanently restricted from development, except for the area being developed as a staging area (Parcel D).
- Develop the property within the land use density of the General Plan. The proposed density for the 35 new lots is 1.76 units per acre, within the 2.9 units per acre allowed in the General Plan.
- Establish high-quality infill development. Establish a high-quality, aesthetically pleasing infill residential development that is compatible with neighboring residential areas and creates a thoughtfully laid out and highly livable environment for future homeowners.
- Maximize residential development potential to alleviate development pressures on more sensitive lands. Maximize the residential development potential of the project site so as to alleviate development pressures on open space land and address housing needs in the County, while ensuring consistency with surrounding residential uses, avoiding to the extent feasible development on hillsides, and giving consideration to the environmental footprint of development.
- Remove the commercial office building from a residential neighborhood. The implementation of the project would remove the existing office building.
- Preserve and enhance habitat. Preserve the majority of the project site as open space to be used for the creation of wetlands, if feasible, as well as habitat enhancement and flood control. Grade the residential lots to a minimal level to preserve trees, with building areas established among them, generally conforming to the natural environment of the project site.
- Repair unstable slopes within the project site. Slopes at the rear of the proposed lots along the open space boundary are generally stable and do not require extensive slope repair. Slopes constructed with fill were placed near the estate home in the 1940s and east of the office building in the 1960s to provide a usable area for the estate development and parking for the office building. These slopes were not constructed with engineered fill and would be repaired.

5.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Pursuant to CEQA Guidelines 15126.6(c), an EIR should identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reasons for rejection. Among the factors that may be used to eliminate alternatives from detailed consideration include: (1) failure to meet most of the basic project objectives, (2) infeasibility, or (3) inability to avoid significant environmental impacts. To assist with this discussion, a list of the project objectives is provided in **Subsection 5.2**.

5.3.1 Rezone to R-15

According to the Contra Costa County General Plan 2005-2020 (General Plan), the project site's established density is 1.0-2.9 units per acre in the northeastern approximately 20 acres of the project site. Deducting street areas, the net developable area total is approximately 18 acres, which could yield 18 to 53 lots at the current R-20 zoning. By rezoning to R-15, the property could result in as many as 53 lots with an average lot size over 15,000 square feet. Alamo is an R-20 community and expectations of the Alamo community are to develop lots with a 20,000-square-foot minimum. Developing the property at 2.9 units per acre would yield 53 lots but would not achieve the fundamental project objective of creating a quality, aesthetically pleasing infill residential development that is compatible with neighboring residential areas.

5.3.2 Retain Commercial Uses

This scenario would retain the commercial office and develop the remainder of the project site with 31 residential lots. This alternative would not maximize the residential development potential of the project site to alleviate development pressures on open space land and address housing needs in the County. Moreover, it would not achieve the fundamental project objective of creating a quality, aesthetically pleasing infill residential development that is compatible with neighboring residential areas.

5.3.3 Lot Reconfiguration

Topography uphill of the current estate and office building is such that several building sites could be constructed in the hill area above the estate and barn area of the property. This plan would not increase density but would provide additional residential lots. A General Plan Amendment would permit these elevated sites by

reconfiguring the current boundary between the open space and the lower portions of the project site with the Single-Family Residential – Low Density General Plan land use designation. This alternative was rejected because it does not achieve the fundamental project objectives of creating a compact infill residential development that maximize the residential development potential without encroaching on hillsides.

5.3.4 Reduced Density Alternative

Under this alternative, the project site would be developed with only 28 homes, representing a reduction of approximately 20 percent of units. This alternative was rejected because developing the site at a lower density would fail to meet two fundamental project objectives: (1) developing an infill location with residential homes to assist the County in meeting residential housing needs while reducing development pressures on open space lands; and (2) maximizing the residential development potential of the project site.

5.4 ALTERNATIVE 1 – NO PROJECT ALTERNATIVE

Under Alternative 1, the project site would remain in its current state and there would be no development of a residential subdivision. The existing structures on the site would remain, including the office building. Unstable fill slopes near the estate home and east of the office building would remain, and open space areas would remain in their current condition. No staging area to facilitate access to the Madrone Trail would be constructed and street parking along Camille Avenue for trail access would continue.

5.4.1 ALTERNATIVE 1 NO PROJECT IMPACT ANALYSIS

Under this Alternative, no new structures would be built; the existing buildings on site would remain and no new human occupation of the project site would occur. Project impacts related to construction and operation on the site would therefore be completely avoided.

Under this Alternative, the office building would remain on site, which would not achieve the residential opportunities established by the zoning and general plan land use designations. Unstable slopes within the project site would not be repaired. Traffic at and adjacent to the site would remain the same at approximately 110 vehicle trips per day (see **Section 4.16, Transportation and Traffic**).

In response to the Notice of Preparation, a local resident commented that the southeast corner of the project site (where Lots 16, 17, 18, 19, and 27 are located) is prone to flooding. Implementation of the project would include drainage improvements to address the existing flood prone conditions. Alternative 1 would not include these improvements and existing drainage deficiencies would remain in this area.

5.4.2 CONCLUSION

The No Project Alternative would avoid the project's significant impacts and reduce the impact on most environmental resources. However, this alternative would not meet any of the project objectives, identified in **Subsection 5.2, Project Objectives** and would not address the flooding issue at the southeast corner of the site.

5.5 ALTERNATIVE 2 – WETLAND AVOIDANCE

Alternative 2, Wetland Avoidance Alternative, would avoid most direct impacts to Wetlands 1, 2, and 3 (see **Figure 4.10-1** and **Section 4.4, Biological Resources**). Proposed Lots 17, 18, 19, and portions of Lot 9 and 16 would be retained in their natural state to avoid most fill within seasonal wetlands and Drainage 1 (with Lot 16 maintaining a 50-foot buffer between the lot's property line fencing and nearby wetlands and Lot 9 maintaining a 25-foot buffer between the lot's building site and nearby wetlands) The remainder of the project site would be developed with a maximum of 35 single-family homes at a density of approximately 2.0 units per acre. This density is compatible with the development area's current Single-Family Residential – Low Density land use designation, which allows up to 2.9 dwelling units per acre. This alternative would redistribute the placement of lots across the project site compared to the project. Internal roadways may also require relocation, but site access via Camille Avenue and Ironwood Place and the emergency vehicle access would remain. Increased development density may decrease setback distances from Drainage 2 (see **Figure 4.10-1**) for new structures within the development area, or require modification of this drainage channel.

The Wetland Avoidance Alternative would not alter proposed uses for Parcels A and B. However, the project includes construction of a wetland mitigation area on Parcel C to compensate for the loss of wetland features. Alternative 2 would not require wetland mitigation and would avoid construction disturbance in Parcel C. This Alternative would also avoid potential offsite wetland mitigation.

With preservation of proposed 17, 18, 19, and portions of Lot 9 and 16 (i.e., area within a 25-foot setback from Wetland 1 and a 50-foot setback from Wetlands 2 and 3) the Alternative 2 construction envelope would be significantly reduced on the

south side of the project site along Camille Lane. Alternative 2 would reduce the total area of ground disturbance, resulting in fewer alterations to existing drainage patterns, fewer tree removals, and a slightly shorter construction period.

5.5.1 ALTERNATIVE 2 WETLAND AVOIDANCE IMPACT ANALYSIS

Aesthetics

As discussed in **Section 4.1, Aesthetics**, the project site is not located within view of a state scenic highway and is not identified as a scenic vista in the General Plan. Similar to the proposed project, the Wetland Avoidance Alternative would not result in adverse effects on scenic vistas or scenic resources within a state scenic highway.

Relative to the proposed project, Alternative 2 would have a smaller construction footprint and would require less grading and site preparation. Proposed Lots 17, 18, 19, and portions of Lots 9 and 16 would remain undeveloped on the eastern side of the project site, creating a visual buffer between existing residences along Camille Lane. Madrone Trail users would also benefit from this visual buffer from Camille Lane.

Similar to the project, Alternative 2 would result in the conversion of currently undeveloped land into residential dwelling units, which could degrade visually quality across the project site. Preservation of wetlands under Alternative 2 would result in less conversion of currently undeveloped land, which could reduce the visual impact of the new development, specifically for receptors located on the eastern side of the project site along Camille Lane and users of Madrone Trail. Implementation of **Mitigation Measure AES-1** would ensure that new single-family homes proposed under Alternative 2 would be visually consistent with the surrounding residential neighborhood. Overall, Alternative 2 would have similar impacts as the project, and would result in a less-than-significant impact to the visual quality of the surrounding area.

Alternative 2 would create sources of light and glare that could impact existing residences adjacent to the project site. New development would be zoned compatibly with surrounding neighborhoods, and would not result in light and glare beyond levels generated by existing residences. Implementation of **Mitigation Measure AES-2** would also reduce nighttime lighting impacts that would result from converting an open space area into residential housing. Since Alternative 2 would cluster this development away from the southern property boundary, the light/glare envelope for this alternative would be smaller than the proposed project, but more concentrated along the northern boundaries. With implementation of **Mitigation Measure AES-2**, Alternative 2 would have less-than-significant light and glare

impacts, which would be similar, though slightly reduced, relative to the proposed project.

Agriculture and Forestry

Alternative 2 proposes to retain Lots 17, 18, 19 and portions of Lots 9 and 16, in their natural state. While these lots are generally composed of developed orchard areas, non-orchard woodland would also be preserved, including valley oak woodland/savanna in the southwestern portion of Lot 9 and eucalyptus woodland in the southern portion of Lot 27. Alternative 2 would result in the loss of forest land at the project site due to the development of a relatively undeveloped area (**Impact AG-1**), but impacts to forest resources would be slightly reduced relative to the project – approximately eight trees would be retained on Lots 16, 17, 18, and 19. Similar to the project, this impact would be reduced to a less-than-significant level through implementation of **Mitigation Measure BIO-8**.

Air Quality

The potential to create objectionable odors affecting a substantial number of people would be similar for the proposed project and Alternative 2. Construction of the Wetland Avoidance Alternative would generate localized diesel odors, but these odors would be temporary, localized, and typical of odors associated with construction. The only potential source of odor associated with operation of Alternative 2 would be garbage or waste associated with land uses proposed onsite. As with the project, proper collection and disposal of generated waste would minimize the creation of objectionable odors.

Like the proposed project, Alternative 2 would not conflict with the 2010 Clean Air Plan (CAP) since it would have emissions well below the Bay Area Air Quality Management District (BAAQMD) thresholds. Additionally, both the project and Alternative 2 would adhere to the CEQA and BAAQMD guidelines, and would thus comply with the County's CAP.

Neither the proposed project nor Alternative 2 would result in emissions exceeding BAAQMD significance thresholds during construction (see **Chapter 4.3, Air Quality**). Construction of both the proposed project and Alternative 2 would generate two toxic air contaminants (TAC) – particulate matter with a diameter less than 2.5 micrometers ($PM_{2.5}$) and diesel particulate matter. Because Alternative 2 would have a smaller project footprint, exposure of sensitive receptors to TACs would be reduced. In addition, the preservation of proposed Lots 17, 18, and 19 and portions of Lots 9 and 16 would create a buffer between sensitive receptors located along Camille Lane and the construction site. No stationary sources of TACs, such as generators, are proposed as part of either the project or Alternative 2. Like the

proposed project, Alternative 2 would introduce new sensitive receptors to the area in the form of future residences. However, there are no existing TAC sources within 1,000 feet of the project site. While Alternative 2 could decrease TACs generated during the construction period, this impact would be less than significant without mitigation for both the proposed project and Alternative 2.

Like the proposed project, construction of Alternative 2 would generate fugitive dust (**Impact AQ-1**). Because Alternative 2 proposes the same number of homes as the project on a smaller project site, this alternative would require less site grading and would result in lower levels of fugitive dust. In addition, receptors located along Camille Lane, including Madrone Trail users, would be less affected under Alternative 2 because the preservation of proposed Lots 17, 18, and 19 and portions of Lots 9 and 16 would create a buffer between the construction zone and existing residential communities in this area. With implementation of **Mitigation Measure AQ-1**, this impact would be similar to, but slightly lower than, the project and, accordingly, would be less than significant.

Biological Resources

Neither the project nor the Wetland Avoidance Alternative would impact adopted habitat conservation plans or wildlife corridors. With incorporation of mitigation measures, all biological resource impacts would be less than significant for the project and Alternative 2.

The most substantial difference between the proposed project and Alternative 2 would be the avoidance of most direct impacts to seasonal wetlands with implementation of Alternative 2. Alternative 2 would indirectly affect Wetlands 2 and 3 through the loss of runoff from the office building, parking lot and landscape irrigation and, over time, the loss of this runoff is expected to result in a shrinkage in the size of wetlands 2 and 3. While Alternative 2 would ~~a~~void most wetland fill, its potential to reduce wetland areas would require the re-establishment of site hydrology or the replacement of wetlands on- or off-site in a manner consistent with **Mitigation Measure BIO-6b.** Ultimately, Alternative 2 would have lesser impacts to wetlands than the proposed project before mitigation. With incorporation of mitigation measures, the impacts of the proposed project and Alternative 2 would be similar.

Similar to the proposed project, implementation of Alternative 2 would lead to discharge of fill directly into Drainage 2. Reduced site preparation and ground-disturbing under Alternative 2 would decrease the potential to degrade water quality due to construction period runoff, but would not eliminate this risk to an insignificant level without mitigation. Similar to the proposed project,

implementation of **Mitigation Measure BIO-7** would reduce this impact to a less-than-significant level.

Project construction would have the potential to result in 'take' of special-status species known to occur on the project site (see **Section 4.4, Biological Resources**). No special-status species are known to inhabit wetlands areas that would be protected under Alternative 2, which have very limited habitat value given their location in a developed setting. Surface flow into the wetlands is too episodic to provide habitat for aquatic species, but wildlife using other habitats within the project site could use the seasonal wetlands and drainages. While Alternative 2 would have the potential to impact the same special-status species resources, it would decrease the intensity of this impact relative to the project because of the reduced construction footprint (i.e., about two acres, or 10 percent of the developable footprint) would not undergo residential development under this alternative. Regardless of whether the project constitutes 30 homes or 35 homes, approximately 36 trees will have to be removed on Lots 17, 18, 19, and portions of Lots 9 and 16 due to their poor health, such that species would be disturbed on these five lots. With 35 homes being distributed among the remaining developable acreage (i.e., the project site minus the five aforementioned lots), the level of intensity of development on this remainder would be increased with regard to the proposed project, increasing the possibility of wildlife disturbance in this portion of the site. Similar to the project, implementation of **Mitigation Measures BIO-1** through **BIO-5** would be required to reduce potential impacts related to special-status wildlife.

Reduced ground-disturbing activities under Alternative 2 would reduce the potential to degrade water quality due to construction period runoff compared to the project. However, **Mitigation Measure BI0-8** would still be required to reduce impacts to insignificant levels. Because Alternative 2 would leave proposed Lots 17, 18, 19 and portions of Lots 9 and 16 in their natural state, approximately eight fewer trees would be taken. Although slightly fewer replacement trees would be required to mitigate this loss, the application of Mitigation Measure BI0-8 would still be necessary. Refer to the Agricultural Resources discussion, above, for more information about tree impacts. Thus, impacts to protected trees under Alternative 2 could be slightly higher relative to the project, but still reduced to a less-than-significant level with implementation of **Mitigation Measure BIO-8**.

Cultural and Tribal Cultural Resources

Ground-disturbing activities associated with both the proposed project and the Wetland Avoidance Alternative would have the same potential to damage unknown cultural and tribal resources on the project site (**Impact CUL-1** through **Impact CUL-5**). However, as the construction envelope under Alternative 2 would be reduced by

approximately 10 percent compared to the proposed project, the severity of the impact to unknown cultural resources is reduced under Alternative 2. Similar to the project, potential impacts to cultural and tribal cultural resources under Alternative 2 would be less than significant with implementation of **Mitigation Measures CUL-1** and **CUL-2**.

Energy

Similar to the proposed project, energy consumption during the construction of the Wetland Avoidance Alternative would result primarily from transportation fuels used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the site. Energy consumption may be reduced due to the alternative's reduction in site preparation activities such as grading and excavation, but neither the proposed project nor Alternative 2 would result in inefficient energy usage or significant demand on energy supply during construction.

Operational energy consumption under Alternative 2 would occur from the proposed residences and transportation fuels used for vehicles traveling to and from the site. Because Alternative 2 proposes the same number of dwelling units as the project, Alternative 2 would result in the same energy demand impacts as the project; operational energy impacts would be less than significant.

Geology and Soils

Both the proposed project and the Wetland Avoidance Alternative would allow new development on the project site. Alternative 2 would result in a slightly smaller project footprint that could reduce the risk of encountering seismic and soil-related hazards compared to the proposed project; however, this difference is negligible and impacts under both alternatives would be similar and reduced to a less-than-significant level with implementation of **Mitigation Measures GEO-1** and **GEO-2**.

Greenhouse Gas Emissions

The Wetland Avoidance Alternative proposes the same number of dwelling units as the proposed project, which is below BAAQMD screening size for significant greenhouse gas (GHG) emissions. Because Alternative 2 would be constructed within a smaller footprint on the project site compared to the proposed project, it is reasonable to assume that construction-related GHG emissions would be slightly lower when compared to the project. Operational GHG emissions would likely be similar because Alternative 2 proposes the same number of dwelling units. Similar to the project, Alternative 2 would result in less-than-significant construction-related and operational GHG emissions with implementation of **Mitigation Measure GHG-1**.

Hazards and Hazardous Materials

Impacts related to hazardous flight zones, emergency response plans, or underground storage tanks removed from the project site would not occur under the proposed project or the Wetland Avoidance Alternative. Similar to the project, impacts related to schools or the routine transport or disposal of hazardous materials would be less than significant. Vegetation management practices such as annual mowing, disking pruning and removal of dead vegetation would be implemented by the HOA to reduce the risk of wildland fire.

Due to the history of the site as agricultural land, portions of the site may contain elevated levels of agrichemicals that could endanger construction workers or future residents (**Impact HAZ-1**). Because several of the proposed lots would be left undeveloped in some manner under the Wetland Avoidance Alternative, less ground disturbance would be required during the initial grading and site preparation phase. Therefore, this impact would be reduced under Alternative 2.

Demolition activities could mobilize lead particles, asbestos fibers, and/or other hazardous materials that could be inhaled by construction workers and the public (**Impact HAZ-2**). Structures on the project site would be demolished under Alternative 2; thus the impact would be similar to the project. Implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would reduce both impacts to a less-than-significant level.

Hydrology and Water Quality

Impacts related to flood hazard areas would be similar to the project under the Wetland Avoidance Alternative because the project site is not located within a FEMA 100- or 500-year flood hazard area. Alternative 2 would not utilize groundwater for irrigation or drinking water, thus resulting in no impacts to groundwater supplies.

The project site is separated from the San Francisco Bay shoreline by more than 11 miles and substantial intervening topography. Therefore, the possibility of damage from a tsunami is low. The site is not located adjacent to any large body of water that could be expected to overtop its banks during an earthquake, and is therefore not subject to inundation due to seiche. Alternative 2, like the proposed project, would not have a significant potential for mudflow due to the low gradient of the drainage areas west of the site. Corrective grading measures would be used to mitigate existing landslide hazards such that this impact would be less than significant.

Implementation of Alternative 2 would result in an increase in impervious surface relative to existing conditions, though Alternative 2 would have a reduced amount

of new impervious surfaces compared to the project, resulting in reduced quantities of stormwater runoff. The project's Stormwater Control Plan (SWCP) would ensure the capture and treatment of stormwater on the project site. According to the SWCP, additional surface runoff would be treated in bioretention facilities and conveyed to proposed storm drain pipes within the right-of-ways for new access roads serving the project. The proposed drainage system would be designed to comply with National Pollutant Discharge Elimination System (NPDES) and the County Public Works Department's C.3 requirements. Therefore, the quantity of runoff from the project site would be equal to or below existing runoff amounts. Reduced runoff under Alternative 2 would, in turn, result in comparable or slightly reduced impacts to water quality compared to the project. Nonetheless, the Wetland Avoidance Alternative would result in a less-than-significant impact to stormwater runoff, similar to the project.

While the project would alter both Drainage 1 and Drainage 2, Alternative 2 would only necessitate the alteration of Drainage 1 because Lots 16, 17, 18, 19, and portions of Lots 9 and 27 would be left in their current state. Drainage 2 would continue to drain into the wetlands located in these lots. In response to the Notice of Preparation, a local resident commented that the southeast corner of the project site (where Lots 16, 17, 18, and 19 are located) is prone to flooding. Implementation of the project would include drainage improvements to address the existing flood prone conditions. Alternative 2 would not include these improvements and existing conditions would remain in this area.

Alternative 2 would have the potential to degrade water quality. Alternative 2 would likely have a reduced impact during the construction period compared to the project because fewer ground-disturbing activities would be necessary during site preparation. Impacts during the operation phase would be similar to the project because the same number of dwelling units would be constructed. Impacts from Alternative 2 would be reduced to less than significant levels with implementation of a Storm Water Pollution Prevention Plan (SWPPP), Erosion Control Plan, and other design features, similar to the project.

Similar to the project, most hydrologic impacts of the Wetland Avoidance Alternative would be less than significant without need for mitigation. Construction-related water quality impacts would be reduced to less than significant levels through the implementation of an SWPPP, Erosion Control Plan, and **Mitigation Measure BIO-7**.

Land Use and Planning

The Wetland Avoidance Alternative would be consistent with allowable land uses in the General Plan. Although this alternative would result in a higher residential density (1.99 dwelling units per acre) than the project (1.76 dwelling units per acre), both densities are consistent with the area's Single-Family Residential – Low Density land use designation, which allows up to 2.9 dwelling units per acre.

However, the proposed project site is zoned as Single Family Residential – Lot Size 20,000 square foot minimum (R-20) by the County Zoning Map. Alternative 2 would increase the density of lots on the proposed project site, thus reducing lot sizes to an average of approximately 18,450 square feet per lot. This inconsistency would require rezoning of the area as R-15, for which the minimum lot size is 15,000 square feet. Such a conversion would conflict with the project's objective to conform to R-20 zoning district uses, and could result in an incompatibility with existing residential uses adjacent to the project site. Additionally, avoiding wetlands would also cause Alternative 2 to result in smaller lots, which would create inconsistency with Title 8 of the County Zoning Code regarding minimum lot sizes.

Mineral Resources

The project site does not contain any mineral resources. Development under the Wetland Avoidance Alternative would not result in impacts to mineral resources.

Noise

The Wetland Avoidance Alternative would be located approximately 10 miles southeast of the Buchanan Airport; the Contra Costa County Airport Land Use Compatibility Plan indicates that the project site is not located within this airport sphere of influence. The Little Hands private airstrip, the nearest private airstrip, is located approximately 2 miles south of the project site in the San Ramon area. The airstrip is owned by Little Hands Ranch, which operates three single-engine aircraft on the property. Air traffic in and out of this airport is expected to be minimal as the owner has chosen not to chart the airport, and permission is required from the owner for any aircraft to utilize the airstrip. Therefore, Alternative 2 would not result in any airport-related noise impacts.

Construction-related noise impacts would occur from site preparation, foundation work, framing, and interior work under both the project and Alternative 2. Because four proposed lots along Camille Lane would remain undeveloped, residences adjacent to these lots would experience reduced noise impacts during construction compared to the project. Preservation of these proposed lots would also benefit Madrone Trail users because the undeveloped lots would act as a buffer between the construction area and the trail. However, existing noise-sensitive land uses

adjacent to other areas of the project site would still be exposed to substantial construction noise levels (**Impact NOI-1**). With incorporation of **Mitigation Measure NOI-1**, this impact would be less than significant for Alternative 2, similar to the project.

Because Alternative 2 proposes the same number of housing units as the project, the Alternative 2 would result in similar traffic increases, and would not increase traffic noise levels by more than 1 dBA. Given this small increase and the fact that the development would be consistent with the surrounding residential neighborhoods, this impact would be less than significant under the Wetland Avoidance Alternative, similar to the project.

Population and Housing

The Wetland Avoidance Alternative and the proposed project propose the same number of housing units. Similar to the proposed project, no significant impacts to population and housing would occur and no mitigation would be required for Alternative 2.

Public Services and Recreation

The same number of residential units would be constructed under the Wetland Avoidance Alternative and the proposed project. Implementation of Alternative 2 would result in an identical demand for recreational facilities and public services such as police, fire protection, and emergency services. Like the project, Alternative 2 would result in a less-than-significant impact to public services and recreation.

Traffic/Transportation

Since Wetland Avoidance Alternative would result in the same number of dwelling units as the proposed project, and trip generation rates would be identical for both scenarios. Alternative 2 would not result in traffic impacts and would not require mitigation.

Utilities

Impacts to utilities would be directly related to the number of new residents introduced by the Wetland Avoidance Alternative. Because the number of dwelling units and new residents would be identical to the project, impacts would be the same for Alternative 2, as they are for the project. Impacts to utilities under both the proposed project and Alternative 2 would be less than significant and would not require mitigation.

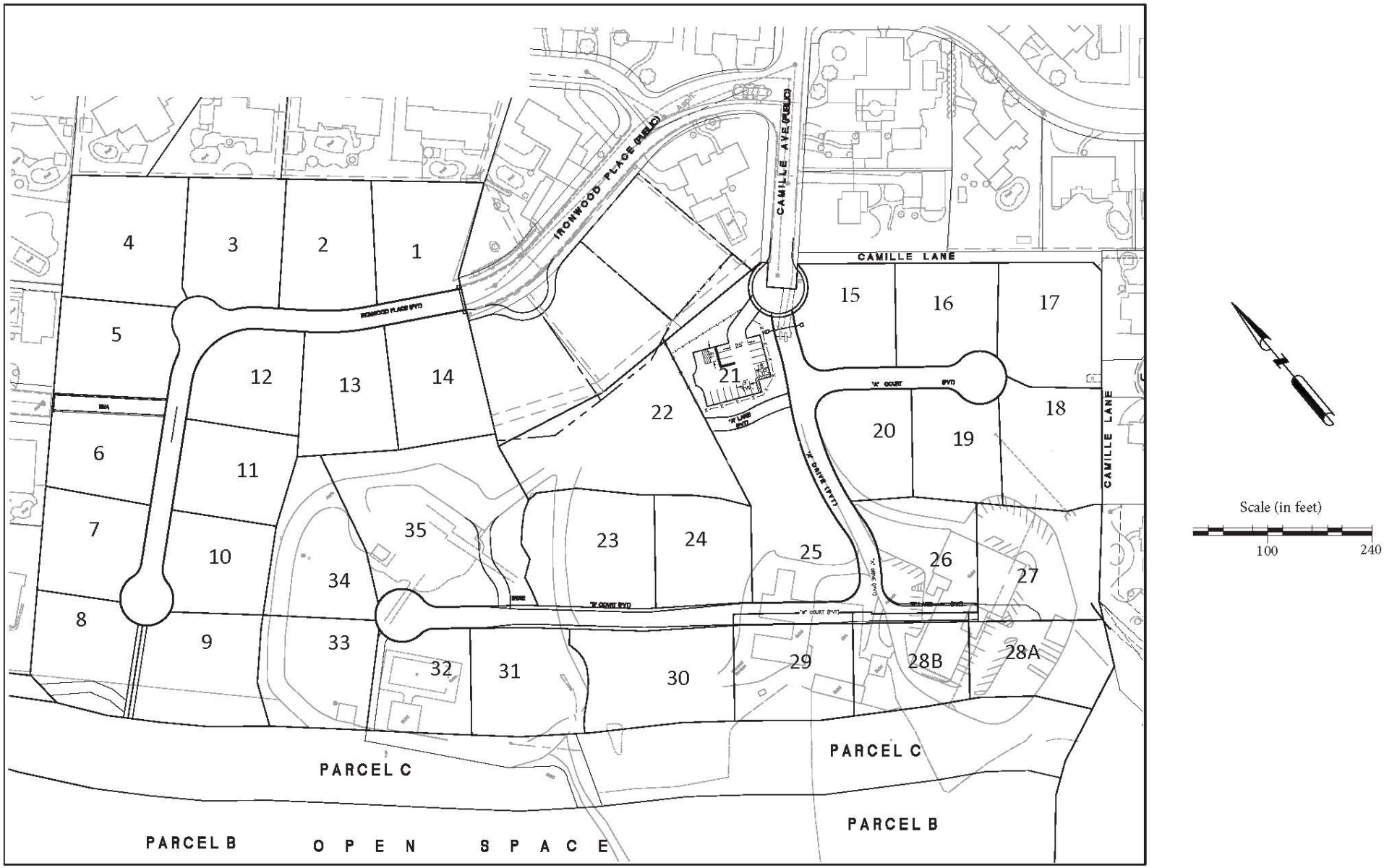
5.5.2 CONCLUSION

The Wetland Avoidance Alternative would meet all project objectives except for the one: Alternative 2 would conflict with the existing Single Family-Low Density General Plan land use designation or the R-20 zoning for the project site.

All significant impacts identified for the project would be reduced to a less than significant level with mitigation. Alternative 2 would reduce project impacts associated with filling wetlands and drainages on the southern portion of the project site by leaving wetland-encompassing lots undeveloped. Most other impacts would remain the same between the project and Alternative 2, but Alternative 2 would reduce the severity of impacts to several environmental resources due to a reduced construction footprint relative to the project. However, except for impacts to wetlands, none of these reductions to impact levels would be substantial. Alternative 2 would introduce one new potentially significant impact related to inconsistency with the existing zoning; a number of lots would not comply with Title 9 of the Ordinance Code, resulting in variances being required for lot width and lot depth.

5.6 ALTERNATIVE 3 – LOT 21 STAGING AREA

This alternative proposes a staging area on Lot 21 (see **Figure 5-1**). Under this alternative, a vehicle parking area for nearby trails and open space would be located on proposed Lot 21, and would accommodate 19 parking spaces and about 8,200 square feet of gravel surfacing. Proposed Lot 28 would be split into two lots such that the project site would still accommodate 35 lots.



Alternative 3 - Lot 21 Staging Area

Figure **5-1**

Source: Aliquot Associates, 2017.

5.6.2 ALTERNATIVE 3- LOT 21 STAGING AREA IMPACT ANALYSIS

Aesthetics

As discussed in **Section 4.1, Aesthetics**, the project site is not located within view of a state scenic highway and is not identified as a scenic vista in the Contra Costa County General Plan 2005-2020. Similar to the proposed project, the Lot 21 Staging Area Alternative would not result in adverse effects on scenic vistas or scenic resources within a state scenic highway.

Similar to the project, Alternative 3 would result in the conversion of currently undeveloped land into residential uses, which could degrade visual quality across the project site. Moving the staging area to Lot 21 would have slightly lesser, albeit similar, visual impacts when compared to Parcel D staging area. The Lot 21 staging area would be located within the residential development area and visible only from public vantage points along Camille Avenue. Parcel D, visible from Camille Lane and users of Madrone Trail, would be retained as open space.

Under Alternative 3, hikers on the Madrone Trail would not see a staging area on Parcel D, but would see more residential development in the vicinity of Lot 28, which would be split to accommodate two home sites. Overall, Alternative 3 would have slightly lesser impacts than the project, and would include **Mitigation Measure AES-1** to ensure that new single-family homes proposed under Alternative 3 would be visually consistent with the surrounding residential neighborhood. This impact would be less than significant for Alternative 3 and the project.

New residences proposed by Alternative 3 would create sources of light and glare that could impact existing residences adjacent to the development. Since this development would be compatible with surrounding neighborhoods, new light and glare would not exceed levels generated by existing residences. Implementation of **Mitigation Measure AES-2** would also reduce nighttime lighting impacts that would result from converting and open space area into residential housing. The light/glare envelope for this alternative would be slightly smaller than the project, since the Lot 21 staging area at the eastern edge of the project site would not be lit, though a future home on Lot 28A would likely be situated closer to the project site's southern boundary. With implementation of **Mitigation Measure AES-2**, Alternative 3 would have a less-than-significant light and glare impacts, and would have similar though slightly reduced impacts relative to the project.

Agriculture and Forestry

Neither the proposed project nor the Lot 21 Staging Area Alternative would impact agricultural resources. Under Alternative 3, approximately 25 trees proposed for removal on the Parcel D staging area would be retained. However, depending on the precise configuration of the Lot 21 staging area, trees proposed for preservation on Lot 21 may require removal. Overall, Alternative 3 would result in similar forestry impacts relative to the proposed project, which would be less than significant with implementation of **Mitigation Measure BIO-8**.

Air Quality

The Lot 21 Staging Area Alternative proposes the same number of homes as the project, and thus this alternative would result in identical impacts associated with objectionable odors, conflicts with an applicable air quality plan, and operational impacts. However, Alternative 3 would avoid construction on Parcel D, which would remain undeveloped. By avoiding construction within Parcel D, Alternative 3 would have a smaller construction footprint relative to the proposed project, and would result in reduced construction emissions. Alternative 3 would result in diminished impacts associated with construction emissions, which would remain less than significant with implementation of **Mitigation Measure AQ-1**.

Biological Resources

Neither the proposed project nor the Lot 21 Staging Area Alternative would impact adopted habitat conservation plans or wildlife corridors. With incorporation of mitigation measures, all biological resource impacts would be less than significant for the project and Alternative 3.

Construction would have the potential to result in injury or mortality to special-status species known to occur on the project site (see **Section 4.4, Biological Resources**). While Alternative 3 would have the potential to impact the same special-status species resources as the proposed project, it would decrease the intensity of the impact because of the reduced construction footprint. Similar to the proposed project, implementation of **Mitigation Measure BIO-1** through **Mitigation Measure BIO-5** would to reduce potential impacts related to special-status wildlife.

With respect to drainage channels within the project site, the project proposes a 10-foot long pedestrian bridge across Drainage 1 that may shade wetland vegetation and the channel beneath the bridge. This bridge would not be constructed for the Lot 21 staging area, but the Lot 21 Staging Area Alternative would locate the parking lot 10 feet from the top of a drainage channel. Overall, these differences are

minimal and impacts would be similar. Both the proposed project and the Lot 21 Staging Area Alternative propose development in close proximity to Drainage 1, including an arch culvert at 'A' Lane, a culvert south of Lot 21 for 'A' Drive, and an identically situated bioswale that is within 10 feet of top of bank. While the Lot 21 staging area would require hardscape 10 feet closer to the drainage than under the proposed project (the proposed project contemplates a 20' setback from the creek on Lot 21), the effect on water quality and habitat value in the drainage would be largely the same. Runoff under both development scenarios would be treated prior to discharge to the drainage. Habitat value associated with the open section of the drainage between the 'A' Lane arch culvert and the 'A' Drive culvert is minimal with essentially no difference in effect between development 10 or 20 feet from the top of bank. As such, the proposed project and Lot 21 Staging Area Alternative would result in similar potential impacts to drainage channels on the project site.

Similar to the proposed project, implementation of Alternative 3 would lead to discharge of fill directly into on-site drainages. Alternative 3 would require slightly lower grading quantities and new impervious footprint than the project. Furthermore, Alternative 3 would avoid ground disturbance on Parcel D. Since Parcel D would remain undeveloped, it would decrease the amount of earthwork required for the project and have a lower potential to degrade water quality due to construction-period stormwater runoff and erosion. Similar to the proposed project, implementation of **Mitigation Measure BIO-7** would reduce this impact to a less-than-significant level for Alternative 3.

Alternative 3 would avoid tree removals on Parcel D but could result in additional tree removals on Lots 21 and 28. This impact would be similar for Alternative 3 and the proposed project, and reduced to a less-than-significant level by **Mitigation Measure BIO-8**.

Cultural and Tribal Cultural Resources

Ground-disturbing activities associated with both the proposed project and the Lot 21 Staging Area Alternative would have the same potential to damage unknown cultural and tribal cultural resources on the project site (**Impact CUL-1** through **Impact CUL-5**). However, as the construction envelope of development under Alternative 3 would be slightly reduced compared to the project, the severity of the impact to unknown cultural and tribal cultural resources would be diminished under Alternative 3.

Energy

Similar to the proposed project, energy consumption during the construction of the Lot 21 Staging Area Alternative would result primarily from transportation fuels used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the site. Energy consumption may be reduced due to the alternative's reduction in site preparation activities such as grading and excavation, but neither the proposed project nor Alternative 3 would result in inefficient energy usage or significant demand on energy supply during construction.

Operational energy consumption under Alternative 3 would occur from the proposed residences and transportation fuels used for vehicles traveling to and from the site. Because Alternative 3 proposes the same number of dwelling units as the project, Alternative 3 would result in the same energy demand impacts as the proposed project; operational energy impacts would be less than significant.

Geology and Soils

Both the proposed project and the Lot 21 Staging Area Alternative would allow new development on the project site. This Alternative would result in a slightly smaller project footprint that could reduce the risk of encountering seismic and soil-related hazards compared to the project; however, this difference is negligible and impacts under both alternatives would be similar and reduced to a less-than-significant level with implementation of **Mitigation Measures GEO-1** and **GEO-2.**

Greenhouse Gas Emissions

The Lot 21 Staging Area Alternative proposes the same number of dwelling units as the proposed project, which is below BAAQMD screening size for significant GHG emissions. Because Alternative 3 would be constructed within a slightly smaller footprint compared to the proposed project (due to avoidance of Parcel D), it is reasonable to assume that construction-related GHG emissions would be slightly lower when compared to the project. Operational GHG emissions would likely be similar because Alternative 3 proposes the same number of dwelling units and both options include a 19-space staging area. Similar to the proposed project, Alternative 3 would result in less-than-significant construction-related and operational GHG emissions with implementation of **Mitigation Measure GHG-1**.

Hazards and Hazardous Materials

Impacts related to hazardous flight zones, emergency response plans, or underground storage tanks removed from the project site would not occur under

the proposed project or the Lot 21 Staging Area Alternative. Similar to the proposed project, impacts related to schools or the routine transport or disposal of hazardous materials would be less than significant. Vegetation management practices such as annual mowing, disking pruning and removal of dead vegetation would be implemented by the HOA to reduce the risk of wildland fire.

Due to the history of the site as agricultural land, portions of the site may contain elevated levels of agrichemicals that could endanger construction workers or future residents (**Impact HAZ-1**). This potential impact would be reduced to a less-than-significant level through implementation of **Mitigation Measure HAZ-1.**

Demolition activities could mobilize lead particles, asbestos fibers, and/or other hazardous materials that could be inhaled by construction workers and the public (**Impact HAZ-2**). Structures on the project site would be demolished under Alternative 3; thus the impact would be similar to the proposed project. Implementation of **Mitigation Measures HAZ-1** and **HAZ-2** would reduce both impacts to a less-than-significant level.

Hydrology and Water Quality

Impacts related to flood hazard areas would be similar to the project under the Lot 21 Staging Area Alternative because the project site is not located within a FEMA 100- or 500-year flood hazard area. Alternative 3 would not utilize groundwater for irrigation or drinking water, thus resulting in no impacts to groundwater supplies.

The project site is separated from the San Francisco Bay shoreline by more than 11 miles and substantial intervening topography. Therefore, the possibility of damage from a tsunami is low. The site is not located adjacent to any large body of fresh water that could be expected to overtop its banks during an earthquake, and is therefore not subject to inundation due to seiche. Alternative 3, like the proposed project, would not have a significant potential for mudflow due to the low gradient of the drainage areas west of the site. Corrective grading measures would be used to mitigate existing landslide hazards such that this impact would be less than significant.

Alternative 3 would have a slightly reduced, albeit similar, amount of new impervious surfaces compared to the proposed project, resulting in reduced quantities of stormwater runoff. The project's SWCP would ensure the capture and treatment of stormwater on the project site. According to the SWCP, additional surface runoff would be treated in bioretention facilities and conveyed to proposed storm drain pipes within the right-of-ways for new access roads serving the project. The proposed drainage system would be designed to comply with NPDES and the County Public Works Department's C.3 requirements. Therefore, the quantity of

runoff from the project site would be equal to or below existing runoff amounts. Reduced runoff under Alternative 3 would, in turn, result in comparable or slightly reduced impacts to water quality compared to the project. Nonetheless, Alternative 3 would result in a less-than-significant impact to stormwater runoff, similar to the project.

While the proposed project would alter both Drainage 1 and Drainage 2, Alternative 3 would not require a footbridge over Drainage 1. Installation of this footbridge would not have any significant impacts under the proposed project, but Alternative 3 would not disturb this segment of Drainage 1. With respect to Drainage 1, both the proposed project and the Lot 21 Staging Area Alternative would include similar improvements in and around this waterway, including an arch culvert at 'A' Lane, an inlet culvert south of Lot 21 along 'A' Drive, and an identically situated bioswale that is within 10 feet of the top of the bank. While the Lot 21 Staging Area Alternative would require hardscape 10 feet closer to the drainage than under the proposed project, the effect on water quality and habitat value in the drainage would be largely the same. Runoff under both development scenarios would be treated prior to discharge to the drainage. Habitat value associated with the open section of the drainage between the 'A' Lane arch culvert and the 'A' Drive culvert is minimal, with essentially no difference in impact between development 10 or 20 feet from the top of the bank.

Alternative 3 would likely have a slightly reduced impact during the construction period because slightly fewer ground-disturbing activities would be necessary during site preparation. Impacts during the operation phase would be similar to the project because the same number of dwelling units would be constructed. Overall, Alternative 3 would result in slightly diminished hydrology and water quality impacts relative to the project, which would be less than significant with the implementation of an SWPPP, Erosion Control Plan, and **Mitigation Measure BIO-7**.

Land Use and Planning

The Lot 21 staging area would be located within the Single-Family Residential - Low Density land use area, and is not explicitly designated as an allowable use (though publicly-owned parks are allowed uses). By contrast, the Parcel D staging area would be located within an area designated as OS, and would be consistent with the site's open space designation. Alternative 3 would also require an exception from Title 9 creek structure setbacks meant to protect Drainage 1, which bisects Lot 21. Relative to the project, Alternative 3 is less compatible regarding land use designations, but land use impacts would remain less than significant for the proposed project and the Lot 21 Staging Area Alternative.

Mineral Resources

The project site does not contain any mineral resources. Development of the Lot 21 Staging Area Alternative would not result in impacts to mineral resources.

Noise

The Lot 21 Staging Area Alternative would be located approximately 10 miles southeast of the Buchanan Airport. A review of the Contra Costa County Airport Land Use Compatibility Plan indicates that the project site is not located within the airport sphere of influence. The Little Hands private airstrip, the nearest private airstrip, is located approximately 2 miles south of the project site in the San Ramon area. The airstrip is owned by Little Hands Ranch, which operates three single-engine aircraft on the property. Air traffic in and out of this airport is expected to be minimal as the owner has chosen not to chart the airport, and permission is required from the owner for any aircraft to utilize the airstrip. Therefore, the Lot 21 Staging Area Alternative would not result in any airport-related noise impacts.

Construction-related noise impacts would occur from site preparation, foundation work, framing, and interior work under both the project and Alternative 3. Within the project site, the internal construction pattern under Alternative 3 would be slightly different from the project: Alternative 3 proposes a staging area instead of a home on Lot 21 and a densification of homes in the vicinity of Lot 28. This development could modify the construction noise profile, reducing construction noise impacts near Lot 21 and increasing construction noise near Lot 28. These changes would not alter the overall construction noise profile, and noise-sensitive land uses adjacent to other areas of the project site would still be exposed to substantial construction noise (**Impact NOI-I**). With incorporation of **Mitigation Measure NOI-1**, this impact would be less than significant for Alternative 3, similar to the proposed project. However, since Parcel D would remain undeveloped, Alternative 3 would have a slightly smaller construction noise envelope relative to the proposed project.

Because Alternative 3 proposes the same number of housing units as the project, the Alternative 3 would result in similar traffic increases, and would not increase traffic noise levels by more than 1 dBA. Given this small increase and the fact that the development would be consistent with the surrounding residential neighborhoods, this impact would be less than significant under Alternative 3, similar to the project.

Population and Housing

The same number of residential units would be constructed under the Lot 21 Staging Area Alternative as the proposed project. Similar to the proposed project, no significant impacts to population and housing would occur and no mitigation would be required for Alternative 3.

Public Services and Recreation

Because the same number of residential units would be constructed under the Lot 21 Staging Area Alternative as compared to the proposed project, implementation of Alternative 3 would result in an identical demand for recreational facilities and public services such as police, fire protection, and emergency services. Like the proposed project, Alternative 3 would result in less-than-significant impacts to public services and recreation.

Traffic/Transportation

The Lot 21 Staging Area Alternative would result in the same number of dwelling units as the proposed project and thus trip generation would be the same as the project. Although the Lot 21 staging area would slightly modify internal circulation within the project site, transportation and traffic impacts would be similar for Alternative 3 and the proposed project. These impacts would be less than significant without mitigation.

Utilities

Impacts to utilities would be directly related to the number of new residents introduced by the Lot 21 Staging Area Alternative. Because the number of dwelling units and new residents would be identical to the proposed project, impacts would be the same for Alternative 3, as they are for the proposed project. Impacts to utilities under both the project and Alternative 3 would be less than significant and would not require mitigation.

5.6.3 CONCLUSION

The Lot 21 Staging Area Alternative, insofar as it avoids construction of a staging area on Parcel D, would result in similar or slightly reduced impacts when compared to the proposed project. Alternative 3 would require a slightly smaller construction envelope, would avoid ground disturbance in the Parcel D open space, and would not require a footbridge over Drainage 1. However, Alternative 3 would place a recreational staging area directly adjacent to existing residential homes within a

Single-Family Residential - Low Density land use designation, resulting in potential land use and zoning compatibility issues because the Single-Family Residential – Low Density land use designation does not explicitly allow staging area (although publicly-owned parks are acceptable uses). The Parcel D staging area proposed under the project would be located within an area designated as Open Space, and would be consistent with the site's open space designation. Furthermore, Alternative 3 would require an exception from Title 9 Subdivision creek structure setbacks meant to protect Drainage 1, which bisects Lot 21.

5.7 SUMMARY OF COMPARATIVE IMPACTS

This section summarizes potential impacts that would occur under the project and each alternative. **Table 5-2** shows whether the impacts anticipated under each alternative would be equal to, below, or greater than those of the project.

Table 5-2 Summary of Comparative Impacts

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Aesthetics							
Have a substantial adverse effect on a scenic vista	NI	LTS	=	LTS	=	LTS	=
Substantially damage scenic resources within a state scenic highway	NI	NI	=	NI	=	NI	=
Substantially degrade existing visual character or quality	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Create a new source of substantial light or glare	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Cumulative impacts	LTS	NI	↓	LTS	↓	LTS	↓
Agriculture and Forestry							
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance	NI	NI	=	NI	=	NI	=
Conflict with existing zoning for agricultural use, forestland, timberland, or a Williamson Act contract	NI	NI	=	NI	=	NI	=
Loss of forest land or conversion of forest land to non-forest use	LTS/M	NI	=	LTS/M	↓	LTS/M	=
Other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland, to non-agricultural use	LTS/M	NI	=	LTS/M	↓	LTS/M	=
Cumulative impacts	LTS	NI	↓	LTS	=	LTS	=
Air Quality							
Conflict with the applicable air quality plan	LTS	NI	=	LTS	=	LTS	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Violate or contribute to an existing air quality violation	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Expose sensitive receptors to substantial pollutant concentrations	LTS	NI	↓	LTS	↓	LTS	↓
Result in a community risk due to an increased cancer risk	LTS	NI	↓	LTS	=	LTS	=
Create objectionable odors affecting a substantial number of people	LTS	NI	↓	LTS	=	LTS	=
Cumulative impacts	LTS/M	NI	↓	LTS/M	=	LTS/M	=
Biological Resources							
Impacts to special-status species	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Substantial effect on riparian habitat or other sensitive communities	LTS/M	NI	↓	LTS/M	↓	LTS/M	=
Substantial effect on wetlands and other waters	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Interfere with movement of native migratory wildlife species	NI	NI	=	NI	=	NI	=
Conflict with local policies protecting biological resources	LTS/M	NI	↓	LTS/M	↑	LTS/M	=
Conflict with a conservation management plan	NI	NI	=	NI	=	NI	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Cultural and Tribal Cultural Resources							
Impacts on historic structures	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Impacts on archeological resources	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Impacts on paleontological resources	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Impacts on human remains	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Impacts on tribal cultural resources	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Cumulative impacts	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Energy							
Inefficient energy usage	LTS	NI	↓	LTS	=	LTS	=
Significant demand on energy supply	LTS	NI	↓	LTS	=	LTS	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Geology and Soils							
Substantial adverse effects involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides.	LTS/M	NI	↓	LTS/M	=	LTS/M	=
Soil erosion	LTS	NI	↓	LTS	↓	LTS	↓
Unstable soils	LTS/M	NI	↓	LTS/M	=	LTS/M	=
Expansive soils	LTS/M	NI	↓	LTS/M	=	LTS/M	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Septic tank and alternative wastewater systems	NI	NI	=	NI	=	NI	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Greenhouse Gas Emissions							
Impacts from greenhouse gas emissions	LTS	NI	↓	LTS	↓	LTS	↓
Conflicts with existing plans and policies	LTS/M	NI	↓	LTS/M	=	LTS/M	=
Hazards and Hazardous Materials							
Routine use/transport of hazardous materials	LTS	NI	↓	LTS	=	LTS	=
Accidental release of hazardous materials	LTS/M	NI	↓	LTS/M	↓	LTS/M	=
Emit hazardous materials in proximity to schools	LTS	NI	↓	LTS	=	LTS	=
On a Cortese list site	NI	NI	=	NI	=	NI	=
Safety hazards from public or private airports	NI	NI	=	NI	=	NI	=
Interfere with emergency response emergency plan	NI	NI	=	NI	=	NI	=
Wildland fires	LTS/M	NI	=	LTS/M	=	LTS/M	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Hydrology and Water Quality							
Violation of water quality standards or waste discharge requirements	NI	NI	=	NI	=	NI	=
Effects on groundwater supplies and recharge	NI	NI	=	NI	=	NI	=
Changes to existing drainage patterns	LTS/M	NI	↓	LTS	↓	LTS	↓

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Changes to stormwater runoff	LTS	LTS	↑	LTS	↑	LTS	=
Degradation of water quality	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Impacts from flooding in a flood hazard area	NI	NI	=	NI	=	NI	=
Impacts from failure of a levee or dam	NI	NI	=	NI	=	NI	=
Seiche, tsunami, or mudflow impacts	LTS	NI	=	LTS	=	LTS	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Land Use and Planning							
Physical division of an established community	NI	NI	=	NI	=	NI	=
Conflicts with adopted city land use plans and policies	LTS	NI	↓	LTS	↑	LTS	↑
Conflict with a habitat conservation plan or natural community conservation plan	NI	NI	=	NI	=	NI	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Mineral Resources							
Loss of availability of a known mineral resource that would be of value to the region and the residents of the state	NI	NI	=	NI	=	NI	=
Loss of availability of a locally-important mineral resource recovery site	NI	NI	=	NI	=	NI	=
Cumulative impacts	NI	NI	=	NI	=	NI	=
Noise and Vibration							
Generation of noise levels in excess of standards established in	LT	NI	↓	LTS	=	LTS	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
the local General Plan or noise ordinance, or applicable standards of other agencies							
Generation of excessive ground borne vibration or ground borne noise levels	LTS	NI	↓	LTS	=	LTS	=
Generation of a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project	LTS	NI	↓	LTS	=	LTS	=
Generation of a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project	LTS/M	NI	↓	LTS/M	↓	LTS/M	↓
Location within two miles of a public airstrip	NI	NI	=	NI	=	NI	=
Location within two miles of a private airstrip	NI	NI	=	NI	=	NI	=
Cumulative impacts	NI	NI	↓	NI	=	NI	=
Population and Housing							
Population growth	LTS	NI	↓	LTS	=	LTS	=
Displacement of housing	NI	NI	=	NI	=	NI	=
Displacement of people	LTS	NI	↓	LTS	=	LTS	=
Cumulative impacts	LTS	NI	↓	LTS	=	LTS	=
Public Services and Recreation							
Fire service impacts	LTS	NI	↓	LTS	=	LTS	=
Police service impacts	LTS	NI	↓	LTS	=	LTS	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
School impacts	LTS	NI	↓	LTS	=	LTS	=
Recreational impacts	LTS	NI	↓	LTS	=	LTS	=
Library impacts	LTS	NI	↓	LTS	=	LTS	=
Cumulative impacts	LTS	NI	↓	LTS	=	LTS	=
Transportation and Traffic							
Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation	LTS	LTS	↓	LTS	=	LTS	=
Conflict with an applicable congestion management program	LTS	NI	↓	LTS	=	LTS	=
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks	NI	NI	=	NI	=	NI	=
Substantially increase hazards due to a design feature	LTS	NI	↓	LTS	=	LTS	=
Result in inadequate emergency access	LTS	NI	↓	LTS	=	LTS	=
Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities	LTS	NI	↓	LTS	=	LTS	=
Cumulative impacts	LTS	NI	=	LTS	=	LTS	=

Environmental Topic	Project	Alternative 1 - No Project		Alternative 2 - Wetland Avoidance		Alternative 3 - Lot 21 Staging Area	
		Significance	Comparison	Significance	Comparison	Significance	Comparison
Utilities and Service Systems							
Exceed wastewater treatment requirements	LTS	NI	=	LTS	=	LTS	=
Require or result in the construction of new water or wastewater treatment facilities	LTS	NI	↓	LTS	=	LTS	=
Require or result in the construction of new stormwater treatment facilities	LTS	NI	↓	LTS	=	LTS	=
Not have sufficient water supplies available to serve the project from existing entitlements and resources	LTS	NI	↓	LTS	=	LTS	=
Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand	LTS	NI	↓	LTS	=	LTS	=
Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs	LTS	NI	↓	LTS	=	LTS	=
Not comply with federal, state, and local statutes and regulations related to solid waste	LTS	NI	=	LTS	=	LTS	=

NI = No Impact

LTS = Less than Significant

LTS/M = Less than Significant with Mitigation

= Equal to

↓ Lesser Impact than project

↑ Greater Impact than project

5.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of an environmentally superior project alternative. The environmentally superior alternative must be an alternative to the project that reduces some of the environmental impacts, regardless of the financial costs associated with this alternative. Identification of the environmentally superior alternative is an informal procedure and the alternative identified as the environmentally superior alternative may not be that which best meets the goals or needs of a project. Additionally, if the No Project Alternative is determined to reduce most impacts, CEQA requires that the EIR identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e]).

Given the comparison of alternatives identified in **Table 5-2**, the No Project Alternative would avoid all of the significant impacts identified for the proposed project; however, it would not fulfill any of the project objectives.

Alternative 3, Lot 21 Staging Area Alternative would slightly reduce the construction profile and would avoid impacts in the Parcel D open space. Alternative 3 would meet all project objectives, but relative to the project, the impact to environmental resources under Alternative 3 would be similar. Alternative 3 could create land use compatibility issues by locating a staging area on Lot 21 because the *Single- Family Residential - Low* land use area is not explicitly designated as an allowable use (though publicly-owned parks are allowed uses).

Pursuant to CEQA, Alternative 2, the Wetland Avoidance Alternative, is the environmentally superior alternative. Alternative 2 would substantially reduce impacts to on-site wetlands and drainages by placing surrounding land into conservation easements rather than allowing development of homes that would require filling and daylighting. In addition to reducing this biological impact, Alternative 2 would further reduce the magnitude of the less-than-significant impacts identified for the proposed project related to aesthetics, agriculture and forestry, air quality, cultural and tribal cultural resources, greenhouse gas emissions, hazardous materials and wastes, and noise.

For these reasons, Alternative 2 is the environmentally superior alternative to the project. However, Alternative 2 would not meet the project objective to develop the property consistent with the existing R-20 zoning; which requires a minimum of 20,000 sq. ft. lots. By maintaining the 35 units within a smaller footprint on the project site, this alternative would reduce lot sizes to an average of approximately 18,450 square feet per lot. This inconsistency would require rezoning of the area as R-15, for which the minimum lot size is 15,000 square feet.

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6.0 CEQA REQUIRED DISCUSSION

As required by the California Environmental Quality Act (CEQA), this chapter provides a discussion of significant irreversible environmental changes and growth-inducing impacts that could be caused by implementation of the Ball Estates project (project).

6.1 GROWTH INDUCEMENT

CEQA requires a discussion of the ways in which a project could be growth inducing. CEQA Guidelines Section 15126.2(d) identify a project as growth inducing if it would "foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." The CEQA Guidelines do not provide specific criteria for evaluating growth inducement and state that growth in any area is "necessarily beneficial, detrimental, or of little significance to the environment." CEQA does not require separate mitigation for growth inducement as it is assumed that these impacts are already captured in the analysis of environmental impacts (see **Chapter 4.0, Setting, Impacts, and Mitigation Measures**). Furthermore, the CEQA Guidelines require that an environmental impact report "discuss the ways" a project could be growth inducing and to "discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment."

According to the CEQA Guidelines, the project would have potential to induce growth if it would:

- Remove obstacles to population growth (e.g., through the expansion of public services into an area that does not currently receive these services), or through the provision of new access to an area, or a change in a restrictive zoning or general plan land use designation.
- Result in economic expansion and population growth through employment opportunities and/or construction of new housing.

In general, a project could be considered growth inducing if it directly or indirectly affects the ability of agencies to provide needed public services, or if it can be demonstrated that the potential growth significantly affects the environment in some other way. However, the CEQA Guidelines Section 15145 do not require a prediction or speculation of where, when, and in what form such growth would occur.

6.1.1 ECONOMIC, POPULATION, AND HOUSING GROWTH

Typically, the growth inducing potential of a project is considered significant if it fosters growth in a new location or in excess of what is assumed in pertinent land use plans or projections. As discussed in **Section 4.14, Population and Housing**, the project's 35 residential homes would house up to 105 people, based on Alamo's average household size of 3 people per household (United States Census Bureau, 2015). This new population would constitute approximately 1.5 percent of the projected growth in the Unincorporated Contra Costa County and 0.1 percent of the projected growth anticipated by ABAG in all of Contra Costa County (County) from 2010 to 2040 (Plan Bay Area, 2014). The 35 units proposed by the project would represent approximately 2.5 percent of the projected housing needs of the unincorporated areas 1,367 anticipated new units over 2014-2022 (ABAG, 2013). Though the project would increase population on a currently undeveloped site, this population growth would be within the growth projections.

According to the *Contra Costa County General Plan 2005-2020* (General Plan), the project site is located within the County's urban limit line (ULL). Therefore, growth on this project site is anticipated within the General Plan. In this instance, the project would be considered infill development completely surrounded by residential neighborhoods and open space located outside the ULL. Therefore, impacts related to indirect population growth are considered less than significant. For further discussion of the ULL, refer to **Section 4.11, Land Use and Planning**.

Project construction would result in a short-term increase in construction related job opportunities in the County, which would likely employ the local construction employment labor force. Due to the small project size, opportunities provided by project construction would not likely result in the relocation of construction workers to the project region. Therefore, the employment opportunities provided by construction are not anticipated to induce indirect growth in the region.

6.1.2 REMOVAL OF OBSTACLES TO GROWTH OR EXCEED CAPACITY OF COMMUNITY FACILITIES

As discussed in **Section 4.17, Utilities and Service Systems**, and **Section 4.15, Public Services and Recreation**, the project site is currently served by utilities (including water, stormwater, and sanitary sewer) and public services (including police protection, fire protection, school systems, and park facilities). Project implementation would not increase demand for these utilities or public services such that substantial upgrades would be required that would remove obstacles to growth in the project region.

6.1.3 PRECEDENT-SETTING ACTION

Development of the project site would not entail either a General Plan amendment or rezoning. By its nature, the R-20 residential zoning classification would be adhered to with development on the project site, and the Park Dedication Ordinance outlined by the County Code, Division 920 Article 920-6.2, would be met through the dedication of the open space to an appropriate land conservation organization, the HOA, or a public agency. Therefore, the project would only be growth-inducing in respect to the construction of the 35 new residential lots. This action would promote slight population growth in the area, and is below the maximum allowable density for the project site. In addition, the project would permanently protect approximately 40 acres as open space. Growth inducement beyond the project site boundaries would not be expected because the project is an infill development site, bounded on three sides by residential neighborhoods and on the fourth by park land owned and maintained by the East Bay Regional Park District.

6.1.4 REFERENCES

Association of Bay Area Governments, 2013. *Bay Area Regional Housing Need Allocation 2014-2022*. http://www.abag.ca.gov/planning/housingneeds/pdfs/2014-22_RHNA_Plan.pdf. Accessed September 4, 2015.

Plan Bay Area 2040, 2014. The Bay Area in 2040. http://planbayarea.org/file10044.html. Accessed, September 4, 2015.

The United States Census Bureau, 2015. http://www.census.gov/quickfacts/table/PST045214/0600618,00. Accessed, September 4, 2015.

7.0 LIST OF PREPARERS

Table 7-1 List of Preparers

Preparer	Topic/Role	Contact
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Illingworth and Rodkin	Air Quality and Greenhouse Gas Emissions	Joshua Carman
Illingworth and Rodkin	Noise Assessment	Dana Lodico
DKS	Transportation Impact Study	Erin Vaca
Sequoia Ecology Consulting	Biological Peer Review	Brett Hanshew
Square One Productions	Visual Simulations	Angela Lin

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