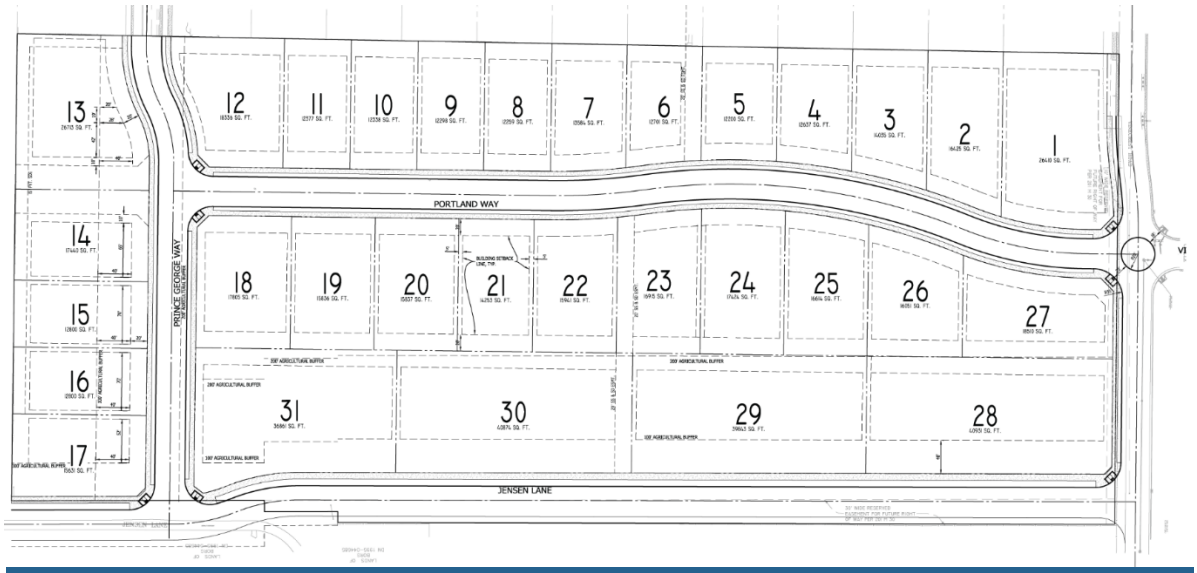


Estates at Ross Ranch Project

Final Supplemental Environmental Impact Report

prepared by

Town of Windsor
Community Development Department
9291 Old Redwood Highway
Windsor, California 95492
Contact: Kimberly Jordan, Planner III

prepared with the assistance of

Rincon Consultants, Inc.
4825 J Street, Suite 200
Sacramento, California 95819

January 2023

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Executive Summary

This document is a Supplemental Environmental Impact Report (SEIR) to the Town of Windsor 2040 General Plan EIR, State Clearinghouse No. 2016112065, analyzing the environmental effects of the proposed Estates at Ross Ranch Project (project). This section summarizes the characteristics of the project, alternatives to the project, and the environmental impacts and mitigation measures associated with the project.

Project Synopsis

Lead Agency Contact Person

Town of Windsor
9291 Old Redwood Highway
Windsor, California 95492
Contact: Kimberly Jordan, (707) 838-1201, kjordan@townofwindsor.com

Project Description

This SEIR has been prepared to examine the potential environmental effects of the project. The project is a 31-lot subdivision of a 17.17-acre parcel (Assessor's Parcel Number 162-020-004) located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor. Subdivided lots would range in size from 12,200 to 40,931 square feet. The project would include a 100-foot agricultural buffer along the southern and eastern boundaries of the project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer of 200 feet from a property that is zoned or used for agriculture. The width of the buffer may be reduced to a minimum of 100-feet in certain circumstances with Town Council approval. The above is a summary of the full project description, which can be found in Section 2.0, *Project Description*.

Project Objectives

The applicant's objective for the project is to provide more housing opportunities within the Town that are consistent with the Estate Residential 2040 General Plan land use designation.

Alternatives

As required by the California Environmental Quality Act (CEQA), this SEIR examines a reasonable range of alternatives to the proposed project. The following alternatives are evaluated in this SEIR:

- Alternative 1: No Project, No Build
- Alternative 2: No Project, Build to Existing Land Use Designation
- Alternative 3: Trail instead of extension of Jensen Lane
- Alternative 4: Maximum Density

Alternative 1 (No Project, No Build) assumes that the proposed subdivision, new road, and other accessories associated with the proposed project would not be constructed. Current uses on the project site consist of a 1,170 square-foot single-family residence that would remain. No

construction would occur; therefore, the mitigation measures associated with monitoring for air quality, biological resources, cultural resources, noise, wildfires and hazards, tribal and cultural resources, and the reviews and plans for traffic and transportation would not be required. However, Alternative 1 would not fulfill the project objectives because the existing conditions would not promote housing opportunities.

Alternative 2 (No Project, Build to Existing Land Use Designation) assumes that the proposed subdivision, new road, and other accessories associated with the proposed project would not be constructed. Under this alternative the existing single-family residence and accessory structures on the stie would be demolished and the site would be developed in accordance with the existing land use designation for the parcel. Therefore, the site would be developed with one single-family detached residence, one accessory dwelling unit, and one junior accessory dwelling unit.

Alternative 3 (Trail Construction Alternative) would involve the construction of a trail instead of the extension of Jensen Lane. The project site would be accessed via Vinecrest Road to the north. Under this alternative construction of the extension of Jensen Lane would not occur. Therefore, Alternative 3 could result in inadequate emergency access and fewer evacuation access points on the site resulting in potential congestion on Portland Way or Prince George Way during evacuation as vehicles try to access Vinecrest Road. Therefore, under Alternative 3 impacts would be greater than those analyzed under the proposed project.

Alternative 4 (Maximum Density) would involve development on the project site up to the maximum density allowed under the 2040 General Plan. Maximum density would include 37 total lots and assumes all lots would include accessory dwelling units. This alternative would meet the objectives of the project by providing the most housing for the Town. Similar to the project, impacts to transportation and wildfire would be potentially significant. Under Alternative 4 impacts would be greater than those analyzed under the proposed project due to the increased amount of development on the site.

Refer to Section 6.0, *Alternatives*, for the complete alternative's analysis.

Areas of Known Controversy

The SEIR scoping process did not identify any areas of known controversy for the proposed project. Responses to the Notice of Preparation of a Draft SEIR and input received at the SEIR scoping meeting held by the Town are summarized in Section 1.0, *Introduction*.

Issues to be Resolved

The proposed project would require a demolition and building permit. In addition, the Town Council's approval for the reduction of a 200-feet agricultural buffer to a 100-feet agricultural buffer would be required. The project would also require approval of a Tentative Subdivision Map. No additional issues were identified for the proposed project.

Issues Not Studied in Detail in the EIR

An Initial Study was prepared for the project to determine issue areas to be discussed in this SEIR. The Initial Study was circulated for public review with the Notice of Preparation from November 23, 2021, to January 6, 2022. As indicated in the Initial Study, there is no substantial evidence that significant impacts would occur in any of the following issue areas: Aesthetics, Agricultural and Forestry Resources, Air Quality, Energy, Geology and Soils, Hazards and Hazardous Materials (except

for issues related to wildfire, such as wildfire itself and emergency access, which are discussed in Section 4.5, *Wildfire and Hazards*), Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, and Utilities and Service Systems. The Initial Study is included in Appendix A.

Summary of Impacts and Mitigation Measures

Table ES-1 summarizes the environmental impacts of the proposed project, proposed mitigation measures, and residual impacts (the impact after application of mitigation, if required). Impacts are categorized as follows:

- **Significant and Unavoidable.** An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per Section 15093 of the *CEQA Guidelines*. The Statement of Overriding Considerations must be approved by the Town Council or Lead Agency.
- **Less than Significant with Mitigation Incorporated.** An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under Section 15091 of the *CEQA Guidelines*.
- **Less than Significant.** An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact:** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Table ES-1 Summary of Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measure (s)	Residual Impact
Biological Resources		
Impact BIO-1. Implementation of the proposed project may impact special-status species and their habitat during construction and/or operation. Impacts would be less than significant with mitigation.	**BIO-1 Worker Environmental Awareness Program (WEAP).** Prior to initiation of construction activities (including staging and mobilization), and at the applicant's financial expense, all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the construction area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to reduce impacts to biological resources within the work area. A qualified biologist shall prepare a fact sheet conveying this information for distribution to all contractors, their employers, and other personnel involved with construction. All employees shall sign a form provided by the trainer indicating they have attended the WEAP and understand the information presented to them. The form shall be submitted to the Town to document compliance following each training.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Residual Impact
	BIO-2 Roosting Bats Surveys and Avoidance Measures. Prior to tree removal, a qualified biologist shall be retained by the applicant to conduct a focused survey of all trees and structures to be removed or impacted by construction activities to determine whether active roosts of special-status bats are present on site. If tree or structure removal is planned for the fall, the survey shall be conducted in September to ensure tree and/or structure removal will have adequate time to occur during seasonal periods of bat activity (March 1 to April 15, September 1 to October 15, or when evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs, as described below). If tree and/or structure removal is planned for the spring, then the survey shall be conducted during the earliest possible time in March, to allow for suitable conditions for both the detection of bats and subsequent tree and/or structure removal. Trees and/or structures containing suitable potential bat roost habitat features shall be clearly marked or identified. If no bat roosts are found, the results of the survey will be documented and submitted to the Town within 30 days of the survey, after which no further action will be required. If day roosts are found to be potentially present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following the Town's approval. The plan shall be approved by the Town and incorporate the following guidance as appropriate: ▪ When possible, removal of trees/structures identified as suitable roosting habitat shall be conducted during seasonal periods of bat activity, including the following: a) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs. b) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs. ▪ If a tree /structure must be removed during the breeding season and is identified as potentially containing a colonial maternity roost, then a qualified biologist retained by the applicant shall conduct acoustic emergence surveys or implement other appropriate methods to further evaluate if the roost is an active maternity roost. Under the biologist's guidance, the contractor shall implement measures similar to or better than the following: a) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure.	

Impact	Mitigation Measure (s)	Residual Impact
	b) If it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31). ▪ Tree removal procedures shall be implemented using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on day one. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night. The remainder of the tree is removed on day two. ▪ Prior to the demolition of vacant structures within the project site, a qualified biologist retained by the applicant shall conduct a focused habitat assessment of all structures to be demolished. The habitat assessment shall be conducted enough in advance to ensure the commencement of building demolition can be scheduled during seasonal periods of bat activity (see above), if required. If no signs of day roosting activity are observed, no further actions will be required. If bats or signs of day roosting by bats are observed, a qualified biologist will prepare specific recommendations such as partial dismantling to cause bats to abandon the roost, or humane eviction, both to be conducted during seasonal periods of bat activity, if required. ▪ If the qualified biologist determines a roost is used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultation with CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately. **BIO-3 Nesting Bird Protection ~~(2040 General Plan EIR Mitigation Measure BIO-1).~~** ~~The Town shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures.~~ <u>If construction, grading, vegetation removal, or other project-related activities are scheduled during the</u>	

Impact	Mitigation Measure (s)	Residual Impact
	nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.	
Impact BIO-2. Implementation of the project would impact sensitive natural communities during construction and/or operation**.** Impacts would be less than significant with mitigation.	**BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan.** Impacts to seasonal wetland/vernal pool habitat shall be offset through purchase of credits by the applicant at an agency (USFWS, CDFW, RWQCB, and USACE) approved mitigation bank for creation or enhancement of sensitive natural communities that covers the vernal pool plants at a 1.5:1 ratio per the PBO for the Santa Rosa Plain. If the project falls outside of agency approved mitigation bank service areas, impacts to sensitive natural communities shall be offset through habitat restoration and/or enhancement at an off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted). Final acreage requirements will be determined in consultation with each individual permitting agency (USFWS, CDFW, RWQCB, and USACE). The location of restoration and/or enhancement shall be determined by a qualified biologist. The restoration and/or enhancement shall include locally native species approved by the Town. The restoration and/or enhancement shall be incorporated into an Off-Site Habitat Restoration/Enhancement Plan to be developed by a qualified biologist pursuant to the requirements listed below.	Less than significant with mitigation

Impact	Mitigation Measure (s)	Residual Impact
	Upon final project design, a qualified biologist shall be retained by the applicant to determine the final impacts to sensitive communities and the subsequent amount of acreage needed for restoration and/or enhancement for the project. The project applicant shall implement restoration and/or enhancement for a period of not less than five years, or until restoration and/or enhancement has been completed successfully as determined by a qualified biologist in coordination with the Community Development Department. The Off-Site Habitat Restoration/Enhancement Plan shall include, at a minimum, the following components: a) Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type); b) Goal(s) of the compensatory mitigation project (i.e., the type/types and area/areas of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type/types to be established, restored, enhanced, and/or preserved); c) Description of the proposed compensatory mitigation-site (i.e., location and size, ownership status, existing functions and values of the compensatory mitigation-site); d) Implementation plan for the compensatory mitigation-site (the plan will include rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan, including plant species to be used, container sizes, and seeding rates); e) Maintenance activities during the monitoring period, including weed removal and irrigation as appropriate (the plan will include activities, responsible parties, and schedule); f) Monitoring plan for the compensatory mitigation-site, including no less than quarterly monitoring for the first year; the plan will include performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports; g) Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type; h) An adaptive management program and remedial measures to address negative impacts to restoration efforts; i) Notification of completion of compensatory mitigation and agency confirmation; and j) Contingency measures (e.g., initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).	

Impact	Mitigation Measure (s)	Residual Impact
Impact BIO-3. Implementation by the project would impact potentially jurisdictional state or federally protected wetlands during construction and/or operation. Impacts would be Less than significant with mitigation.	**BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan.** See Impact BIO-2 above for Mitigation Measure BIO-4.	Less than significant with mitigation
Impact BIO-4. Implementation of the project would not impact wildlife movement due to the location of the project site in an area of existing development and agricultural use. Impacts would be less than significant.	None required	Less than significant
Impact BIO-5. Implementation of the project would be subject to the Town's ordinances and requirements protecting biological resources, such as trees. Impacts would be less than significant.	None required	Less than Significant
Impact BIO-6. Implementation of the project within the Santa Rosa Plain Conservation Strategy Area would not conflict with the Plan, with implementation of Mitigation Measure BIO-4 to compensate for losses of seasonal wetlands habitat in accordance with the PBO for the Santa Rosa Plain. Impacts would be less than significant with mitigation	**BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan.** See Impact BIO-2 above for Mitigation Measure BIO-4.	Less than Significant with mitigation
Cultural Resources		
Impact CUL-1. The project site contains archaeological resources and could possibly be a prehistoric archaeological site. Although the farmstead does not qualify as a historical resource, Mitigation Measures CUL-1 through CUL-3 would be required to reduce impacts to historical resources to a less than significant level. Impacts would be less than significant with mitigation incorporated.	**CUL-1 Worker's Environmental Awareness Program (WEAP).** A qualified archaeologist shall be retained by the applicant to conduct a WEAP training on archaeological sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The training shall be conducted by an archaeologist who meets or exceeds the Secretary of Interior's Professional Qualification Standards for archeology (National Park Service [NPS] 1983). Archaeological sensitivity training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find. **CUL-2 Archaeological and Native American Monitoring.** Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983). Native American monitoring shall be provided by a locally affiliated Tribal member(s). Monitoring shall be paid for by the applicant. Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological	Less than significant with mitigation

Impact	Mitigation Measure (s)	Residual Impact
	resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Tribal monitoring or both may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock). **CUL-3 Unanticipated Discovery of Cultural Resources.** In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, following Archaeological and Native American monitoring reduction, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983) will be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative will be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources (CRHR) eligibility at expense of the applicant. If the discovery proves to be eligible for listing in the CRHR and cannot be avoided additional work, such as testing and data recovery excavations, may be warranted to mitigate any significant impacts to cultural resources to less than a significant level in consultation with the Federated Indians of Graton Rancheria Tribal Heritage Preservation Office.	
Impact CUL-2. Records search results identify a prehistoric site outside of the project site. The project site also contains archaeological resources and possibly buried human remains. Since the project would involve ground disturbance, Mitigation Measure CUL-4 would be required to reduce impacts to human remains. Impacts would be less than significant with mitigation incorporated.	**CUL-4 Human Remains.** In the unlikely event of an unanticipated discovery of human remains, all ground disturbing activities in the vicinity of the discovery shall be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be implemented including contracting the Sonoma County Department Coroner. If the human remains are determined to be prehistoric, the coroner shall notify the NAHC, which will determine and notify a mostly likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowners within 48 hours of being granted access.	Less than significant with mitigation
Transportation and Circulation		
Impact TRA-1. The project would not conflict with applicable policies addressing transit, bicycle, and pedestrian facilities. Impacts related	None required	Less than significant with mitigation

Impact	Mitigation Measure (s)	Residual Impact
to transit, bicycle and pedestrian facilities would be less than significant.		
Impact TRA-2. The project would not meet the applicable significance threshold for VMT. Even with Mitigation Measure TRA-1, the project would not fall below the applicable VMT per capita threshold. Impacts would be significant and unavoidable.	**TRA-1 Vehicle Miles Traveled Reductions**. The applicant shall implement the following measures aimed at achieving a reduction in overall vehicle trips to and from the site: ▪ **Bulbouts**: The project applicant shall incorporate bulbouts at new or reconfigured intersections. ▪ **Pedestrian and Bicycle Network Improvements**: The project applicant shall construct an enhanced pedestrian crossing including a refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.	Even with Mitigation Measure TRA-1, the project would have significant and unavoidable impacts
Impact TRA-3. The project would not introduce design features or incompatible uses that could increase traffic hazards. However, there would be inadequate sight distance at the Vinecrest Road/Portland Way intersection. Implementation of Mitigation Measure TRA-2 would be required. This impact would be less than significant.	**TRA-2 Improving Sight Distance.** To ensure that drivers have visibility to the west at the Vinecrest Road/Portland Way intersection, the applicant shall relocate the existing "Vinecrest Estates" monument. The monument shall be relocated at least three feet behind the new proposed Vinecrest Road sidewalk along the project frontage. The relocation of the monument shall be indicated in project site plans for review by the Town of Windsor staff.	Less than significant with mitigation
Impact TRA-4. the project would not result in inadequate emergency access to the project site and would not substantially affect response times. This impact would be less than significant.	None required	Less than significant
Tribal Cultural Resources		
Impact TCR-1. The project site has been identified as a prehistoric site and development on the project could adversely impact tribal cultural resources. Mitigation would be required to reduce impacts to tribal cultural resources to a less than significant level	**TCR-1 Canine Investigation.** Prior to any ground disturbing activities, the project applicant shall conduct a Canine Investigation of the project site using a K9 team trained in the identification of human remains. The Canine Investigation is a noninvasive method for the discovery of buried human remains. If the Canine Investigation identifies human remains within the project site, the area in which the remains are identified shall be avoided. If the area cannot be avoided for the project, further consultation with the consulting Native American Tribes to create Mitigation Measures and/or a Burial Recovery Plan that shall be implemented is required. The project applicant shall retain a qualified cultural resources specialist to draft the Mitigation Measures and/or a Burial Recovery Plan.	Less than significant with mitigation
Wildfire and Hazards		
Impact WF-1. The project site is not within a very high FHSZ or SRA. the project site is directly adjacent to a medium FHSZ and was nearly burned and evacuated during the 2017 Tubbs Fire and 2019 Kincade Fire. However, development of single-family	None required	Less than significant

Impact	Mitigation Measure (s)	Residual Impact
residences would not substantially impair an adopted emergency response or evacuation plan. Impacts would be less than significant.		
Impact WF-2. The project site is not within a very high FHSZ or SRA but is directly adjacent to a medium FHSZ and there were spot fires on the site during the 2019 Kincade Fire. The proposed project would expose residents and structures to wildfire risks. Wildfire risk would be significant and unavoidable.	**WF-1 Wildfire Risk Reduction During Construction.** The Town shall require the applicant to take the following measures to reduce risk of loss, injury, or death from wildfire during construction of the proposed project: 1. Construction equipment powered by internal combustion engines shall be equipped with spark arresters. The spark arresters shall be maintained pursuant to manufacturer recommendations to ensure adequate performance. 2. Certain project construction activities with potential to ignite wildfires during red-flag warnings issued by the National Weather Service for the project site location shall be prohibited. Example activities that shall be prohibited during red-flag warnings include welding and grinding outside of enclosed buildings. 3. Fire extinguishers shall be required to be onsite during project construction. Fire extinguishers shall be maintained to function according to manufacturer specifications. Construction personnel shall receive training on the proper methods of using a fire extinguisher. At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall review and approve the project-specific methods to be employed prior to building permit approval. **WF-2 Fire Suppression Requirements.** During project design, the applicant shall ensure that all fire hydrants on the project site are able to satisfy the Town's minimum fire flow requirements. Compliance shall be verified by the Town prior to occupancy clearance. **WF-3 California Building Code Chapter 7A Compliance.** During project design, the applicant shall ensure that materials and construction methods outlined in Chapter 7A of the California Building Code are followed. Compliance shall be verified by the Town prior to building permit approval. **WF-4 Fire Resistant Vegetation and Landscaping.** The Town shall require that fire-resistant vegetation native to Sonoma County and/or the local microclimate of the site are planted by the applicant and shall prohibit the use of fire-prone species especially non-native, invasive species. No vegetation or wood fences, gates, or ornamental landscaping shall be allowed within five feet of residences or other structures. Metal or other fire-resistant materials shall be used for fences and gates within five feet of residences or other structures. At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall	It is not possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires, despite implementation of mitigation. Thus, this impact would remain significant and unavoidable.

Impact	Mitigation Measure (s)	Residual Impact
	review and approve the project-specific methods to be employed prior to building permit approval.	

1 Introduction

This Environmental Impact Report (EIR) has been prepared as a Supplemental EIR to the Town of Windsor 2040 General Plan EIR (SCH No. 2016112065). The Estates at Ross Ranch Development project (hereafter referred to as the "proposed project" or "project") would be constructed on a 17.17-acre lot that is currently occupied by a vacant single-family residence. The project would involve the demolition of the existing single-family residence and the creation of 31 single family lots.

This section discusses (1) the basis for preparation of a Supplemental EIR; (2) the legal basis for preparing a Supplemental EIR; (3) the scope and content of the Supplemental EIR; (4) issue areas found not to be significant by the Initial Study; (5) the lead, responsible, and trustee agencies; and (6) the environmental review process required under the California Environmental Quality Act (CEQA). The proposed project is described in detail in Section 2.0, *Project Description*.

1.1 Basis for a Supplemental EIR

The key considerations in determining the need for the appropriate type of additional CEQA review are outlined *CEQA Guidelines* Section 15163:

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a Supplemental EIR if:
   1) Any of the conditions described in Section 15162 would require the preparation of a Supplemental EIR, and
   2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

(b) The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised.

(c) A supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087.

(d) A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR.

(e) When the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the supplemental EIR. A finding under Section 15091 shall be made for each significant effect shown in the previous EIR as revised.

CEQA Guidelines 15162 describes the conditions under which a Supplemental EIR would be an appropriate document for actions not considered in the Final EIR. A Supplemental EIR is appropriate when:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due

to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
   a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
   b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
   c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
   d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.
4. For the proposed project there is new information of substantial importance that would result in a more significant effect not discussed in the 2040 General Plan EIR. Therefore, a Supplemental EIR (SEIR) is the appropriate CEQA document for the project.

1.2 Purpose and Legal Authority

The proposed project requires the discretionary approval of the Town of Windsor. Therefore, the project is subject to the environmental review requirements of CEQA. In accordance with Section 15121 of the *CEQA Guidelines* (California Code of Regulations, Title 14), the purpose of this Supplemental EIR is to serve as an informational document that:

> ...will inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.

As discussed above, this document is a Supplemental EIR to the 2040 General Plan EIR pursuant to Sections 15162 and 15163 of the *CEQA Guidelines*. A Supplemental EIR is appropriate when, "Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

This Supplemental EIR is to serve as an informational document for the public and Town of Windsor decision makers. The process will include public hearings before the Planning Commission and Town Council to consider certification of a Final SEIR and approval of the proposed project.

1.3 Environmental Impact Report Background

The Town of Windsor distributed a Notice of Preparation (NOP) of the Supplemental EIR for a 45-day agency and public review period commencing November 23, 2021, to January 6, 2022. In addition, the Town held a Scoping Meeting on December 13, 2021. The meeting was aimed at providing information about the project to members of public agencies, interested stakeholders, and residents/community members. Due to the COVID-19 pandemic, interested parties were able to

attend in person or virtually through the online meeting platform Zoom and call-in number. The Town received five letters from State, regional, and local agencies in response to the NOP during the public review period. One comment was received verbally during the scoping meeting. The NOP and scoping comment letters received are presented in Appendix A of this SEIR. Table 1-1 summarizes the content of the letters and verbal comments and where the issues raised are addressed in the SEIR.

Table 1-1 NOP Comments and EIR Response

Commenter	Comment/Request	How and Where It Was Addressed
Agency Comments		
Native American Heritage Commission (NAHC)	Commenter states that the project is subject to the requirements and provisions under Assembly Bill (AB 52) for tribal cultural resources.	Consultation required by AB 52 was carried out by the Town of Windsor. Subsequent issues are discussed in Section 4.4, *Tribal Cultural Resources*, of this SEIR and a Cultural Resources Assessment is provided as Appendix C.
California Department of Fish and Wildlife	Commenter requests that specific information, such as construction footprints, be included in the project description.	Comments are addressed as applicable in Section 2, *Project Description,* of this SEIR. Some specific comments, such as footprints of permanent project features, cannot be determined at this time because the project is a subdivision.
	Commenter advises that the California Endangered Species Act (CESA) permit must be obtained if the project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the project.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR.
	Commenter states that CDFW requires a Lake and Streambed Alteration notification for any activity that will substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR and biological resources studies are provided as Appendix B.
	The commenter recommends that the CEQA document prepared for the project provide baseline habitat assessments for special-status plant, fish and wildlife species located and potentially located within the project area and surrounding lands, including but not limited to all rare, threatened, or endangered species (CEQA Guidelines, Section 15380).	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR and a Biological Resources Study is provided as Appendix B.
	Commenter states that the draft SEIR should describe aquatic habitats, such as wetlands, vernal pools, or waters of the U.S. or State, and any sensitive natural communities or riparian habitat occurring on or adjacent to the project site.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR and biological resources studies are provided as Appendix B .

Commenter	Comment/Request	How and Where It Was Addressed
	Commenter states that the SEIR should discuss all direct and indirect impacts (temporary and permanent), including reasonably foreseeable impacts, that may occur with Project implementation (CEQA Guidelines, Section 15126, 15126.2, & 15358). This includes evaluating and describing impacts such as: ▪ Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alternation of soils and hydrology, and removal of habitat structural features (e.g., snags, roosts, overhanging banks); ▪ Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic or human presence; ▪ Obstruction of movement corridors, fish passage, or access to water sources and other core habitat features; and ▪ Permanent or temporary changes to natural community composition.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR and biological resources studies are provided as Appendix B.
	Commenter states that the CEQA document should identify reasonably foreseeable future projects in the project vicinity, disclose any cumulative impacts associated with these projects, determine the significance of each cumulative impact, and assess the significance of the project's contribution to the impact (CEQA Guidelines, Section 15355).	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR under the cumulative analysis. A list of future projects surrounding the site is provided as Table 3-1 of this SEIR.
	Commenter provides a list of recommended mitigation measures to include in the draft SEIR to reduce impacts to fish and wildlife resources to appropriate levels based on the complete analysis within the SEIR.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR.
	Commenter suggests including specific general construction measures for the protection of wildlife species.	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR.
	Commenter states that any special-status species and natural communities detected during project surveys be reported to California Natural Diversity Database (CNDDB).	Comments are addressed in Section 4.1, *Biological Resources,* of this SEIR and biological resources studies are provided as Appendix B .

Commenter	Comment/Request	How and Where It Was Addressed
Public Comments		
Traffic	Regarding traffic on Vinecrest Road and Vinecrest Circle: suggestion for the use of a roundabout in lieu of two- or four-way traffic stop signs.	Comments are addressed in Section 4.3, *Transportation,* of this SEIR and a Transportation Impact Study is provided as Appendix D.
	Commenter states that the project would block access to properties east of the project site through the addition the proposed gate on Jensen Lane. Commenter suggest placing the proposed gate north of 1296 Jensen Lane.	Comments are addressed in Section 4.3, *Transportation,* of this SEIR and a Transportation Impact Study is provided as Appendix D.
Utilities	Commenter expresses concern regarding impacts to existing utilities.	Comments are addressed in Section 19, *Utilities and Services Systems*, of the Initial Study, included in Appendix A.

1.4 Scope and Content

This SEIR addresses the following environmental issue areas as well as other CEQA mandated issues (i.e., cumulative impacts, growth-inducing impacts significant unavoidable impacts, alternatives):

- Biological Resources
- Cultural Resources
- Transportation/Circulation
- Tribal Cultural Resources
- Wildfire and Hazards (including Thresholds f. and g. from Hazards and Hazardous Materials)

The Initial Study (Appendix A to this SEIR) addresses other issue areas listed in Appendix G of the *CEQA Guidelines*. The alternatives section of the Supplemental EIR (Section 6) was prepared in accordance with *CEQA Guidelines* Section 15126.6 and focuses on alternatives that are capable of eliminating or reducing significant adverse effects associated with the project while feasibly attaining most of the basic project objectives. In addition, the alternatives section identifies the "environmentally superior" alternative among the alternatives assessed. The alternatives evaluated include the CEQA-required "No Project" alternative, the "No Project- Build to Lowest Density of Existing Land Use Designation" alternative, and two alternative development scenarios for the project area.

The level of detail contained throughout this SEIR is consistent with the requirements of CEQA and applicable court decisions. Section 15151 of the *CEQA Guidelines* provides the standard of adequacy on which this document is based. The *CEQA Guidelines* state:

> An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure.

In preparing the Supplemental EIR, use was made of pertinent policies and guidelines, certified EIRs and adopted CEQA documents, and other background documents including the 2040 General Plan EIR available on the Town's website located at: https://www.townofwindsor.com/843/Planning-Documents. A full reference list is contained in Section 7, *References*.

1.5 Issues Not Studied in Detail in the SEIR

An environmental checklist was prepared for the project to determine issue areas to be discussed in this SEIR. The Initial Study was circulated for public review with the Notice of Preparation from November 23, 2021to January 6, 2022. As indicated in the Initial Study, there is no substantial evidence that significant impacts would occur in any of the following issue areas: Aesthetics, Agricultural and Forestry Resources, Air Quality, Energy, Geology and Soils, Hazards and Hazardous Materials (except for issues related to wildfire, such as wildfire itself and emergency access, which are discussed in Section 4.5, *Wildfire and Hazards*), Greenhouse Gas Emissions, Hydrology and Water Quality, Land Use and Planning, Mineral Resources, Noise, Population and Housing, Public Services, Recreation, and Utilities and Service Systems. The Initial Study is included in Appendix A.

1.6 Lead, Responsible, and Trustee Agencies

The *CEQA Guidelines* define lead, responsible and trustee agencies. The Town of Windsor is the lead agency for the project because it holds principal responsibility for approving the project.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over the project. There are no responsible agencies for the proposed project. However, State, regional and/or local government permits may be required for development of the project, whether or not they are explicitly listed below. State and regional agencies that may have jurisdiction over some aspects of the project include (but are not limited to):

- Bay Area Air Quality Management District (BAAQMD)
- California Department of Fish and Wildlife (CDFW)
- Department of Toxic Substances Control
- North Coast Regional Water Quality Control Board (NCRWQCB)

The SEIR will also be submitted to these agencies for review and comment.

A trustee agency refers to a State agency having jurisdiction by law over natural resources affected by a project. *CEQA Guidelines* Section 15386 designates four agencies as trustee agencies: CDFW with regards to fish and wildlife, native plants designated as rare or endangered, game refuges, and ecological reserves; the State Lands Commission with regard to State-owned "sovereign" lands, such as the beds of navigable waters and State school lands; the California Department of Parks and Recreation with regard to units of the State park system; and, the University of California with regard to sites within the Natural Land and Water Reserves System. There are no trustee agencies for the proposed project.

1.7 Environmental Review Process

The environmental impact review process, as required under CEQA, is summarized below. The steps are presented in sequential order.

1. **Determination that Supplemental EIR is warranted.** When an EIR has been certified for a project, a lead agency must determine if a Supplemental EIR should be prepared due to substantial changes to the project, circumstances under which the project was approved, or new information. As described in Section 1.1, *Basis for a Supplemental EIR*, the proposed project would involve substantial changes to what was analyzed on the project site in the 2040 General Plan EIR. Therefore, the Town has determined that the preparation of a Supplemental EIR is the appropriate approach to CEQA compliance.
2. **Notice of Preparation (NOP) and Initial Study**. After deciding that an EIR is required, the lead agency (Town of Windsor) must file a NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP may be accompanied by an Initial Study that identifies the issue areas for which the project could create significant environmental impacts.
3. **Draft Supplemental EIR.** The Draft Supplemental EIR must contain a) table of contents or index; b) summary; c) project description; d) environmental setting; e) discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts); f) a discussion of alternatives; g) mitigation measures; and h) discussion of irreversible changes.
4. **Notice of Completion.** The provisions of Sections 15085(a) and 15087(a)(1) of the *CEQA Guidelines* require that as soon as the Draft Supplemental EIR is completed, the lead agency must file a Notice of Completion (NOC) with the Office of Planning and Research and that a public Notice of Availability be provided to all organizations and individuals who have previously requested notification. The Town, serving as the lead agency, provided the NOC to OPR and circulated an NOA of the Draft Supplemental EIR to public agencies, special districts, tribal representatives, organizations, and individuals that commented on the NOP and/or requested to be kept informed of the proposed project.
5. **Final Supplemental EIR.** A Final Supplemental EIR consists of the Draft Supplemental EIR; revisions to the Draft Supplemental EIR; responses to comments addressing concerns raised by individuals, organizations, and public agencies or other reviewing parties; and a Mitigation Monitoring and Reporting Program (MMRP). According to the Public Resources Code Section 21081.6, for projects in which significant impacts would be minimized by mitigation measures, the lead agency must include an MMRP. The purpose of an MMRP is to ensure compliance with required mitigation measures during implementation of the project. After the Final Supplemental EIR is completed, and at least 10 days prior to its certification, a copy of the response to comments on the Draft Supplemental EIR must be provided or made available to all commenting public agencies.
5. **Certification of Final Supplemental EIR.** Prior to making a decision on the proposed project, the lead agency must certify that: (a) the Final Supplemental EIR has been completed in compliance with CEQA; (b) the Final Supplemental EIR was presented to the decision-making body of the lead agency; and (c) the decision-making body reviewed and considered the information in the Final Supplemental EIR prior to approval (*CEQA Guidelines* Section15090).
6. **Lead Agency Project Decision.** The lead agency may: (a) disapprove the project because of its significant environmental effects; (b) require changes to the project to reduce or avoid significant environmental effects; or (c) approve the project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* Section 15042 and Section 15043).

7. **Findings/Statement of Overriding Considerations**. For each significant impact of the proposed project identified in the Supplemental EIR, the lead agency must find, based on substantial evidence, that either: (a) the 2040 General Plan EIR has been changed to avoid or substantially reduce the magnitude of the impact; (b) changes are within another agency's jurisdiction and such changes have or should be adopted; or (c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
8. **Mitigation Monitoring/Reporting Program.** When the lead agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
9. **Notice of Determination (NOD).** The lead agency must file a NOD after deciding to approve a project for which a Supplemental EIR is prepared (*CEQA Guidelines* Section 15094). A local agency must file the NOD with the County Clerk. The NOD must be posted for 30 days and sent to anyone previously requesting notice. Posting of the NOD starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

2 Project Description

This section describes the proposed project, including the project applicant, the project site and surrounding land uses, major project characteristics, project objectives, and discretionary actions needed for approval.

2.1 Project Applicant

Pink Viking Returns, LLC
400 College Avenue
Santa Rosa, California 95401

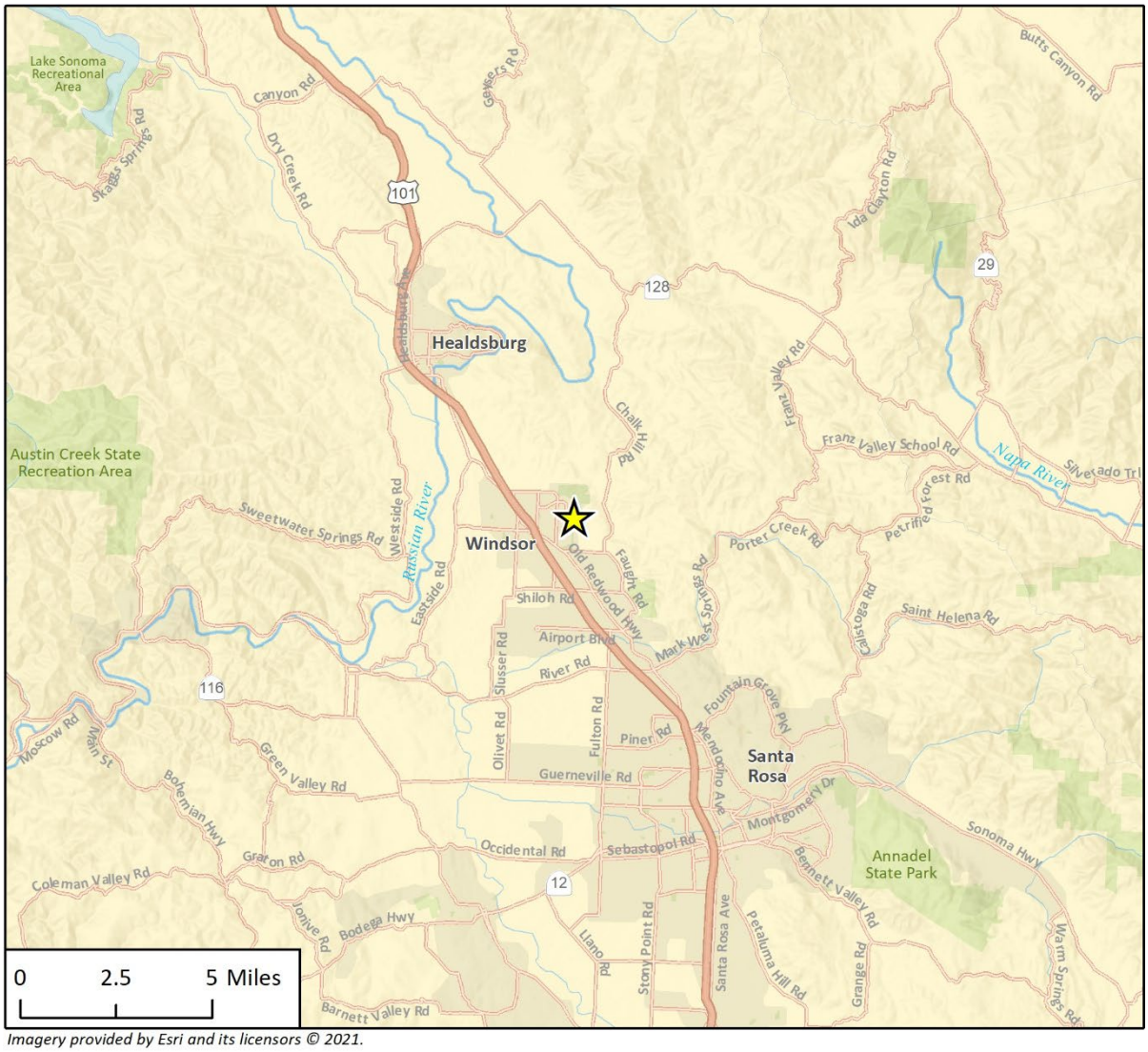
2.2 Lead Agency Contact Person

Kimberly Jordan, Planner III
Town of Windsor, Planning Division
9291 Old Redwood Highway
Windsor, California 95492
(707) 838-1201
kjordan@townofwindsor.com

2.3 Project Location

The project is located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor on a 17.17-acre parcel (Assessor's Parcel Number 162-020-004). Figure 2-1 shows the regional location of the project. The project site is approximately 1.2 miles east of Highway 101 and 20 miles east of the Pacific Ocean. The project site is mostly vacant with a vacant existing single-family residence located toward the center of the parcel as show on Figure 2-2. The site was previously cultivated as a vineyard, which has since been removed, and includes numerous oak, eucalyptus, pine, and acacia trees that were planted near the existing residence and across the southern half of the site. The site gradually slopes southward and westerly, and the majority of the site is covered in non-native grassland that has been grazed and tilled. Wetlands are present throughout the northern and southwest corners of the site.

Figure 2-1 Regional Location



Imagery provided by Esri and its licensors © 2021.

Project Location

N



Figure 2-2 Project Site Location



Imagery provided by Microsoft Bing and its licensors © 2021.

2.4 Existing Site Characteristics

2.4.1 Current Land Use Designation and Zoning

The project site is currently undeveloped but contains one vacant single family residence toward the center of the site. The project site is designated as Estate Residential (ER) in the 2040 General Plan and zoned ER in the Town's Zoning Ordinance. ER land use designation provides for a large-lot single-family home neighborhood with a density range of 0.2 to 3.0 dwelling units/acre (DUA). The project is located in the Eastern Edge General Plan Community Place area, which is comprised of vineyards, a few residences, and unimproved/underimproved land. The proposed project would not require amendments to the Town's General Plan, Municipal Code, or Zoning Ordinance.

2.4.2 Surrounding Land Uses

As shown in Figure 2-2 , the project site is bordered by Vinecrest Road to the north and Jensen Lane to the east. Agricultural land located in the unincorporated County surrounds the site to the south and east and single-family residences within Town limits are located north and west.

2.5 Project Characteristics

The project would subdivide the site into 31 single family lots. Subdivided lots would range in size from 12,200 to 40,931 square feet. The average lot size would be approximately 18,862 square feet. Location of individual lots are shown in Figure 2-3 and Table 2-1 contains project characteristics. Water and sewer for the project would be provided by the Town of Windsor and all utilities would be underground. All structures, septic tanks, and fences (with exception of the westerly fence along the Vintage Hills subdivision lots) on the project site would be removed as part of the project. Any existing wells would either be removed or retained for irrigation purposes. All residences would be required to have solar panels in adherence to the 2019 Building Energy Efficiency Standards Title 24.

The project would include a 100-foot agricultural buffer along the southern and eastern boundary of the project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer of 200-feet, but allows the width of the buffer to be reduced to a minimum of 100-feet in certain circumstances with Town Council approval. Lots 13, 14, 15, 16, and 17 would include a building envelope that would provide the minimum required 100-foot agricultural buffer from the parcels to the south. The residences on each of these lots would be required to be constructed within this building envelope. Lots 28, 29, 30, and 31 located on the east side of the project have an increased front yard setback in order to provide the 100-foot agricultural buffer.

Table 2-1 Project Characteristics

Address	1295 Jensen Lane
APN	162-020-004
Parcel size	17.17 acres
Subdivisions	31
Smallest Lot Size	12,200 square feet
Largest Lot Size	40,931 square feet
Average lot size	18,862 square feet
Net density	1.81 DUA

Site Access and Circulation

The project site would be accessible via Vinecrest Road to the north. The project would also include an extension from Prince George Way to the east, directly north of lots 13 through 17, until the road extension would intersect with the new section of Jensen Lane, which would be constructed along the project's eastern property line, as shown in Figure 2-3. Portland Way, a proposed roadway, would bisect the project site from north to south and connect to Vinecrest Road and Prince George Way. The intersection of Portland Way and Vinecrest Road would include a mini roundabout. Sidewalks would be constructed along proposed and extended roadways on the project site, including Portland Way, Jensen Lane, and Prince George Way.

Drainage

Individual lots would include rain gardens over a storm drain outlet pipe that would divert water into storm drains on the project site. Bioretention basins would be constructed along interior roadways with a six-inch solid pipe to connect to a downstream bioretention basin. See Figure 2-4 for project drainage plan.

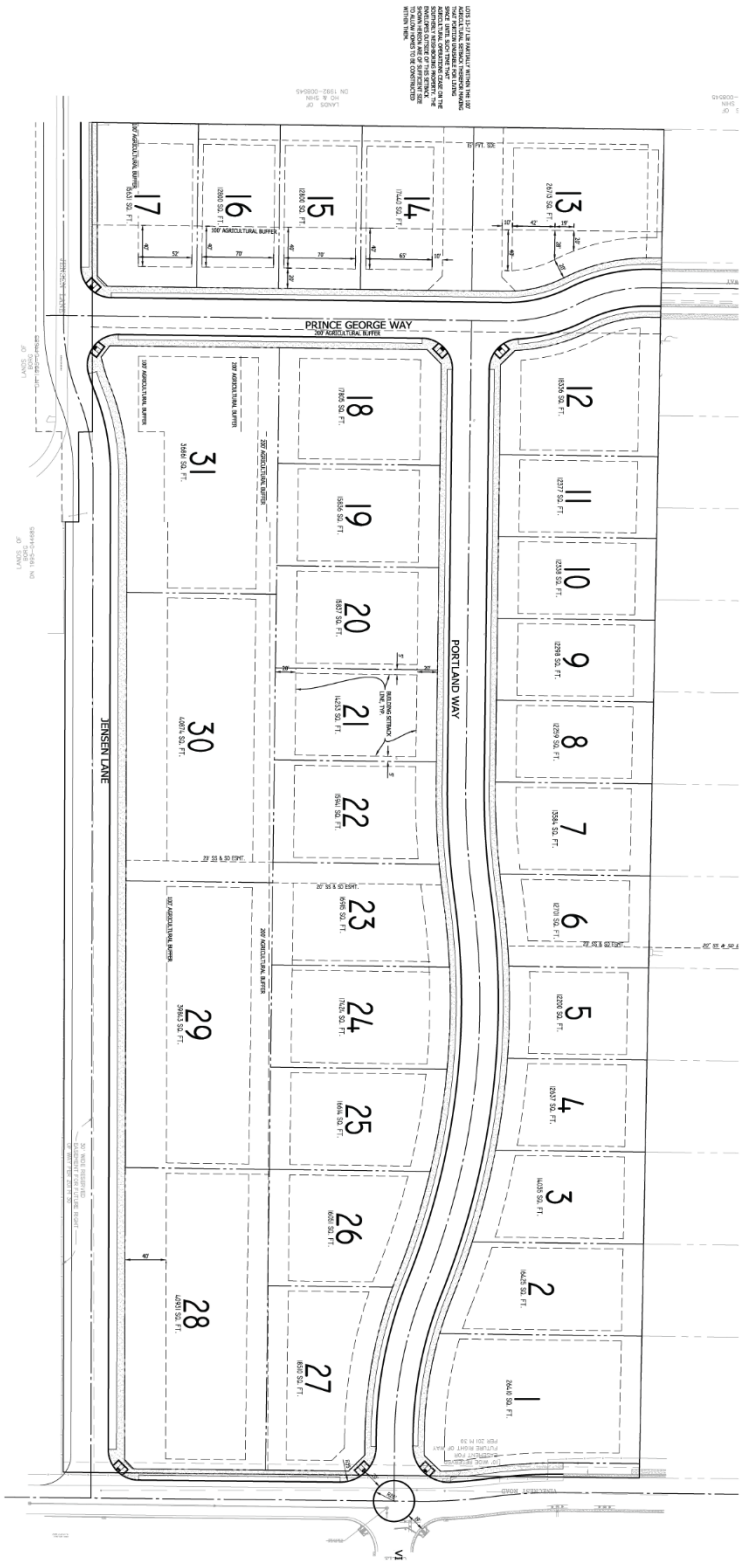
Landscaping

Tree removal and grading would be limited to roadways and rear lot swales to prevent storm water flows onto neighboring properties. Tree preservation, or removal, and grading on individual lots would be performed as part of each lot's individual building permit. Trees would be planted along proposed roadways throughout the project site.

2.6 Project Objectives

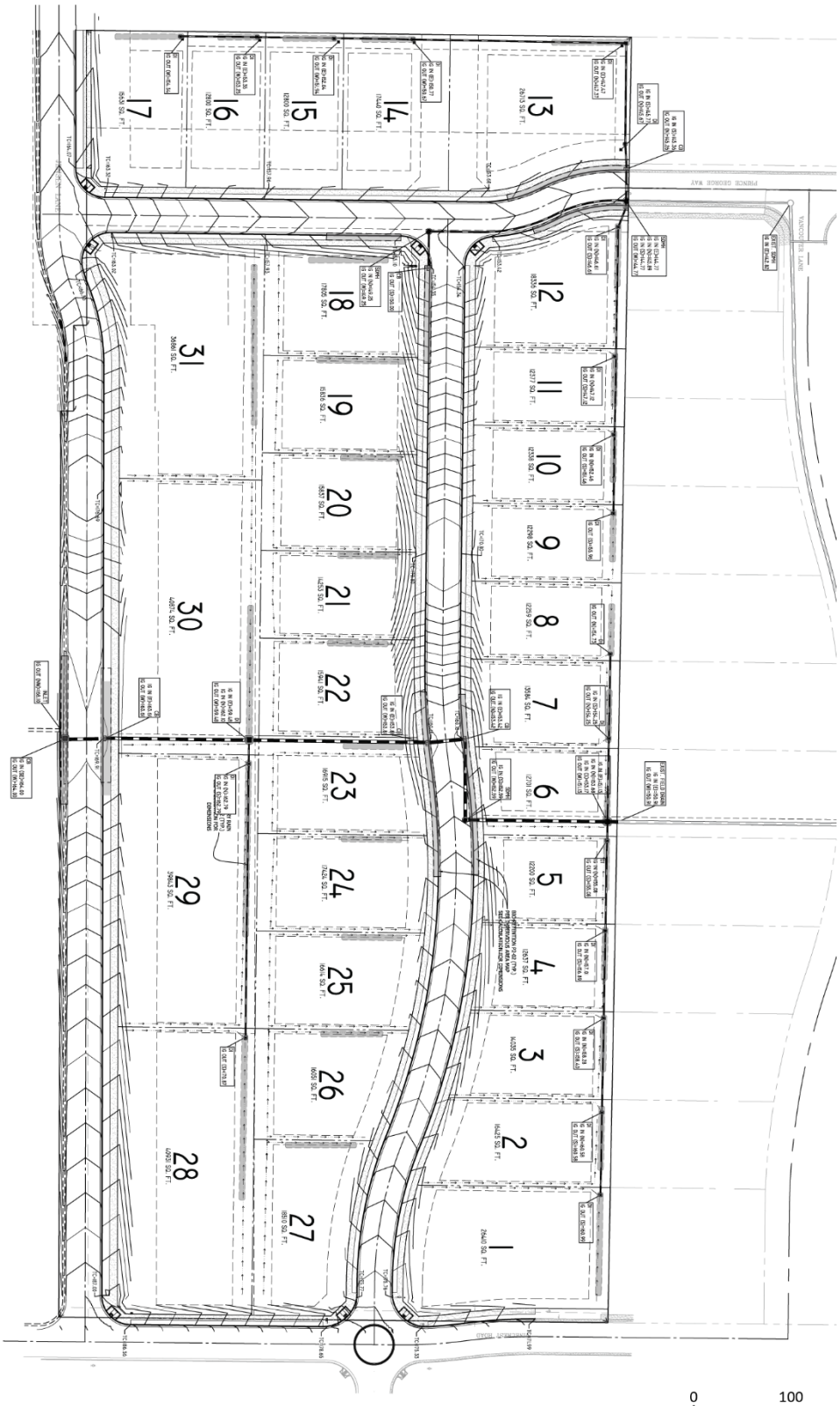
The objective for the project is to provide additional housing opportunities within the Town that are consistent with the project site's 2040 General Plan's ER land use designation.

Figure 2-3 Project Site Plans



Source: T.D.G. Consulting Civil Engineers, Inc., 2022.

Figure 2-4 Project Drainage Plan



Source: T.D.G. Consulting Civil Engineers, Inc., 2022.

2.7 Required Approvals

The Town of Windsor is the lead agency with responsibility for approving the project. Approval from other public agencies is not required.

The project would require the following discretionary approvals from the Town of Windsor:

- Approval of a Tentative Subdivision Map
- Approval of a reduced agricultural buffer

2.8 Relationship of Proposed Project to Previous EIR Analysis

The Town of Windsor adopted the current 2040 General Plan on April 4, 2018, as an update to the Town's 1996 General Plan. The 2040 General Plan includes goals and policies that convey the Town's long-term vision and guide local decision making to reach that vision. The 2040 General Plan EIR was certified in 2018 (State Clearinghouse number 2016112065) and assesses impacts from implementation of the 2040 General Plan. Both the 2040 General Plan and 2040 General Plan EIR are available on the Town's website located at: https://www.townofwindsor.com/843/Planning-Documents.

The purpose of this Supplemental EIR is to: assess consistency between the project and 2040 General Plan; compare the project effects to those analyzed in the 2040 General Plan EIR; and provide environmental review required under CEQA in accordance with *CEQA Guidelines* Section 15183. Impacts and mitigation measures from the 2040 General Plan EIR for issue areas discussed in this EIR are shown in Table 2-2. The project site was taken into consideration under the ER land use designation as part of the Town wide development forecast in the 2040 General Plan EIR. This document assesses project specific level impacts to determine if there are any new or greater impacts than previously analyzed. This document applies project specific analysis in Sections 3 through 5 to determine if a Supplemental or Subsequent Environmental Impact Report (EIR) should be prepared for the project. The CEQA baseline for this analysis is the maximum allowable development on the project site allowed under the 2040 General Plan.

Table 2-2 Impacts and Mitigation Measures in the 2040 General Plan EIR

Impact	Mitigation Measure (s)	Significance After Mitigation
Biological Resources		
Impact BIO-1. With implementation of the goals and policies in the 2040 General Plan and Mitigation Measure AES-1 to reduce light and glare, direct and indirect impacts to listed special-status species and sensitive habitats would be avoided. Impacts would therefore be less than significant with mitigation incorporated.	**AES-1 Nighttime Lighting Measures.** Land Use Policy LU-1.13 shall be updated to read: ***Design to Protect Night Skies***. The Town shall protect dark/night skies by requiring outdoor lighting to be shielded and/or directed downward to limit overspill and glare, without compromising the safety and security of the community, through implementation of lighting standards in a "Dark Skies" ordinance with guidance from the Model Lighting Ordinance approved by the International Dark-Sky Association and the Illuminating Engineering Society of North America.	Less than significant

Impact	Mitigation Measure (s)	Significance After Mitigation
Impact BIO-2. Implementation of the 2040 General Plan would not result in a reduction in nesting opportunities for resident and migratory avian species of special concern because of conservation and preservation policies within the 2040 General Plan and compliance with the Migratory Bird Treaty Act. However, new development under the 2040 General Plan may impact special-status nesting birds; impacts would be significant but mitigable.	**BIO-1 Nesting Bird Protection** The Town shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures.	Less than significant
Impact BIO-3. While the 2040 General Plan would not facilitate development that would directly impact riparian and wetland habits, there would be potential for adverse indirect impacts from such development on wetlands and areas under the jurisdiction of the CDFW and USACE. However, compliance with existing regulations, and implementation of 2040 General Plan policies would reduce potential impacts to a less than significant level.	None required	Less than significant without mitigation
Impact BIO-4. Development carried out under the 2040 General Plan would largely avoid impacts to wildlife movement corridors by conservation of natural areas contained in policies of the 2040 General Plan. However, there are no specific policies preserving wildlife movement corridors and impacts would be significant but mitigable.	**BIO-2 Wildlife Movement Corridors Protection Policy.** The 2040 General Plan Environmental Resources Element Policy ER-1.2 shall be updated to read: **Policy ER-1.2 *Sensitive Habitat Preservation***. The Town shall encourage the preservation of sensitive environmental habitat areas, such as oak woodlands, productive farmlands, ~~and~~ riparian (creekside) corridors, <u>and important wildlife movement corridors</u> through measures such as clustering development and conservation easements.	Less than significant
Impact BIO-5. Development proposed by the 2040 General Plan would conform with applicable local policies protecting biological resources and underscore their importance with strengthened policy statements. Impacts would be less than significant.	None required	Less than significant without mitigation
Impact BIO-6. Windsor is located in the Santa Rosa Conservation Strategy planning area that identifies areas in Windsor for plant conservation. Impacts to areas identified in the Santa Rosa Conservation Strategy would be protected by conservation strategies contained in goals and policies of the 2040 General Plan. Impacts would be less than significant.	None required	Less than significant without mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
Cultural Resources		
Impact CR-1. Development facilitated by the 2040 General Plan has the potential to impact historical and unique archaeological resources. Impacts would be less than significant with mitigation incorporated.	**CR-1 Cultural Resources Study Implementation Program.** The following Implementation Program shall be added to the 2040 General Plan: If the preliminary reconnaissance required under Policy ER-7.10 suggests that significant historic resources, cultural resources, or tribal cultural resources may exist or for any other project requiring discretionary approval where there will be substantial ground disturbance by the project, the applicant shall retain a qualified archaeologist meeting the Secretary of the Interior's (SOI) Professional Qualification Standards (PQS) in archaeology and/or an architectural historian meeting the SOI PQS standards in architectural history to complete a Phase 1 cultural resources inventory of the project site (NPS 1983). A Phase 1 cultural resources inventory should include a pedestrian survey of the project site and sufficient background archival research and field sampling to determine whether subsurface prehistoric or historic remains may be present. Archival research should include a records search conducted at the Northwest Information Center (NWIC) and a Sacred Lands File (SLF) search conducted with the Native American Heritage Commission (NAHC). The technical report documenting the Phase 1 cultural resources inventory shall include recommendations to avoid or reduce impacts to cultural resources. **CR-2 Tribal Cultural Resources Consultation.** Mitigation Measure CR-1 shall apply to all discretionary projects. Where potential tribal cultural resources are encountered or revealed through the Phase 1 Survey, the Town will consult with applicable tribe(s) to determine appropriate measures for addressing the resources.	Less than significant
Impact CR-2. Development facilitated by the 2040 General Plan has the potential to impact paleontological resources. Impacts would be less than significant with mitigation incorporated.	**CR-3 Paleontological Resource Studies.** The following Implementation Program shall be added to the 2040 General Plan: For any development in Windsor that occurs within high sensitivity geologic units, whether they are mapped at the surface or hypothesized to occur in the subsurface, the Town shall require a paleontological assessment, and avoidance and/or mitigation for potential impacts to paleontological resources. The Town shall require the following specific requirements for projects that could disturb geologic units with high paleontological sensitivity, whether they are	Less than significant

Impact	Mitigation Measure (s)	Significance After Mitigation
	mapped at the surface or hypothesized to occur in the subsurface. 1. **Retain a Qualified Paleontologist**. Prior to initial ground disturbance that occurs within highly sensitive geologic units, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the SVP (2010) standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the SVP standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year. 2. **Paleontological Mitigation and Monitoring Program**. Prior to construction activity, a qualified paleontologist should prepare a Paleontological Mitigation and Monitoring Program to be implemented during ground disturbance activity for the proposed project. This program should outline the procedures for construction staff Worker Environmental Awareness Program (WEAP) training, paleontological monitoring extent and duration, salvage and preparation of fossils, the final mitigation and monitoring report, and paleontological staff qualifications. 3. **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the project paleontologist or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend. In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is (are) scientifically significant, the qualified paleontologist shall complete the	

Impact	Mitigation Measure (s)	Significance After Mitigation
	following conditions to mitigate impacts to significant fossil resources. 4. **Paleontological Monitoring**. Ground disturbing construction activities (including grading, trenching, foundation work and other excavations) at the surface in areas mapped as high paleontological sensitivity and exceeding 5 feet in depth in areas overlying potentially high paleontological sensitivity units should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance. The Paleontological Mitigation and Monitoring Program shall be supervised by the project paleontologist. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources. The duration and timing of the monitoring will be determined by the project paleontologist. If the project paleontologist determines that full-time monitoring is no longer warranted, he or she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Monitoring would be reinstated if any new or unforeseen deeper ground disturbances are required and reduction or suspension would need to be reconsidered by the Supervising Paleontologist. Ground disturbing activity that does not occur in areas mapped as high sensitivity or that do not exceed 5 feet in depth in areas overlying potentially high sensitivity units would not require paleontological monitoring. 5. **Salvage of Fossils**. If significant fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases, larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Work may continue outside of a buffer zone around the fossil, usually 50-100 feet (specific distance may	

Impact	Mitigation Measure (s)	Significance After Mitigation
	be determined by the project paleontologist). 6. **Preparation and Curation of Recovered Fossils**. Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the University of California Museum of Paleontology), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist. 7. **Final Paleontological Mitigation Report**. Upon completion of ground disturbing activity (and curation of fossils if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.	
Impact CR-3. Ground-disturbing activities associated with development under the proposed 2040 General Plan could result in damage to or destruction of human burials. Impacts would be less than significant.	**CR-4 Human Remains.** If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the County Coroner determines that remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendant(s)" of receiving notification of the discovery. The most likely descendant(s) shall then make recommendations within 48 hours, and engage in consultations concerning the treatment of the remains as provided in Public Resources Code 5097.98.	Less than significant without mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
Transportation and Traffic		
Impact T-1. New development facilitated by the 2040 General Plan may increase traffic at certain locations in Windsor. This traffic may conflict with policies and thresholds for the performance of the circulation system and applicable congestion management programs. Impacts would be significant but mitigable.	**T-1. Intersection Improvements.** The following additional intersection improvements are necessary to maintain acceptable operation with the 2040 volumes anticipated under the 2040 General Plan. ▪ Add a second left-turn lane on northbound **Old Redwood Highway at Starr Road** together with a second receiving lane southbound on Starr Road. ▪ Add an eastbound left-turn lane on Windsor **River Road at Bell Road-Market Street** to operate under permitted left-turn phasing. ▪ Provide a second left-turn lane on northbound **Old Redwood Highway at Shiloh Road**; this will require a second westbound lane on Shiloh Road.	Less than significant
Impact T-2. The 2040 General Plan would not result in a change in air traffic patterns and would not affect the Charles M. Schulz- Sonoma County Airport. Impacts to air traffic patterns would be less than significant.	None required	Less than significant without mitigation
Impact T-3. New development facilitated by the 2040 General Plan may increase traffic at certain locations in Windsor. This traffic may have the potential to cause queuing that exceeds available storage area resulting in traffic related hazards. Proposed Transportation and Mobility Element policies would reduce most impacts to a less than significant level. However, queuing beyond acceptable levels at certain intersections would still occur and may result in traffic hazards; therefore, impacts would be significant	**T-2. Queuing Improvements.** The following improvements are necessary to mitigate impacts from queuing based on the traffic volumes anticipated under the 2040 General Plan. ▪ Provide dual left-turn lanes on northbound **Old Redwood Highway at Starr Road** per Mitigation Measure T-1. ▪ Provide at least 250 feet of stacking space on the eastbound approach to **Highway 101 North ramps/Arata Lane** when the interchange is modified to provide all of the travel lanes needed to accommodate future volumes. ▪ Widen **Arata Lane** to provide at least 275 feet of stacking space for the left-turn pocket on the eastbound approach to Los Amigos Road. ▪ Limit access at **Windsor River Road/Bill Beedie Way** to right turns in/out only and extend the left-turn pocket to 700 feet or convert **Windsor River Road/Windsor Road** to a modern roundabout. ▪ Lengthen the left-turn lane on the north-bound **Old Redwood Highway** approach to Conde Lane to 325 feet. ▪ Lengthen the left-turn pocket on the southbound approach to **Shiloh Road** at **Skylane Boulevard** to 125 feet.	Significant and Unavoidable

Impact	Mitigation Measure (s)	Significance After Mitigation
	▪ Lengthen the left-turn pocket on westbound **Shiloh Road at Caletti Avenue** to 125 feet. ▪ Provide dual left-turn lanes with at least 300 feet of stacking space on northbound **Old Redwood Highway at Shiloh Road.**	
Impact T-4. Due to the programmatic nature of the 2040 General Plan, and the proposed policies and implementation measures to create an integrated, multi-modal transportation system, the 2040 General Plan would not result in inadequate emergency access. Impacts would be less than significant.	None required	Less than significant without mitigation
Impact T-5. The focus of the proposed 2040 General Plan in terms of transportation is to address a balanced transportation network that will support and encourage walking, bicycling, and transit ridership; conserve energy resources; and reduce greenhouse gas emissions, while continuing to accommodate automobile travel. The 2040 General Plan therefore would not conflict with adopted policies relating to alternative transportation modes, including transit, walking, and bicycling. Proposed Town of Windsor Transportation and Mobility Element policies would reduce these impacts to a less than significant level.	None required	Less than significant without mitigation
Tribal Cultural Resources		
Impact TCR-1. Development facilitated by the proposed General Plan may involve surface excavation, which has the potential to impact previously unidentified tribal cultural resources. However, with adherence to policies contained in the 2040 General Plan Update, impacts to tribal cultural resources would be less than significant.	**CR-1 Cultural Resources Study Implementation Program.** The following Implementation Program shall be added to the 2040 General Plan: If the preliminary reconnaissance required under Policy ER-7.10 suggests that significant historic resources, cultural resources, or tribal cultural resources may exist or for any other project requiring discretionary approval where there will be substantial ground disturbance by the project, the applicant shall retain a qualified archaeologist meeting the Secretary of the Interior's (SOI) Professional Qualification Standards (PQS) in archaeology and/or an architectural historian meeting the SOI PQS standards in architectural history to complete a Phase 1 cultural resources inventory of the project site (NPS 1983). A Phase 1 cultural resources inventory should include a pedestrian survey of the project site and sufficient background archival research	Less than significant without mitigation

Impact	Mitigation Measure (s)	Significance After Mitigation
	and field sampling to determine whether subsurface prehistoric or historic remains may be present. Archival research should include a records search conducted at the Northwest Information Center (NWIC) and a Sacred Lands File (SLF) search conducted with the Native American Heritage Commission (NAHC). The technical report documenting the Phase 1 cultural resources inventory shall include recommendations to avoid or reduce impacts to cultural resources. **CR-2 Tribal Cultural Resources Consultation.** Mitigation Measure CR-1 shall apply to all discretionary projects. Where potential tribal cultural resources are encountered or revealed through the Phase 1 Survey, the Town will consult with applicable tribe(s) to determine appropriate measures for addressing the resources. **CR-4 Human Remains.** If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b) remains shall be list in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the County Coroner determines that remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendant(s)" of receiving notification of the discovery. The most likely descendant(s) shall then make recommendations within 48 hours, and engage in consultations concerning the treatment of the remains as provided in Public Resources Code 5097.98.	

Source: Town of Windsor 2040 General Plan EIR

Note: Only issue areas discussed in the SEIR are show in the table.

3 Environmental Setting

This section provides a general overview of the environmental setting for the proposed project. More detailed descriptions of the environmental setting for each environmental issue area can be found in Section 4.0, *Environmental Impact Analysis*.

3.1 Regional Setting

The project site is located at northeast portion of the Town of Windsor. The Town of Windsor encompasses approximately 7.3 square miles (4,672 acres) and is located in central Sonoma County, approximately 20 miles east of the Pacific Ocean. The City of Healdsburg is approximately 7.6 miles northwest of the project site and Santa Rosa, the Sonoma County seat, lies 11.4 miles southeast of the project site. With an estimated 2022 population of 25,942, Windsor is the fourth most populous of the county's nine cities after Santa Rosa, Petaluma, and Rohnert Park (Department of Finance 2022). Figure 2-1 in Section 2.0, *Project Description*, shows the regional location of the project site.

A grid system of east-west and north-south roadways, including arterials, collectors, and local streets, provide vehicular access throughout parts of the Town. Other areas of the Town, including the northeastern portion, do not follow a grid system. The project site is located approximately three miles east of Highway 101, a major north-south limited access freeway. Other major roadways within the Town Include Old Redwood Highway approximately 1.5 miles southwest from the project site and Hembree Lane approximately 0.9 mile southwest from the project site.

Windsor is in a seismically active region in the vicinity of the Maacama, San Andreas, and Rodgers Creek Faults. The south section of the Maacama Fault runs southeast to northwest and is located approximately 3.5 miles northeast of the Town. The North Coast section of the San Andreas Fault runs southeast to northwest along the coastline of the Pacific Ocean and is located approximately 18 miles southwest of the Town. The Rodgers Creek Fault runs beneath the northeastern corner of Windsor and is the closest fault to the project site at approximately half a mile to the east.

The climate of Windsor is of the semi-arid Mediterranean type, characterized by dry, mild summers and moderately moist, cool winters. Over 90 percent of the rainfall occurs between October and May. Average summer temperatures are in the low 80s (degrees Fahrenheit) with highs in the upper 80s. Average temperatures in the winter are in the 50s (Town of Windsor 2018).

3.2 Project Site Setting

As shown in Figure 2-2 in Section 2.0, *Project Description,* the project site is bordered by residential development to the north and west, and agricultural lands to the east and south. The existing residences located to the north and west of the project site range from one to two stories and are a maximum height of 35 feet. The 17.17-acre lot is currently occupied by one vacant single-family residence on toward the center of the lot. The project site can be accessed via Vinecrest road north of the project site and Prince George Way west of the project site. Residents would access the site via Jensen Lane southeast of the project site, which would serve as a private driveway.

The project site, along with residences to the north and west, have a land use designation of Estate Residential (ER) in the 2040 General Plan. Residences to the north and west are also designated Estate Residential in the Town of Windsor Zoning Ordinance. As defined by the 2040 General Plan,

Estate Residential is intended for single-family residential development sited on larger parcels. The property to the south is located in the County of Sonoma and within the Town's Urban Growth Boundary (UGB) and has an Estate Residential (ER) land use designation. The property to the east is located in the County of Sonoma and outside of the Town limits and UGB.

3.3 Cumulative Development

In addition to the specific impacts of individual projects, CEQA requires EIRs to consider potential cumulative impacts of the proposed project. CEQA defines "cumulative impacts" as two or more individual impacts that, when considered together, are substantial or will compound other environmental impacts. Cumulative impacts are the combined changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be less than significant when analyzed separately but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

CEQA requires cumulative impact analysis in Supplemental EIRs to consider either a list of planned and pending projects that may contribute to cumulative effects or a forecast of future development potential. Currently planned and pending projects in the Town of Windsor within a three mile radius of the project site, are listed in Table 3-1. In particular, project numbers 8, 9, 30, and 33 are either located in close proximity or along the same major arterial as the project site and construction schedules may overlap. These projects are considered in the cumulative analyses in Section 4.0, *Environmental Impact Analysis*.

Table 3-1 Cumulative Projects List

Project No.	Project Location	Land Use
Town of Windsor		
1	376 Shiloh Road	Mixed-Use
2	Northwest corner Hembree Lane/Victoria Lane	Residential
3	280 Arata Lane	Residential
4	330 Arata Lane	Residential
5	6500 and 6516 Old Redwood Hwy	Residential
6	6100 Old Redwood Hwy	Residential
7	6122 Old Redwood Hwy	Commercial
8	8490/8500 Old Redwood Hwy	Residential
9	6011 Shiloh Rd, 6035 and 6050 Old Redwood Highway	Residential/Commercial
10	657 and 1296 Jensen Lane	Residential
11	160 Shiloh Road	Mixed-Use
12	6675 Old Redwood Highway	Commercial
13	7842 Hembree Lane	Residential
14	6114 and 6122 Old Redwood Highway	Planned Development

Source: Town of Windsor, 2021. https://www.townofwindsor.com/DocumentCenter/View/24064/Project-Status-List---October-2021?bidId=

4 Environmental Impact Analysis

This section discusses the possible environmental effects of the project for the specific issue areas that were identified through the scoping process and Initial Study as having the potential to experience significant effects. A "significant effect" as defined by the *CEQA Guidelines* Section 15382:

> means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.

The assessment of each issue area begins with a discussion of the environmental setting related to the issue, which is followed by the impact analysis. In the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the Town and other agencies, universally recognized, or developed specifically for this analysis to determine whether potential effects are significant. The next subsection describes each impact of the proposed project, mitigation measures for significant impacts, and the level of significance after mitigation. Each effect under consideration for an issue area is separately listed in bold text with the discussion of the effect and its significance. Each bolded impact statement also contains a statement of the significance determination for the environmental impact as follows:

- **Significant and Unavoidable**. An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved per Section 15093 of the *CEQA Guidelines*.
- **Less than Significant with Mitigation Incorporated**. An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings under Section 15091 of the *CEQA Guidelines*.
- **Less than Significant**. An impact that may be adverse but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.
- **No Impact.** The proposed project would have no effect on environmental conditions or would reduce existing environmental problems or hazards.

Following each environmental impact discussion is a list of mitigation measures (if required) and the residual effects or level of significance remaining after implementation of the measure(s). The mitigation section also identifies if mitigation measures are new measures, not included in the 2040 General Plan EIR. In cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed and evaluated as a secondary impact. The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the proposed project in conjunction with other planned and pending developments in the area listed in Section 3.0, *Environmental Setting*.

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4.1 Biological Resources

This section evaluates the potential for significant impacts to biological resources resulting from project construction and operation. The analysis in this section considers the biological resources analysis contained in the 2040 General Plan EIR, supplemented by analysis of potential changes that could result from the proposed project. The analysis is based on a *Biological Assessment* conducted by Charles A. Patterson (September 2021), an *Arborist Report* prepared by Horticultural Associates (January 2019), and the *Preliminary Jurisdictional Determination, Pursuant to Section 404 of the Clean Water Act, 1295 Jensen Lane, Windsor, Sonoma County, California* certified by the U.S. Army Corps of Engineers on July 29, 2019. These three reports are included as Appendix B of this SEIR.

4.1.1 Setting

The Town of Windsor is in the Russian River Valley and the northern edge of the Santa Rosa Plain. The Russian River Valley is an ecologically diverse area that provides habitat for warm and cool freshwater fish migration and spawning. The Santa Rosa Plain was historically a vast oak savannah grassland, dotted with vernal pools and swales that fill with water during the spring months. Numerous streams and creeks stem from the surrounding mountains to the east and cross the Town, and remnant open space areas retain the resource values of the oak savannah. The Russian River, located west of the Town, provides specialized habitat for numerous species and is the largest river in the Central California Coast Steelhead trout (*Oncorhynchus mykiss*) distinct population segment. Oak woodlands and riparian vegetation line the creeks and streams, open annual grassland is located along the western edges of the Town, and seasonal swales and vernal pools are scattered throughout the landscape. These areas provide communities for endemic plants and animals, nesting habitat, and wildlife corridors for numerous special-status species (Town of Windsor 2018).

a. Site Description

The 17.17-acre project site is situated on a gently sloping, southward facing hillside, with a slight high area in the center where the residence and other structures are located. With the general southern exposure and typical Mediterranean climate, the project site is relatively hot and dry, with most of the landscape covered by non-native annual grassland and weedy herbaceous species. This grassland cover has been grazed by livestock, tilled, planted with grapes in places, and is routinely mowed. The project site reflects a long history of disturbance and invasion by non-native plant species, especially the regionally naturalized non-native grasses and Himalayan blackberry (*Rubus armeniacus*).

Land to the north and west of the project site is fully developed into urban residential neighborhoods with extensive pavement, curbs and gutters, landscaping, and buried storm drains (see Figure 2-1 in Section 2, *Project Description*). Parcels to the east and south contain open fields/pastures and vineyards, as well as a few scattered single-family residences on large rural lots. The project site is positioned at the northeastern edge of the Town of Windsor's limits, with vineyards on the lower slopes immediately to the east and south, and slightly steeper hillsides of oak woodland farther east.

b. Land Cover Types

The project site includes five categories of land cover types including non-native annual grassland, Himalayan blackberry thicket, landscaped/ornamental trees, seasonal wetland/swale, and developed. These land cover types are described in more detail and shown on Figure 4.1-1 below. The vegetation community characterizations for this analysis were based on the classification systems presented in *A Manual of California Vegetation*, Second Edition (Sawyer et al. 2009) but have been modified slightly to reflect the existing site conditions most accurately.

Non-native Annual Grassland

This vegetation community is found through a large majority of the project site and consists of the more open grassland areas dominated by low-growing regionally typical non-native annual grasses and herbaceous plants. The non-native annual grassland throughout the project site most closely corresponds to the *Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance (Sawyer et al. 2009). Non-native annual grasses include oats (*Avena* spp.), ryegrass (*Lolium* spp.), vernal grasses (*Anthoxanthum* spp.), canarygrass (*Phalaris* spp.), quaking grass (*Briza* spp.), brome (*Bromus* spp.), barley (*Hordeum* spp.), and medusa head (*Elymus caput-medusae*). Herbaceous species include common vetch (*Vicia sativa*), thistles (*Carduus* spp.), cat's ear (*Hypochaeris* spp.), prickly lettuce (*Lactuca serriola*), plantain (*Plantago* spp.), filaree (*Erodium* spp.), and field bindweed (*Convolvulus arvensis*). Less than 10 percent of this vegetation community is comprised of native grasses, specifically California oatgrass (*Danthonia californica*), blue wildrye (*Elymus glaucus*), and purple needlegrass (*Stipa pulchra*) mix at a higher proportion with the dominant non-natives. Also observed, less frequently in this grassland are native brodiaeas (*Brodiaea laxa*, *B. terrestris*), Fitch's tarweed (*Centromadia fitchii*), two lupines (*Lupinus bicolor*, *L. nanus*), and several other common native grassland species (e.g., *Ranunculus californicus*, *Eschscholzia californica*, and *Bromus carinatus*). Grasslands may provide foraging and nesting habitat for a wide variety of wildlife species including raptors, seed eating birds, small mammals, amphibians, and reptiles.

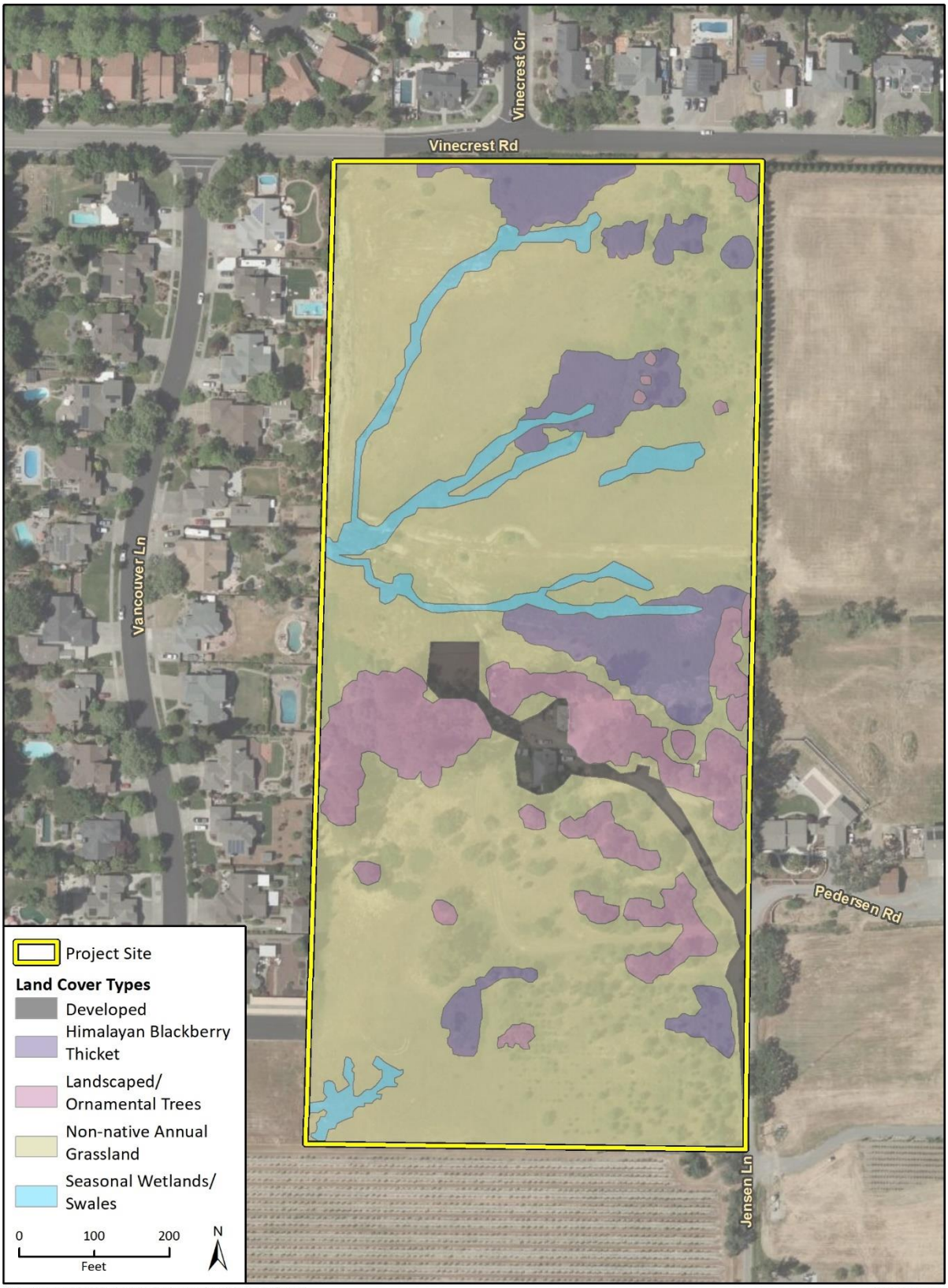
Himalayan Blackberry Thicket

Occurring across the project site in large patches are dense thickets of the non-native Himalayan blackberry. These grow both in some swales and on dry upland plains. The abundance and actual footprints of these thickets can change dramatically year to year as clumps expand aggressively or are cut down and removed to keep grazing pasture open. This non-native blackberry is rated by the California Invasive Plant Council (Cal-IPC) Inventory as highly invasive. The Himalayan blackberry thicket present within the project site most closely corresponds to the *Rubus armeniacus* - *Sesbania punicea* - *Ficus carica* Shrubland Semi-Natural Alliance (Sawyer et al. 2009). Nesting birds or small mammals may use these thickets for nesting or shelter habitat where more suitable habitat is absent.

Landscaped/Ornamental Trees

Woody vegetation throughout the project site includes the planted ornamentals around the existing residential structure as well as a few scattered native species of oak including valley oak (*Quercus lobata*), coast live oak (*Q. agrifolia*), and California black oak (*Q. kelloggii*). Around the residential structure and in other scattered places throughout the project site are numerous planted or volunteer eucalyptus, pines, acacias, and other ornamental trees, as well as remnant grapevines occurring in patches in the previously planted areas of the site. The few native oaks that are present occur in very small numbers and not as any natural plant community. The trees and shrubs within

Figure 4.1-1 Vegetation Communities and Land Cover Types



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this landscaped land cover may provide some foraging, nesting, and shelter habitat for some bird species on the project site.

Seasonal Wetland/Swales

The project site contains seasonal wetlands or swales that support the same general grassland species as the non-native annual grassland in addition to several wet meadow species including native rushes (*Juncus tenuis*, *J. patens*, J*. bufonius*, *J. phaeocephalus*), sedges (*Carex* spp.), occasional Western blue-eyed grass (*Sisyrinchium bellum*), clovers (*Trifolium depauperatum*, *T. willdenovii*), and buttercups (*Ranunculus* spp.). None of these species are dominant within the seasonal wetlands and swales, as the native cover has been largely displaced by the well adapted non-native annual grasses and forbs. There are several small ephemeral seasonally wet swales that begin at the northeastern portion of the project site. These seasonally wet swales hold water well into the summer months, although are mostly dry by August. This land cover type most closely corresponds with the *Juncus patens* Provisional Herbaceous Alliance (Sawyer et al. 2009).

Developed

The center portion of the project site consists of developed land including a vacant single-family residence and associated structures as well as an unpaved driveway leading to the structures. This land cover type is not naturally occurring and is not described by the Sawyer et al. (2009) classification system. This land cover type consists of areas that have been modified and are built up such that most or all vegetation has been removed or only small areas of ruderal vegetation are present.

c. Special-Status Biological Resources

The term special-status biological resources includes those plants, animals, vegetation communities, potentially jurisdictional aquatic features, and other sensitive biological resources that are governed under federal, state, and local laws and regulations. Information regarding the occurrences of special-status species in the vicinity of the project site was obtained from searching the California Department of Fish and Wildlife (CDFW) *California Natural Diversity Data Base* (CNDDB) (CDFW 2021a); *Biogeographic Information and Observation System* (CDFW 2021b); U.S. Fish and Wildlife Service (USFWS) *National Wetlands Inventory* (USFWS 2021a); USFWS *Information for Planning and Consultation* (USWFS 2021b); and USFWS *Critical Habitat Portal* (USFWS 2021c) for the U. S. Geological Survey (USGS) *Healdsburg* and eight surrounding 7.5-minute quadrangles. Other resources included the California Native Plant Society's (CNPS) online *Inventory of Rare and Endangered Plants of California* (CNPS 2021); CDFW's *Special Animals List* (CDFW 2021c); and CDFW's *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2021d). These databases contain records of reported occurrences of federal- or state-listed endangered, threatened, rare, or proposed endangered or threatened species, federal species of concern, state species of special concern, or otherwise sensitive species or habitat that may occur within the nine-quad search radius of the project site. This search range encompasses a sufficient distance to accommodate for regional habitat diversity and to overcome the limitations of the CNDDB (the CNDDB is based on reports of actual occurrences and does not constitute an exhaustive inventory of every resource). See Appendix B for detailed species lists.

Special-Status Species

Local, state, and federal agencies regulate special-status species and may require an assessment of their presence or potential presence to be conducted prior to the approval of development on a property. Assessments for the potential occurrence of special-status species are based upon known ranges, habitat preferences for the species, species occurrence records from the CNDDB, species occurrence records from other sites in the vicinity of the project site (2021a), and previous reports for the study area. The potential for each special-status species to occur within the project site was evaluated according to the following criteria:

- **Not expected.** Habitat on and adjacent to the site is clearly unsuitable for the species' requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Low Potential.** Few of the habitat components meeting the species' requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species' requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species' requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (e.g., CNDDB, other reports) on the site recently (within the last 5 years).

For the purpose of this SEIR, special-status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the USFWS or National Marine Fisheries Service (NMFS) under the federal Endangered Species Act (FESA); those listed or candidates for listing as Rare, Threatened, or Endangered under the California Endangered Species Act (CESA) or Native Plant Protection Act; those identified as Fully Protected by the California Fish and Game Code (CFGC; Sections 3511, 4700, 5050, and 5515); those identified as Species of Special Concern (SSC) or Watch List species by the CDFW; and plants occurring on lists 1 and 2 of the CNPS California Rare Plant Rank (CRPR) system per the following definitions:

- **Rank 1A**: Plants presumed extinct in California;
- **Rank 1B.1**: Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);
- **Rank 1B.2**: Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened);
- **Rank 1B.3**: Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened, or no current threats known);
- **Rank 2:** Rare, threatened or endangered in California, but more common elsewhere.

Based on the query of the CNDDB and CNPS online *Inventory of Endangered Plants* (CDFW 2021a; CNPS 2021), there are 72 special-status plant species, 23 special-status wildlife species, and four sensitive natural communities documented within the *Healdsburg, California* USGS 7.5-minute quad and the eight surrounding quads. The 95 special-status species have been evaluated for potential to occur within the project site (Appendix B).

Special-Status Plant Species

Seventy-two (72) special-status plant species known to occur in the region were evaluated for their potential to occur at the project site (see Appendix B). None of these 72 species would be expected to occur within the project site. Based on the high degree of disturbance and relative commonness of the vegetation communities present within the project site, only minor portions of the site including the seasonal wetlands, are regarded as potentially suitable for sensitive plant species. The seasonal wetlands within the project site have some potential to support several species including Sonoma sunshine (*Blennosperma bakeri*), Burke's goldfields (*Lasthenia burkei*), Sebastopol meadowfoam (*Limnanthes vinculans*), dwarf downingia (*Downingia pusilla*), and many-flowered navarretia (*Navarretia leucocephala* ssp. *plieantha*). However, during five years of focused plant surveys, these species were not detected within the project site (Patterson 2021, Appendix B).

Special-status species found in open natural grasslands are not likely present as the local grasslands have been thoroughly degraded, invaded, and converted mostly to non-native annual grasses. Most of the project site has very low, or negligible potential for rare, endangered, or otherwise sensitive plant species. Outside of the scattered wetlands on site, there is no suitable habitat for any regionally known listed plants, and the CNDDB does not show any historic records of special-status species within the project site (CDFW 2021a). Most of the rare plants known from the region, occur almost exclusively in such habitats as serpentine (rock land, grassland, woodland, meadow), chaparral, forest, or wetlands. The project site does not have any serpentine, nor any other unusual soils, and no exposed rock occurrences were found. Additionally, there are no natural chaparral or woodland habitats onsite, and most of the grassland present is highly altered and dominated with non-native species. No special-status plant species were observed during the focused plant surveys conducted from 2017 to 2021.

Special-Status Wildlife Species

Rincon identified 23 special-status wildlife species that have been documented within the nine-quadrangle search radius. These species were reviewed for potential to occur within the project site (see Appendix B); three special-status bat species were found to have moderate potential to occur in the study area. Special-status species are discussed in further detail below.

SPECIAL-STATUS BATS

Pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and western red bat (*Lasiurus blossevillii*) are all CDFW SSC. Pallid bats are found in grasslands, shrublands, woodlands, and forests, and may roost in trees or buildings. Townsend's big-eared bat and western red bat are found in a wide variety of habitats and may roost in abandoned buildings or large trees. Bats prefer open areas or open areas under a tree canopy for foraging, and often roost near water. Several trees contain dense canopy cover within the project site and may provide suitable roosting habitat for these special-status bat species. Pallid bat, Townsend's big-eared bat, and western red bat all have a moderate potential to roost in the trees present within the project site or project vicinity.

NESTING BIRDS

Non-game migratory and native birds protected under the CFGC Section 3503 and the federal Migratory Bird Treaty Act (MBTA), such as native avian species common to developed and ruderal areas, have the potential to breed and forage in the project site and vicinity. Species of birds common to the area that typically occur in the region, such as red-tailed hawk (*Buteo jamaicensis*),

California quail (*Callipepla californica*), California scrub jay (*Aphelocoma californica*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), and house finch (*Haemorhous mexicanus*), may nest at the project site. Nesting by a variety of common birds protected by CFGC Section 3503 and MBTA could occur in virtually any location throughout the project site containing native or non-native vegetation.

Sensitive Natural Communities and Critical Habitat

Sensitive Natural Communities

Plant communities are also considered sensitive biological resources if they have limited distributions, have high wildlife value, include sensitive species, or are particularly susceptible to disturbance. CDFW ranks sensitive communities as "threatened" or "very threatened" and keeps records of their occurrences in CNDDB. CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Some alliances with the rank of 4 and 5 have also been included in the 2020 sensitive natural communities list under CDFW's revised ranking methodology (2020). Four sensitive natural communities were identified within the nine-quadrangle search radius, but not on the project site:

- Coastal and Valley Freshwater Marsh
- Northern Hardpan Vernal Pool
- Northern Vernal Pool
- Valley Needlegrass Grassland

The seasonal wetlands identified on the project site potentially qualify as a sensitive natural community given the location of the project site within the Santa Rosa Plain Conservation Strategy Area. Additionally, the seasonal wetlands have the potential to support any of the three federal and state listed vernal pool plants known to occur on the Santa Rosa Plain.

Critical Habitat

Designated critical habitat for California tiger salamander (CTS; *Ambystoma californiense*) occurs approximately 1.8 miles south of the project site adjacent to the Windsor Golf Club. (USFWS 2021c). Additionally, several of the creeks and streams within five miles of the project site are designated as critical habitat for coho salmon (Central California Coast evolutionarily significant unit [ESU]; *Oncorhynchus kisutch*) and steelhead (Central California Coast distinct population segment [DPS]; *Oncorhynchus mykiss*).

Jurisdictional Waters and Wetlands

An aquatic resources delineation was conducted for the project during site visits on April 2, 2017, and May 4, 2018 by Charles A Patterson, the results of which were submitted to the U.S. Army Corps of Engineers (USACE) on May 24, 2019 for review. Based on this report, a Preliminary Jurisdiction Determination (PJD) was issued by the USACE on July 29, 2019, with a stamped verified map (see Appendix B). The aquatic resources delineation (Appendix B) mapped the location of observed wetlands as well as the condition of each wetland within the project site. The project site has been highly disturbed and altered, such that there is very little remaining natural habitat or natural vegetation throughout most of the site. As shown in the verified delineation map, the ephemeral drainage swales all qualify as wetlands, as they are fully vegetated. While there is a short section of

channel and minor scour near the lower part of the main drainage swale convergence, there are no other distinct features in the project site that would be classified as "other waters" (e.g., no significant creeks or channels). The small seasonal drainages appear to originate directly within the project site and have virtually no remaining upslope watershed. Most of the upslope watershed and runoff is captured in the existing curb, gutter, and storm drain system of the adjacent urban neighborhood to the north of Vinecrest Road.

The seasonal wetlands in the swales shown in Figure 3 of the Biological Assessment (Appendix B), are largely non-aquatic, except as indicated on Figure 3, and are composed of relatively common meadow and wet meadow species. This includes native rushes, sedges, grasses, and a few common herbs, in addition to the more abundant introduced weedy species such as dock (*Rumex crispus*, *R. acetosella*, *R. conglomeratus*), thistles (*Sonchus* spp., *Picris* spp., Carduus spp., *Silybum* spp.), and introduced grasses (*Festuca perennis*, *Poa annua*, *Briza* spp., *Hordeum marinum*, *Holcus lanatus*, *Festuca arundinacea*, *Anthoxanthum* spp., *Phalaris* spp.). While these swales are largely non-native in character and flora, there are scattered native wildflowers such as the brodiaeas, blue-eyed grass, and buttercups, as well as widespread California oatgrass (*Danthonia californica*).

These broad shallow swale features collect local sheet flow and convey winter and spring runoff downslope to the west, converging into a small ephemeral channel (approximately one foot deep by two to three feet wide) in the lowermost reach. This collection area also contains several small persistently ponded areas, totaling less than 0.05 acre in size, that support common regional seasonal wetland species, as well as numerous weedy plants. The few intermittently ponded areas contained within the swale connection network show surface ponding of about 10 inches deep and support regionally native introduced but well-established herbaceous wetland species. Native species include small numbers of coyote thistle (*Eryngium aristulatum, E. armatum*), common hedge-hyssop (*Gratiola ebracteata*), buttercups (*Ranunculus pusillus, R. orthorhynchus* var. *bloomeri, R. lobbii*), and common monkeyflower (*Erythranthe guttata*). Common spikerush (*Eleocharis palustris*) is a bit more abundant in the wetter depressions and portions of the swales. Non-natives tend to be more abundant and dominant throughout, and include waxy mannagrass (*Glyceria declinata*), rabbitsfoot grass (*Polypogon monspeliensis*), bentgrass (*Agrostis* spp.), Bermuda grass (*Cynodon dactylon*), and numerous introduced broad-leaf weeds (*Hypochaeris* spp., *Ranunculus muricatus, R. sceleratus, Trifloium repens, T. subterraneum, Lythrum hyssopifolia*). Combined, the small features mapped as "intermittently ponded" account for a total of approximately 0.1 acre.

One other small area, approximately 0.2 acre in size, of seasonal wetland occurs within the project site, and is located at the site's southwestern corner. Collected rainfall flowing from higher ground around the residence in the middle of the property moves very slowly southward and moves towards the series of very shallow, ephemeral flats and micro-depressions. The surrounding non-native grassland shifts in these flats and lower places to small communities of common wetland species (*Juncus* spp., *Crassula aquatica*, *Epilobium densiflorum*, *Downingia concolor*, *Isoetes* spp., *Gratiola* spp., *Eleocharis acicularis*) set as small seasonal wetland pockets (e.g., three feet by six) within the broader expanse of grassland.

In total, based on the confirmed PJD by the USACE, the project site contains a total of 1.43 acres of wetland potentially subject to regulation by the USACE and/or the State. Because the seasonal wetlands and swales are in upland areas, lack riparian vegetation, and do not redirect a natural stream course, these features are unlikely to be under CDFW jurisdiction pursuant to CFGC Section 1600 et seq. However, they are likely to be Regional Water Quality Control Board (RWQCB) jurisdictional pursuant to Section 401 of the Clean Water Act (CWA).

Wildlife Movement

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Other corridors may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

Habitats within a habitat linkage do not necessarily need to be identical to those habitats being linked. Rather, the linkage needs only to contain sufficient cover and forage to allow temporary utilization by species moving between core habitat areas. Habitat linkages are typically contiguous strips of natural areas, though dense plantings of landscape vegetation can be used by certain disturbance-tolerant species. Some species may require specific physical resources (such as rock outcroppings, vernal pools, or oak trees) within the habitat link for the linkage to serve as an effective movement corridor, while other more mobile or aerial species may only require discontinuous patches of suitable habitat to permit effective dispersal and/or migration.

Wildlife movement corridors may occur at either large or small scales. As described in the report, *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California,* the project site is located within the southern portion of the North Coast Ecoregion (Spencer et al. 2010). However, the project site is not located within a Natural Landscape Block (defined as relatively natural habitat blocks that support native biodiversity). The project site is similarly not located in an Essential Connectivity Area (ECA; defined as areas that are essential for ecological connectivity between blocks) (Spencer et al. 2010). Locally, the foothills to the east of the project site may serve as smaller scale movement corridors for terrestrial species in the region. However, there is some amount of habitat fragmentation due to the agricultural lands located between this foothill open space area and the project site. Additionally, the project site is surrounded by residential developments and agricultural uses, cutting it off from natural habitat areas.

4.1.2 Regulatory Setting

Federal, state, and local authorities under a variety of statutes and guidelines share regulatory authority over biological resources. The primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions, which in this instance is the Town of Windsor. The CDFW is a trustee agency for biological resources throughout the State under the California Environmental Quality Act (CEQA) and has direct jurisdiction under the CFGC, which includes, but is not limited to, resources protected by the State of California under the CESA.

a. Federal Regulations

Endangered Species Act

Under the FESA, authorization is required to "take" a listed species. Take is defined under FESA Section 3 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation (50 CFR Sections 17.3, 222.102); "harm" is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Critical habitat is a specific geographic area(s)

that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. FESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat.

Section 7(a)(2) of FESA and its implementing regulations require federal agencies to consult with USFWS or NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit under FESA Section 10(a). Section 10(a) allows USFWS to permit the incidental take of listed species if such take is accompanied by an HCP that includes components to minimize and mitigate impacts associated with the take.

The USFWS and NMFS share responsibility and regulatory authority for implementing FESA (7 USC Section 136, 16 USC Section 1531 et seq.).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, "to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, […] any migratory bird, or any part, nest, or egg of any such bird" (16 USC Section 703(a)). The Bald and Golden Eagle Protection Act is the primary law protecting eagles, including individuals and their nests and eggs. The USFWS implements the Migratory Bird Treaty Act (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668). Under the Act's Eagle Permit Rule (50 CFR 22.26), USFWS may issue permits to authorize limited, non-purposeful take of bald eagles and golden eagles.

Clean Water Act

Under Section 404 of the CWA, the USACE, with EPA oversight, has authority to regulate activities that result in discharge of dredged or fill material into wetlands or other "waters of the United States." Perennial and intermittent creeks are considered waters of the United States if they are hydrologically connected to other jurisdictional waters. In achieving the goals of the CWA, the USACE seeks to avoid adverse impacts and offset unavoidable adverse impacts on existing aquatic resources. Any discharge of dredged or fill material into jurisdictional wetlands or other jurisdictional "waters of the United States" would require a Section 404 permit from the USACE prior to the start of work. Typically, when a project involves impacts to waters of the United States, the goal of no net loss of wetlands is met by compensatory mitigation; in general, the type and location options for compensatory mitigation should comply with the hierarchy established by the Corp/EPA 2008 Mitigation Rule (USEPA 2021) (in descending order): (1) mitigation banks; (2) in-lieu fee programs; and (3) permittee-responsible compensatory mitigation. Also, in accordance with Section 401 of the CWA, applicants for a Section 404 permit must obtain water quality certification from the appropriate RWQCB.

b. State Regulations

Endangered Species Act and Fully Protected Species

CESA (CFGC 2050 et. seq.) prohibits take of State-listed threatened and endangered species without a CDFW incidental take permit. Take under CESA is restricted to direct harm of a listed species and does not prohibit indirect harm by way of habitat modification.

Protection of fully protected species is described in CFGC 3511, 4700, 5050 and 5515. These statutes prohibit take or possession of fully protected species. Incidental take of fully protected species may be authorized under an approved NCCP.

California Fish and Game Code Sections 3503, 3503.5 and 3511

CFGC sections 3503, 3503.5 and 3511 describe unlawful take, possession, or destruction of birds, nests, and eggs. Fully protected birds (CFGC Section 3511) may not be taken or possessed except under specific permit. Section 3503.5 of the Code protects all birds-of-prey and their eggs and nests against take, possession, or destruction of nests or eggs.

California Fish and Game Code Sections 1360-1372

Sections 1360 through 1372 of the CFGC comprise the Oak Woodlands Conservation Act. The act was enacted to protect oak woodland habitats that were being diminished by development, firewood harvesting, and agricultural conversions. The Oak Woodlands Conservation Program was established as a result of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts. Section 21083.4 of CEQA requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

Native Plant Protection Act

The CDFW also has authority to administer the Native Plant Protection Act (NPPA) (CFGC Section 1900 et seq.). The NPPA requires the CDFW to establish criteria for determining if a species, subspecies, or variety of native plant is endangered or rare. Under Section 1913(c) of the NPPA, the owner of land where a rare or endangered native plant is growing is required to notify the department at least 10 days in advance of changing the land use to allow for salvage of the plant(s).

Section 1600 et seq. of the California Fish and Game Code

Section 1600 et seq. of the CFGC prohibits, without prior notification to CDFW, the substantial diversion or obstruction of the natural flow of, or substantial change or use of any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In order for these activities to occur, the CDFW must receive written notification regarding the activity in the manner prescribed by the department and may require a lake or streambed

alteration agreement. Lakes, ponds, perennial, and intermittent streams and associated riparian vegetation, when present, are subject to this regulation.

Natural Community Conservation Planning Act

The Natural Communities Conservation Planning (NCCP) Act was established by the California Legislature, is directed by the CDFW, and is implemented by the state, as well as public and private partnerships to protect habitat in California. The NCCP Act takes a regional approach to preserving habitat. An NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. Once an NCCP has been approved, CDFW may provide take authorization for all covered species, including fully protected species, Section 2835 of the CFGC.

Porter-Cologne Water Quality Control Act

The State Water Resources Control Board (SWRCB) and each of nine local RWQCB has jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Control Act which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. SWRCB adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review, and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities (SWRCB 2021).

c. Local Regulations

Town of Windsor 2040 General Plan

The current Town of Windsor 2040 General Plan (2018) includes open space policies to protect natural resources including sensitive habitats (Policies ER-1.1 and ER-1.2), and policies to protect biological resources including oak groves and woodlands, riparian woodlands, and heritage trees (Policy ER-6.1). Policy ER-6.7 preserves oak woodlands by restricting encroachments within the tree root zones and requiring replacement if trees must be removed. Additionally, Policy ER-6.8 requires that trees are protected during construction by fencing the areas around the trees.

Town of Windsor Zoning Ordinance

Chapter 27.36 of the Town of Windsor's Zoning Ordinance, the Tree Preservation and Protection Ordinance (the Ordinance), regulates protection, preservation, maintenance, and removal of protected trees. The intent of the Ordinance is to avoid a reduction in tree canopy cover by requiring replacement trees for all protected trees that are approved for removal. Protected trees under the Ordinance include: trees with a diameter at breast height (dbh) of six inches or more of the following species: black oak (*Quercus kelloggii*), blue oak (*Quercus douglasii*), coast live oak, interior live oak (*Quercus wislizenii*), oracle oak (*Quercus morehus*), Oregon oak (*Quercus garryana*), valley oak (*Quercus lobata*), chase oak (*Quercus chaseii*); and trees with a dbh of 12 inches or more of the following species: California buckeye (*Aesculus californica*) and California bay (*Umbellularia californica*); heritage or landmark trees as identified by Council resolution; significant groves or

stands of trees; mature trees located on a parcel of one acre or more; and any tree required, to be planted or preserved, as environmental mitigation for a discretionary permit.

Santa Rosa Plain Conservation Strategy

The project site is located within the Santa Rosa Plain Conservation Strategy Area (2005). The goal of the Conservation Strategy is to aid in the conservation of listed species and vernal pools by providing local governments and developers a way to obtain authorization for incidental take of federally listed species for development. Species covered under the Conservation Strategy include CTS, Burke's goldfields, Sonoma sunshine, Sebastopol meadowfoam, and many-flowered navarretia. The project site is located at the northeastern most boundary of the Conservation Strategy Area and "the presence of CTS is not likely but mitigation for listed plants may be required" according to the Conservation Strategy (2005).

4.1.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

The analysis presented in this section is based on literature/database reviews and the project site surveys conducted from 2017 to 2021. Project impacts to flora and fauna are focused upon rare, threatened, endangered species, as defined under *CEQA Guidelines* Section 15380. A substantial adverse effect as defined under CEQA Threshold 1 to federal- or state-listed, or fully protected species would be considered significant if any individual animal or plant would be affected. A substantial adverse effect as defined under CEQA Threshold 1 to CRPR 1B and 2B plants are generally considered significant under CEQA if the loss of individuals represented a population-level impact that resulted in a loss of a local or regional population or risked the long-term viability of a local or regional population.

Impacts to biological resources in the 2040 General Plan EIR are shown in Table 2-2 in Section 2, *Project Description*. Impacts to special status species were determined to be less than significant with implementation of Mitigation Measure AES-1 to reduce impacts from light and glare and Mitigation Measure BIO-1 to protect nesting birds. In the 2040 General Plan EIR impacts to wildlife movement were determined to be less than significant with mitigation to revise Policy ER-1.2 to include wildlife movement corridors. Impacts to wetlands and riparian habitats, local policies, and habitat conservation plans were determined to be less than significant.

Definition of Special-Status Species

For the purposes of this analysis, special-status species include:

- Species listed as threatened or endangered under the FESA; species that are under review may be included if there is a reasonable expectation of listing within the life of the project
- Species listed as candidate, threatened, or endangered under the CESA
- Species designated as Fully Protected, SSC, or Watch List by CDFW
- Species designated as sensitive by the U.S. Forest Service or Bureau of Land Management, if the project would affect lands administered by these agencies

- Species designated as locally important by the Local Agency and/or otherwise protected through ordinance or local policy
- Species designated with a CRPR of 1B or 2B

Environmental Statutes

For the purpose of this analysis, potential impacts to biological resources were analyzed based on the following statutes (Appendix B):

CEQA	
FESA	The Bald and Golden Eagle Protection Act
CESA	Porter-Cologne Water Quality Control Act
Federal CWA	Santa Rosa Plain Conservation Strategy Area
CFGC Section 3503	Town of Windsor 2040 General Plan
MBTA	Town of Windsor Zoning Ordinance

Significance Thresholds

For purposes of this SEIR, development facilitated by the project may have a significant adverse impact in respect to biological resources if it would:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
3. 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
4. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
5. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Impact BIO-1 IMPLEMENTATION OF THE PROPOSED PROJECT MAY IMPACT SPECIAL-STATUS SPECIES AND THEIR HABITAT DURING CONSTRUCTION AND/OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

Special-Status Plant Species

Literature review and database searches identified 72 special-status plant species that have the potential to occur within the within the *Healdsburg, California* USGS 7.5-minute quad and the eight surrounding quads. However, results of the protocol rare plant surveys conducted on the project site from 2017 to 2021 did not identify any special-status plants. Therefore, there are no special status plant species on the project site.

The on-site seasonal wetlands identified in the *Biological Assessment* (Patterson 2021, Appendix B), may potentially support sensitive wetland plant species. These small wetland habitats support several typical seasonal wetland aquatic plants of the Santa Rosa Plain, but in small population sizes of mostly common species. Loss of the on-site wetland habitats would impact several common native wetland species, but would not adversely affect any state or federally-listed or protected species, and would not represent a critical effect on any one species. Therefore, impacts to special-status plant species would be less than significant.

Special-Status Wildlife Species

Special-status wildlife species are most likely to occur in native vegetation communities and natural habitats, but many species may use more disturbed areas as upland or foraging habitat and may occur transiently in the project site. Impacts to special-status wildlife species could occur if individuals were present at the project site at the time of construction through direct injury or mortality. Disturbance may also occur as a result of construction noise and human presence. Development of the project may also decrease available foraging habitat for some special-status birds. Therefore, impacts would be potentially significant and Mitigation Measures BIO-1 would be required to reduce impacts to a less-than-significant level.

Three special-status bat species have the potential to occur within the project site based upon known ranges, habitat preferences, species occurrence records in the vicinity of the project site, and presence of suitable habitat. Pallid bat, Townsend's big-eared bat, and western red bat have a moderate potential to roost in the large mature trees and existing vacant single-family residence and structures present within the project site. As with those bats that roost in buildings, colonial bats that roost in trees, such as these three species, are seasonally inactive (nonvolant young during maternity season or torpid bats during winter months). Unlike with buildings however, bats cannot readily be humanely evicted from trees. This is because trees typically have numerous cavities, crevices, or large areas of exfoliating bark that cannot be fitted with one-way exits or cannot even be safely worked on due to poor condition or lack of accessibility. This is particularly true of snags due to their extremely poor condition; however, snags provide some of the most preferred and substantial bat tree roost habitat. Disturbance of maternity roosts from construction activities,

resulting in roost destruction or abandonment, would be a potentially significant impact to special-status bat species and would be violations of CFGC. Mitigation Measures BIO-1 and BIO-2, requiring a worker training program and bat avoidance measures, would reduce impacts to special-status bat species to a less-than-significant level.

Suitable nesting and foraging habitat for non-game migratory and native birds protected by the MBTA and CFGC Section 3503 occurs within the project site. Birds may forage within the non-native grasslands on site and nest within the several ornamental and scattered native trees throughout the project site. Impacts may occur through removal of vegetation if active nests are present. Impacts may also occur if active nests are present in undeveloped and landscaped areas adjacent to active construction or staging through disturbance and nest abandonment. With the implementation of Mitigation Measures BIO-1 and Mitigation Measure BIO-3 (included as Mitigation Measure BIO-1 in the 2040 General Plan EIR) requiring a worker training program and a preconstruction nesting bird survey, impacts to nesting birds would be reduced to a less-than-significant level.

Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 2040 General Plan EIR. Additionally, the project would be required to adhere to Mitigation Measure BIO-1 from the 2040 General Plan EIR, shown below as Mitigation Measure BIO-3. The Town of Windsor shall impose the following mitigation measures for development on the project site.

BIO-1 Worker Environmental Awareness Program (WEAP)

Prior to initiation of construction activities (including staging and mobilization), and at the applicant's financial expense, all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the construction area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to reduce impacts to biological resources within the work area. A qualified biologist shall prepare a fact sheet conveying this information for distribution to all contractors, their employers, and other personnel involved with construction. All employees shall sign a form provided by the trainer indicating they have attended the WEAP and understand the information presented to them. The form shall be submitted to the Town to document compliance following each training.

BIO-2 Roosting Bats Surveys and Avoidance Measures

Prior to tree removal, a qualified biologist shall be retained by the applicant to conduct a focused survey of all trees and structures to be removed or impacted by construction activities to determine whether active roosts of special-status bats are present on site. If tree or structure removal is planned for the fall, the survey shall be conducted in September to ensure tree and/or structure removal will have adequate time to occur during seasonal periods of bat activity (March 1 to April 15, September 1 to October 15, or when evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs, as described below). If tree and/or structure removal is planned for the spring, then the survey shall be conducted during the earliest possible time in March, to allow for suitable conditions for both the detection of bats and subsequent tree and/or structure removal. Trees and/or structures containing suitable potential bat roost habitat features shall be clearly marked or identified. If no bat roosts are found, the results of

the survey will be documented and submitted to the Town within 30 days of the survey, after which no further action will be required.

If day roosts are found to be potentially present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following the Town's approval. The plan shall be approved by the Town and incorporate the following guidance as appropriate:

- When possible, removal of trees/structures identified as suitable roosting habitat shall be conducted during seasonal periods of bat activity, including the following:
  a) Between September 1 and about October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs.
  b) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs.
- If a tree /structure must be removed during the breeding season and is identified as potentially containing a colonial maternity roost, then a qualified biologist retained by the applicant shall conduct acoustic emergence surveys or implement other appropriate methods to further evaluate if the roost is an active maternity roost. Under the biologist's guidance, the contractor shall implement measures similar to or better than the following:

  a) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure.

  b) If it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31).
- Tree removal procedures shall be implemented using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on day one. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night. The remainder of the tree is removed on day two.
- Prior to the demolition of vacant structures within the project site, a qualified biologist retained by the applicant shall conduct a focused habitat assessment of all structures to be demolished. The habitat assessment shall be conducted enough in advance to ensure the commencement of building demolition can be scheduled during seasonal periods of bat activity (see above), if required. If no signs of day roosting activity are observed, no further actions will be required. If bats or signs of day roosting by bats are observed, a qualified biologist will prepare specific recommendations such as partial dismantling to cause bats to abandon the roost, or humane eviction, both to be conducted during seasonal periods of bat activity, if required.
- If the qualified biologist determines a roost is used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultation with CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately.

BIO-3 Nesting Bird Protection ~~(2040 General Plan EIR Mitigation Measure BIO-1)~~

~~The Town shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures.~~

If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.

Significance After Mitigation

Implementation of Mitigation Measures BIO-1 through BIO-3 would reduce potential impacts to special-status species to less than significant levels by requiring pre-construction roosting bat and nesting bird surveys and avoidance and minimization measures, as well as worker awareness training for special-status species.

Threshold 2:	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 Wildlife or U.S. Fish and Wildlife Service?

Impact BIO-2 IMPLEMENTATION OF THE PROJECT WOULD IMPACT SENSITIVE NATURAL COMMUNITIES DURING CONSTRUCTION AND/OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

There are no riparian habitats located within the project site, and therefore, no impacts to riparian corridors would occur. The seasonal wetlands on site, comprising approximately 1.43 acres, would potentially qualify as a sensitive natural community by CDFW given the project site's location within the Santa Rosa Plain Conservation Strategy Area. Because this vegetation community has the potential to support any of the three federal and State listed vernal pool plants known to occur on the Santa Rosa Plain, removal of the wetlands in conjunction with the project would be required to

comply with the Programmatic Biological Opinion (PBO) for the Santa Rosa Plain (USFWS 2007). Although none of the listed plants covered in the PBO were found on the property during the five years of surveys (Appendix B), the seasonal wetlands on site represent potentially suitable habitat for these species, the loss of which would require mitigation in the form of restoration or enhancement of habitat under the PBO. Therefore, mitigation for loss of potential vernal pool habitat would be at the reduced ratio of 1.5:1 as per the PBO. This would be achieved through coordination with Santa Rosa Horn, LLC for the purchase of available seasonal wetland credits at a local mitigation bank either at the Windmill Site (4515 Santa Rosa Avenue) or the Lone Oak Site (4407 Petaluma Hill Road).[1]

All on-site seasonal wetlands would be removed during the development of the project, thus there would be potentially significant impacts to seasonal wetland habitat. With implementation of Mitigation Measure BIO-4, impacts to sensitive natural communities would be reduced to a less than significant level.

Mitigation Measures

The following new mitigation measure is required. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measure for development on the project site.

BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan

Impacts to seasonal wetland/vernal pool habitat shall be offset through purchase of credits by the applicant at an agency (USFWS, CDFW, RWQCB, and USACE) approved mitigation bank for creation or enhancement of sensitive natural communities that covers the vernal pool plants at a 1.5:1 ratio per the PBO for the Santa Rosa Plain. If the project falls outside of agency approved mitigation bank service areas, impacts to sensitive natural communities shall be offset through habitat restoration and/or enhancement at an off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted). Final acreage requirements will be determined in consultation with each individual permitting agency (USFWS, CDFW, RWQCB, and USACE). The location of restoration and/or enhancement shall be determined by a qualified biologist. The restoration and/or enhancement shall include locally native species approved by the Town. The restoration and/or enhancement shall be incorporated into an Off-Site Habitat Restoration/Enhancement Plan to be developed by a qualified biologist pursuant to the requirements listed below.

Upon final project design, a qualified biologist shall be retained by the applicant to determine the final impacts to sensitive communities and the subsequent amount of acreage needed for restoration and/or enhancement for the project. The project applicant shall implement restoration and/or enhancement for a period of not less than five years, or until restoration and/or enhancement has been completed successfully as determined by a qualified biologist in coordination with the Community Development Department. The Off-Site Habitat Restoration/Enhancement Plan shall include, at a minimum, the following components:

a) Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);
b) Goal(s) of the compensatory mitigation project (i.e., the type/types and area/areas of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type/types to be established, restored, enhanced, and/or preserved);

[1] The available credits and banks were confirmed with a letter from the applicant dated July 8, 2022,to the Town.

c) Description of the proposed compensatory mitigation-site (i.e., location and size, ownership status, existing functions and values of the compensatory mitigation-site);
d) Implementation plan for the compensatory mitigation-site (the plan will include rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan, including plant species to be used, container sizes, and seeding rates);
e) Maintenance activities during the monitoring period, including weed removal and irrigation as appropriate (the plan will include activities, responsible parties, and schedule);
f) Monitoring plan for the compensatory mitigation-site, including no less than quarterly monitoring for the first year; the plan will include performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports;
g) Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type;
h) An adaptive management program and remedial measures to address negative impacts to restoration efforts;
i) Notification of completion of compensatory mitigation and agency confirmation; and
j) Contingency measures (e.g., initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).

Significance After Mitigation

Implementation of Mitigation Measure BIO-4 would reduce potential impacts to sensitive natural communities to a less-than-significant level by requiring the offset of lost sensitive natural communities through the purchase of mitigation credits at the Windmill Site or the Lone Oak Site mitigation banks or through habitat restoration and monitoring of restored or created habitats.

Threshold 3:	Would the project have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact BIO-3 IMPLEMENTATION OF THE PROJECT WOULD IMPACT POTENTIALLY JURISDICTIONAL STATE OR FEDERALLY PROTECTED WETLANDS DURING CONSTRUCTION AND/OR OPERATION. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION.

The project would result in fill within the potentially jurisdictional seasonal wetlands on the project site. According to project plans, all on site wetlands (1.43 acres) would be filled and/or otherwise eliminated. Because the seasonal wetlands are in upland areas, lack riparian vegetation, and do not redirect the natural course of a stream, the features are unlikely to be under CDFW jurisdiction pursuant to Section 1600 et seq. of the CFGC. A request for a PJD was submitted to the USACE on May 24, 2019, for the seasonal wetlands. The USACE issued a PJD and verified map indicating that all 1.43 acres of seasonal wetlands within the project site are potentially subject to USACE jurisdiction under Section 404 of the CWA on July 29, 2019 (see Appendix B). Therefore, the project applicant would likely be required to apply for a permit under Section 404 of the CWA for impacts to waters of the U.S.

The seasonal wetlands may also be considered waters of the State and fall under the jurisdiction of the RWQCB pursuant to section 401 of the CWA. As such, because impacts to the seasonal wetlands are expected, the RWQCB would require a Waste Discharge Requirements (WDRs) permit and/or

Section 401 Water Quality Certification (depending upon whether or not the feature falls under federal jurisdiction). As the project is currently proposed all seasonal wetlands would be removed and impacts would be potentially significant. Compensatory mitigation for loss of these wetlands would be required at the ratio described above in Mitigation Measure BIO-4. Therefore, implementation of Mitigation Measure BIO-4 would reduce impacts to State and federally protected waters to a less-than-significant level.

Mitigation Measures

Mitigation Measure BIO-4 is required to reduce impacts to less than significant. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose Mitigation Measure BIO-4 for development of the project.

Significance After Mitigation

Implementation of Mitigation Measures BIO-4 would reduce potential impacts to federally or State protected wetlands to less-than-significant levels by requiring compensatory mitigation for loss of wetlands at an agency approved mitigation bank or at an appropriate off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted).

Threshold 4:	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?

Impact BIO-4 IMPLEMENTATION OF THE PROJECT WOULD NOT IMPACT WILDLIFE MOVEMENT DUE TO THE LOCATION OF THE PROJECT SITE IN AN AREA OF EXISTING DEVELOPMENT AND AGRICULTURAL USE. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

No significant wildlife movement corridors or habitat linkages are present in the project site. Due to the relatively small size of the project footprint, and its location within existing development and agricultural use, the project would not interfere substantially with the movement of wildlife species. Impacts to wildlife movement would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures included in the 2040 General Plan EIR would not be required.

Threshold 5:	Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact BIO-5 IMPLEMENTATION OF THE PROJECT WOULD BE SUBJECT TO THE TOWN'S ORDINANCES AND REQUIREMENTS PROTECTING BIOLOGICAL RESOURCES, SUCH AS TREES. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The project would be subject to the 2040 General Plan and Town of Windsor Zoning Ordinance policies related to tree preservation. According to the *Arborist Report* prepared by Horticultural Associates (September 2020), the project site contains 107 trees, 75 of which would be removed for development of the project due to project design or poor condition of the trees. This includes several non-native species such as blue gum eucalyptus, green wattle tree, and Aleppo pine. Additionally, 35 native trees such as coast live oak, valley oak, black oak, and California bay laurel,

with trunk diameter over six inches are planned for removal. Pursuant to Chapter 27.36 of the Town of Windsor's Zoning Ordinance, these native species are considered protected. Policy ER-6.7 of the 2040 General Plan states that if tree preservation is not feasible, the project applicant would be required to plant replacement trees or pay an in-lieu fee.

For each of the 35 protected trees planned for removal, replacement of the removed trees to avoid a reduction in tree canopy cover would be required by the Town of Windsor's *Tree Preservation and Protection Ordinance* (Zoning Ordinance Chapter 27.36) and Policy ER-6.7 of the 2040 General Plan. Additionally, all tree removal in the Town is subject to review, approval, and permit issuance by the Town's Community Development Director. If replacement planting and/or payment of the tree removal mitigation fee is completed and appropriate permits are obtained for necessary removal of protected trees, no conflicts with local policies or ordinances protecting biological resources are expected. Impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation as the project would be required to adhere to tree removal review requirements in the Town's Zoning Ordinance. New mitigation measures or mitigation measures included in the 2040 General Plan EIR would not be required.

Threshold 6:	Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Impact BIO-6 Implementation of the project within the Santa Rosa Plain Conservation Strategy Area would not conflict with the Plan, with implementation of Mitigation Measure BIO-4 to compensate for losses of seasonal wetlands habitat in accordance with the PBO for the Santa Rosa Plain. Impacts would be less than significant with mitigation.

The project site is located within the Santa Rosa Plain Conservation Strategy Area in the Windsor urban growth boundary (2005). The Conservation Strategy urban growth boundaries were designed to limit development in natural habitats and focus future growth within previously developed areas. Because the project site is located within the urban growth boundary, development of the project site would not conflict with the Conservation Strategy.

The USFWS has issued a PBO to the USACE for projects that may affect listed species on the Santa Rosa Plain (1998; updated 2007). In 2016 USFWS issued the Santa Rosa Plain Recovery Plan to provide a framework for the recovery of CTS, Burke's goldfields, Sonoma sunshine, and Sebastopol meadowfoam (USFWS 2016). As described above under Impact BIO-1, the project would not affect the listed species in the Santa Rosa Plain and would not conflict with these plans and conservation strategies. While the project site is located within the Conservation Strategy Area, the site is designated as "may adversely affect listed plants but would not likely adversely affect CTS." Therefore, implementation of Mitigation Measure BIO-4 would compensate for losses of seasonal wetlands habitat at a 1.5:1 ratio in accordance with requirements of the PBO for the Santa Rosa Plain. This compensatory mitigation would also reduce impacts to any listed plant species if they were present within the project site, as required by the Conservation Strategy. Therefore, no conflicts with state, regional, or local habitat conservation plans would occur, and impacts would be less than significant.

Mitigation Measures

Mitigation Measure BIO-4, described above, is required to reduce impacts to sensitive communities and wetlands to less than significant. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose Mitigation Measure BIO-4 for development on the project site.

Significance After Mitigation

Implementation of Mitigation Measure BIO-4 would reduce potential conflicts with the Conservation Strategy to less-than-significant levels by requiring compensatory mitigation for loss of wetlands at an agency approved mitigation bank or at an appropriate off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted).

4.1.4 Cumulative Impacts

A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (*CEQA Guidelines* Section 15065[a][3]). The geographic scope for cumulative biological resources impacts includes the areas surrounding the project site, including incorporated Town of Windsor lands and unincorporated Sonoma County lands. This geographic scope is appropriate for biological resources because it encompasses the mosaic of representative land cover and habitat types (and associated biological resources) affected by the project, including primarily urban, residential, commercial, and agricultural development with areas of natural habitats.

Development that is considered part of the cumulative analysis includes buildout of the County and Town General Plans as well as buildout of nearby projects as show in Table 3-1 in the Environmental Setting Section. Cumulative projects considered in this analysis include projects involving primarily residential, mixed-use, and commercial uses near the project site. The buildout of this project site in combination with the buildout of other surrounding projects were already considered as a part of the 2040 General Plan EIR and have been designed within the buildout density of that Plan. Cumulative development in the area could contribute to the loss of habitat for special-status species; contribute to the decline of special-status species; cause further fragmentation of habitat and isolation of populations; and decrease movement opportunities. Together, cumulative projects (both individual projects and full buildout of the Town of Windsor General Plan) cover a substantial area, primarily within or along the edges of previously developed areas. Cumulative impacts to biological resources would be potentially significant.

Project implementation would alter the undeveloped nature of the site to residential uses and the intensity of existing land uses. Although development in existing natural habitats on the project site would be minimal. Furthermore, surrounding project sites to be developed may support other special-status species that could also be impacted by the Project, such as migratory nesting birds or special-status bat species. Specifically, construction of the cumulative projects could result in:

- Trampling, and degradation of sensitive habitats
- Disruption of habitat values associated with edge habitat
- Degradation of wetlands, creeks, drainages, riparian habitat, water quality, associated habitat values and functions, and ecosystems services, including channelization of storm runoff that may increase stream flow, erosion, and sedimentation

- Disruption of wildlife utilization of biological resources for foraging, hydration, cover, shelter, aestivation/hybernacula, nesting and breeding, movement, dispersal, and migration, sensitive and native nesting birds, and special-status bats.
- Loss of sensitive natural communities, including seasonal wetlands.
- Introduction of litter (including human foods), urine and fecal matter, illegal off-leash dogs (causing harassment and mortality of wildlife).

Considered cumulatively, these impacts could result in degradation of habitat types and associated biological resources that occur within the Town. Therefore, cumulative construction impacts may result in overall diminished regional ecological functions and values. However, impacts to biological resources would be considered and mitigated on a project-by-project basis as required by the 2040 General Plan policies, the Town's Zoning Ordinance, and CEQA. Permanent losses of sensitive habitats, including sensitive natural communities and listed species, associated with cumulative development would be mitigated to the extent feasible to reduce impacts. As such, the project's contribution to cumulative impacts would be significant but mitigable, and after mitigation, would not be cumulatively considerable.

As discussed under Impact BIO-1, the project would have a substantial adverse effect on species identified as candidate, sensitive, or special-status. However, Mitigation Measures BIO-1 through BIO-3 would reduce project-level impacts to a less than significant level through pre-construction surveys, direct avoidance, and minimization. Therefore, with mitigation, the project would not have a cumulatively considerable contribution to the significant cumulative impact related to sensitive or special-status species. Additionally, adherence to 2040 General Plan policies would further reduce impacts of the project and other projects within the Town by requiring the protection of biological and ecological resources such as rare, threatened, or endangered species (Policy ER-6.1), and ensuring that project applicants adhere to required mitigation measures intended to protect biological resources included as a condition of project approval (Policy ER-6.5)

Implementation of the project would not have a substantial adverse effect on any riparian habitat or sensitive natural community following implementation of Mitigation Measure BIO-4, which requires offsets for sensitive natural community loss. Similarly, development facilitated by the project would not result in impacts to State or federally protected wetlands, following implementation of Mitigation Measure BIO-4, which requires compensation for loss of seasonal wetlands at an agency approved mitigation bank or creation of new wetlands. Therefore, with mitigation, the project would not have a cumulatively considerable contribution to the significant cumulative impact related to these resources. Additionally, 2040 General Plan policies would further reduce impacts of the project and other projects within the Town by requiring protection of wetlands, vulnerable habitats, vernal pools, and oak groves and woodlands (Policy ER-6.1), ensuring that project applicants adhere to required mitigation measures intended to protect biological resources included as a condition of project approval (Policy ER-6.5).

The project would not impact the movement of any native resident or migratory fish or wildlife species, or impede the use of wildlife nursery sites, as discussed under Impact BIO-4. The project would be required to comply with tree protection ordinances and requirements, as discussed under Impact BIO-5. Additionally, as discussed under Impact BIO-6, the project would not conflict with the Santa Rosa Plain Conservation Strategy. Therefore, the project would not have a cumulatively considerable contribution to a significant cumulative impact related to these resources.

4.2 Cultural Resources

This section evaluates the impacts of the project to cultural resources. The analysis in this section takes into account the cultural resources analysis contained in the 2040 General Plan EIR, supplemented by analysis of potential changes as proposed by the project. The analysis is based on a Cultural Resources Technical Report prepared by Rincon Consultants in 2021 which is included as Appendix C of this document.

4.2.1 Setting

a. Prehistoric Setting

The project site lies in the southern portion of the Northwest California archaeological region, known as the Russian River subregion (Moratto 1984). According to Hildebrandt (2007), the prehistoric cultural chronology for the area can be generally divided into four periods: The Pleistocene-Holocene Transition (ca. 11,500-8,000 B.C.) the Early Holocene (8,000-5,000 B.C.), Middle Holocene (5,000-2,000 B.C.), and the Late Holocene (2,000 B.C. - Contact).

Pleistocene-Holocene Transition

The earliest known archaeological finds in Northwest California are fluted-points, similar to the Clovis style, and chipped stone crescents, which are indicative of the Post Pattern. Finds dating to this time period are limited, including sites near Clear Lake and Cache Creek in Lake County and isolated finds in Mendocino County and at Bodega Head (Hildebrandt et al. 2007). The earliest represented site in the Russian River subregion is LAK-36, dating to approximately 10,000 B.C, and lies approximately 27 miles northeast of the project site (Moratto 1984).

Early Holocene

In Northwest California, the Early Holocene is characterized by the Borax Lake Pattern and the Berkeley Pattern. The Borax Lake Pattern is typically represented by large wide-stemmed projectile points, serrated bifaces, ovoid flake tools, hand stones, and millingslabs, though no faunal or floral remains have been identified at these sites, so diet composition remains unclear (Hildebrandt 2007). Borax Lake Pattern sites are found throughout the Northwest region and among several environmental contexts, including ridge tops (HUM-573, HUM-367), terraces (TRI-1008), the Clear Lake Basin (MEN-1711), and the Santa Rosa Plain (SON-20) (Hildebrandt 2007). Changes moving toward the Berkeley Pattern take place around 6500 B.C. The Berkeley Pattern is characterized by long-term settlements, contracting and square-stem points, and the use of pestles for acorn processing (Hildebrandt 2007).

Middle Holocene

In the Northwest Coast, the Mendocino Pattern is commonly found throughout the area and is categorized by side-notched, corner-notched, and concave-base points, as well as a variety of other stone tools. The Berkeley Pattern has also been recognized for this period, characterized by elaborate points, bone tools, baked clay items, and mortars and pestles. Most sites dating to this period are hunting camps or short-term forager residential areas, several of which were found along the Russian River (SON-572, SON-568, and SON-547), within the Santa Rosa Plain (SON-456 and SON-960), or within the Clear Lake Basin (LAK-72, LAK-261, and LAK-510) (Hildebrandt 2007).

Late Holocene

During the Late Holocene, the Northwest Coast Russian River subregion includes sites representative of the Augustine Pattern, with some sites showing a revival of the Berkeley Pattern. The Augustine Pattern is characterized by corner-notched projectile points and ornate ceremonial and decorative objects (Hildebrandt 2007). The archaeological record exhibits a high degree of diversity in material culture patterns, site types, and degrees of sedentism. Seasonal Augustine pattern sites have been identified along the Sonoma County Coast, though researchers have argued for a more sedentary settlement system inland (Hildebrandt 2007).

b. Ethnographic Overview

The project site lies within the traditional territory of the Southern Pomo. Southern Pomo territory extends roughly from Gualala south to Duncan's Point, and east to the Russian River (McLendon and Oswalt 1978). Southern Pomo is one of several Pomo dialect groups.

The Pomo were organized into a series of independent tribelets ranging in size from 100 to 2,000 people, with the most significant social unit being the kin group (Bean and Theodoratus 1978: 293). The Pomo participated in a clamshell disk bead exchange system internally and among other groups (Bean and Theodoratus 1978: 298).

Pomo subsistence was based on hunting, gathering, and fishing, with acorns as a primary staple (Bean and Theodoratus 1978: 293). Other important plant resources included Buckeye nuts, berries, and seeds from approximately 15 types of grasses, roots, and bulbs. Big game included deer, elk, and antelope. Material culture included obsidian and chert tools, intricate basketry, and bone and shell implements (Bean and Theodoratus 1978: 291).

c. Historic Context

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 – 1822)

Spanish explorers made sailing expeditions along the coast of what was then known as Alta (upper) California between the mid-1500s and mid-1700s. In 1542, while in search of the legendary Northwest Passage, Juan Rodríquez Cabríllo recorded a visit to the Santa Barbara area. Sebastian Vizcaíno also conducted exploration of the coast in 1602 and named the Santa Barbara Channel when his ship entered it on the feast day of Saint Barbara (Kyle 2002). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

By the 18th century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic period,

occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá that same year, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823. The Santa Barbara presidio was established in 1782, and the Santa Barbara Mission was founded four years later (Graffy 2010).

The mission and presidio relied on Chumash labor; eventually, the majority of the native population lived at the mission complex (Cole 1999). Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822 – 1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810 – 1821) against the Spanish crown reached California in 1822. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955). This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833.

This act federalized mission lands and enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made approximately 700 land grants between 1833 and 1846, putting most of the state's lands into private ownership for the first time (Shumway 2007). During this era, a class of wealthy landowners known as rancheros worked large ranches based on cattle hide and tallow production. During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

Land grants marked the beginning of a profitable trade in cattle hide and tallow exports opened the way for larger, commercially driven farms. Land owned by the Spanish crown and clergy were distributed to mostly Mexican settlers born in California, or the "Californios." The ranchos these families operated were largely self-sufficient enterprises (partly out of necessity, given California's geographic isolation), producing goods to maintain their households and operations. The rancho system "dominate[d] California life for nearly half a century" (Poole 2002).

In 1846, the Mexican-American War was initiated following the annexation of Texas by the United States and a dispute over the boundary between the United States and Mexico. Governor Pío de Jesús Pico, the last governor of Alta California, began selling off 12 million acres of public land to fund the war. Mexican forces fought and lost to combined United States Army and Navy forces in

the Battle of the San Gabriel River on January 8 and in the Battle of La Mesa on January 9. On January 10, leaders of the pueblo of Los Angeles surrendered peacefully after Mexican General José María Flores withdrew his forces (Nevin 1978). On June 14, Lieutenant Colonel John C. Frémont captured Sonoma and raised the California Republic's Bear Flag over the town's plaza (Kyle 2002). Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to Frémont in the Treaty of Cahuenga (Nevin 1978).

American Period (1848 – Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore Stockton, and evaded Californian soldiers in Santa Barbara's Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as US territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom.

The influx of settlers in the mid-nineteenth century set in motion a variety of political, legal, and economic factors that began to erode the rancho system. A severe drought in the 1860s decimated cattle herds and drastically affected rancheros' source of income. The creation of the U.S. Land Commission in 1851 required that property owners prove the validity of their property titles, many of which had been granted relatively informally and without the benefit of formal survey. Property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

Local History

Settlement of the region that would become the Town of Windsor began around 1851 with the arrival of residents relocating from the Eastern United States and from Europe. One of the region's earliest prominent residents, Henry Bell arrived in 1852 and purchased 160 acres of land in the area, on which Windsor was later developed. Bell was a skilled carpenter, dairyman, farmer and was the area's first undertaker, offering embalming services out of his home (Ray 2004). The town was said to have been given its name in 1855 by Hiram Lewis, who compared the area's pastoral beauty to the grounds surrounding Windsor Castle in his native country of England. That year, a post office was established in the town, and Lewis became the first acting postmaster (Town of Windsor n.d.).

The commercial core of the town was first located on the east side of the main road between Santa Rosa and Healdsburg. In 1856 the town center consisted of blacksmiths' shops, a dry goods store, a grocery and meat market, a saloon, a hotel and barroom, a boarding house, confectionary shops, and a shoe shop. The railroad arrived in the area in 1872, passing through the west end of town. Local farmers benefitted from the new mode of transportation and new markets opened to them,

thus increasing the amount of crops cultivated (Town of Windsor n.d.). However, the arrival of the railroad also created a schism in the community as some of the townspeople wanted to relocate the town center to the west to be near the railroad line, while others wanted it to remain on the east side. The community split into East Windsor and West Windsor, and it would be many years before the community reunited (Ray 2004).

Early in the 20th century, some of Windsor's buildings were damaged or lost in two separate disasters: a fire in 1905, followed by the San Francisco earthquake the next year. A telephone system and electricity were brought to the town by 1911. The Old Redwood Highway, one of the area's dirt roads, was paved in 1915 using horse-drawn equipment and teams of laborers, who camped in Windsor (The Town of Windsor n.d.)

In 1942 the United States Army took over a property on which Sonoma County had developed a runway and expanded it to become the Santa Rosa Army Airfield, which was used primarily to train fighter groups and squadrons. At its peak, 300 to 500 aircraft and 10,000 personnel were based at the army airfield. The property converted back to a civil facility with the county resuming its operation in 1946 (Charles M. Schulz Sonoma County Airport 2011). Also, during World War II, a prisoner-of-war (POW) camp was established west of downtown Windsor and was reported to hold German POWs captured from submarine crews and members of the Afrika Korps. The POWs were put to work on local farms and were under lax surveillance, as the men were known to venture into local bars and towns such as Santa Rosa for the day. The camp closed shortly after the war ended (The Town of Windsor n.d.).

The Town of Windsor remained mostly agricultural until approximately 1980 when it experienced dramatic economic and population growth, as well as increased residential development. The Town of Windsor formally incorporated in 1992 (The Town of Windsor n.d.). Today, the Town of Windsor has approximately 27,900 residents and encompasses approximately 7.3 square miles of land (California Department of Finance 2021).

4.2.2 Regulatory Setting

This regulatory framework section identifies the federal, state, and local laws, statutes, guidelines, and regulations that govern the identification and treatment of cultural resources as well as the analysis of potential impacts to cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect cultural resources.

a. Federal Regulations

Resources listed in the National Register of Historic Places (NRHP) are considered historical resources for the purposes of CEQA. The NRHP was established by the National Historic Preservation Act of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (CFR 36 CFR 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture.

b. State Regulations

California Register of Historical Resources

The California Register of Historical Resources (CRHR) was created by Assembly Bill 2881, which was established in 1992. The CRHR is an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (Public Resources Code, 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (Public Resources Code, 5024.1(b)). Certain properties are determined by the statute to be automatically included in the CRHR by operation of law, including California properties formally determined eligible for, or listed in, the NRHP. The CRHR consists of properties that are listed automatically and those that must be nominated through an application and public hearing process.

Codes Governing Human Remains

The disposition of human remains is governed by Health and Safety Code Section 7050.5 and PRC Sections 5097.94 and 5097.98 and falls within the jurisdiction of the Native American Heritage Commission (NAHC). If human remains are discovered, the County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to PRC Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native Americans so they can inspect the burial site and make recommendations for treatment of the remains and associated grave goods.

c. Local Regulations

Section 27.20.060 of the Town of Windsor Zoning Ordinance pertains to historic preservation and conservation. The standards therein are intended to protect sites and structures identified by the community as historically significant, that contribute to Windsor's character and to identity, and that should be preserved and/or restored. The Council may designate an improvement, natural feature, or site as an historic landmark and any area within the Town as an historic district in compliance with Section 27.20.060, based on the Council's evaluation of the age of the structure, distinguishing characteristics, location in a geographically definable area, familiarity as a visual feature, or associations with significant achievements or significant geographical patterns, and/or similarity to other distinctive areas. The ordinance does not explicitly identify designation criteria, but states that the nominated district, site, or structure shall be placed on the Historic Register after being officially accepted by the Council.

In addition, Section 27.16.050 of the Town of Windsor Zoning Ordinance provides for the establishment of historic overlay zones, applied to protect structures, sites and areas that are reminders of past eras, events, and people important to the history of the Town. These areas provide significant examples of architecture and styles of the past, which are irreplaceable assets to the Town. These cultural resources are reminders of the Town’s unique heritage and its place in the development of the state and nation. Although the ordinance does not specify designation criteria, it establishes that a historic overlay may be applied to areas that have been identified as having special historical, architectural, or aesthetic interest or value.

d. 2040 General Plan Policies for Cultural Resources

The 2040 General Plan adopted in April 2018 contains goals and policies related to tribal cultural resources that are relevant to the project. Policy ER-7.2 ensures that archeological and historical resources are protected by ensuring resources would be appropriately identified and evaluated. Policy ER-7.3 protects Native American cultural resources by encouraging the identification and preservation of tribal cultural resources, traditional cultural landscapes, sacred sites, places, features, and objects. Policy ER-7.4 protects the treatment of human remains by ensuring that in the event of an encounter, no further disturbance occurs and that the Native American Heritage Commission is notified if the remains are determined to be Native American. Under Policy ER-7.5, development proposals must be referred to the Northwest Information Center of the California Archaeological Inventory, Native American Heritage Commission, local Native American Tribes, and Sonoma State University, for review and recommendations regarding supplemental field investigation. Policy ER-7.6 requires compliance with SB18 and AB52 by consulting with local Native American tribes on potential disturbance, recovery and preservation of tribal cultural resources, including development of strong consultation protocols with appropriate Native American tribes. Policy ER-7.9 advances public education efforts regarding the history and heritage of the area by requiring coordination with the County, the Northwest Archaeological Information Center, local historical societies, and appropriate Native American tribes. Policy ER-7.10 protects prehistoric and historic resources by requiring all discretionary proposals to consider the potential to disturb significant prehistoric and historic resources. If the preliminary reconnaissance suggests that significant resources or tribal cultural resources may exist, further survey and evaluation would be required by a qualified professional. In the event that resources are Native American, the appropriate Native American tribes would participate with the qualified professional. Mitigation measures would be required for any significant impacts identified for important cultural resources. Where tribal resources are involved, further consultation with the appropriate tribes is required under AB52. These measures would comply with the California Environmental Quality Act.

4.2.3 Background Research

a. Cultural Resources Records Search

On July 9, 2021, Rincon requested a records search of the project site and a 0.5-mile radius from the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC) located at Sonoma State University. On August 5, 2021, Rincon received the results of the records search for the proposed project. The purpose of the records search was to identify previously conducted cultural resources studies and previously recorded cultural resources located within the project site and a 0.5-mile radius. In addition to the NWIC records search, a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, the Built Environment Resource Directory, and the Archaeological Determinations of Eligibility list was conducted. A non-confidential list of these studies and resources is included in Appendix C.

As described in Appendix C, the cultural resources records search identified three previously recorded cultural resources within a 0.5-mile radius of the project site, one of which occurs within the project site. P-49-004535 includes the existing farmstead with a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c.1950 prune dryer; fences and gates; and a Eucalyptus grove. The farmstead was found not have significance

under any criteria (A/1 – D/4), and recommended ineligible for inclusion on the NRHP and CRHR (Hibma 2021). Additionally, six isolated prehistoric artifacts were identified in 2005; however, the artifacts were not formally recorded. The artifacts consisted of obsidian flakes and modified stones. Five of the artifacts were collected for further laboratory testing during the identification (Greene 2005); therefore, the five artifacts are no long existent within the project site. Based on the presence of these prehistoric artifacts, there is the potential to identify other previously unrecorded or identified prehistoric materials within the project site.

b. Previous Environmental Documentation

The project site has been subject to previous environmental review. Twenty-one previously conducted cultural resources studies have occurred within a 0.5-mile radius of the project site, two of which include portions of the current project site (S-030462 and S-041287). These reviews have addressed cultural resources in various capacities and are discussed further below.

S-030462

Richard Greene of Archaeological Resource Service prepared study S-030462, *A Cultural Resources Evaluation of the Property at 1295 Jensen Lane, Windsor, Sonoma County, California (APN 162-020-004*), in 2005. The study included a records review of NWIC records, a SLF request, historical reference review, and a pedestrian survey of the 15.2-acre study site. The study was conducted to determine the if the development of 62 single family homes would impact cultural resources. Greene (2005) stated that, prior to the study, the project site had not been previously studied for cultural resources. The pedestrian survey for the study consisted of linear transects spaced five to ten meters apart across the study area, identifying six isolated prehistoric artifacts on the surface (an obsidian flake and five modified stones). Greene's (2005) personal communication with the landowner noted that multiple projectile points has been previously collected on the property throughout the years. However, the number, types, and location of the artifacts collected by the landowner is unknown. Greene did not record the artifacts as a prehistoric archaeological site. Five of the six identified artifacts were collected for examination at the Archaeological Resource Service Lab. As surficial artifacts were identified, Greene (2005) recommended that spot checks be performed during initial ground disturbance. Additionally, Greene (2005) noted a farm complex, stating that many of the buildings and structures were dilapidated; ultimately, Greene recommended that the complex is not historically significant. Although it was included in the study, the farm complex was not formally recorded or evaluated. The study included the entirety of the project site as it was proposed in 2005, encompassing 15.2 acres of the 17.17-acre parcel.

S-041287

E. Timothy Jones of LSA Associates, Inc., prepared study S-041287, *Cultural Resources Study for the Jensen Lane Elementary School Project EIR, Windsor, Sonoma County, California (LSA Project #WUS1001,* in 2010. The study included a cultural and paleontological resources review of the project site, and included records search review of NWIC records, an SLF request, literature review, a review of formation maps, an archaeological field survey, and a historical architectural resources survey. The study included the project site as then proposed, encompassing 12 acres of the 17.17-acre parcel.

The archaeological field survey was conducted using zig-zag transects approximately 10 meters apart. Naturally occurring obsidian and three isolated culturally modified flakes were observed during the archaeological field survey (Jones 2010). Jones did not record the artifacts as a

prehistoric archaeological site. Due to the presence of culturally modified flakes, and previously identified prehistoric artifacts within the study area, Jones (2010) concurred with Greene's (2005) assessment that subsurface archaeological deposits may exist, and recommended archaeological monitoring for the project.

Jones (2010) formally recorded the historic-era farmstead (P-49-004535) on California Department of Parks and Recreation 523 Series forms (DPR), and evaluated the resource. The historical architectural survey of the farm complex noted modifications to the residential building, as well as minimal alterations to the six associated buildings and structures. While the DPR form does not feature a status code, it concluded that the property was not eligible for listing in the NRHP or the CRHR under any criteria (Hibma 2010). Although the farmstead retains integrity of location and association, structural additions and modifications compromise the integrity of setting, feeling, and workmanship; for these reasons, Jones (2010) concluded that the resource is not eligible for listing in the NRHP or the CRHR, concurring with the findings of Greene (2005); no further built environmental analysis was recommended.

In 2018, Jones provided a supplemental report to his 2010 report that included an updated records search, SLF, and a site visit. Jones (2018) noted that the condition of the property had not changed since 2010 and concluded it still did not qualify as a historical resource due to its compromised integrity.

c. Sacred Lands File Search

Rincon contacted the NAHC on July 9, 2021, to request a Sacred Lands File (SLF) search of the project site. As part of this request, Rincon asked the NAHC to provide a contact list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of Tribal heritage resources at the project site and/or in the vicinity. The NAHC emailed a response on July 27, 2021, stating the SLF search was positive. In their response, the NAHC provided a list of 14 tribes who may have knowledge of cultural resources within the project site. The SLF search can be found in Appendix C.

4.2.4 Field Survey

As described in Appendix C, the field survey was conducted on August 12, 2021, by Rincon Consultants. An intensive level survey was conducted across the southern portion of the project site, consisting of 3.80 acres. A reconnaissance level survey was conducted across the northern portion of the project site, consisting of 13.9 acres. The survey examined exposed ground surfaces for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock [FAR]), ecofacts (bone), and soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were visually inspected.

The survey identified one isolated culturally modified obsidian flake (Jensen-ISO-1) within the project site. The cultural resources specialist attempted to relocate the previously identified prehistoric artifacts not collected by Greene in 2005; the artifacts were not relocated during the field survey. An additional survey objective was to determine if a prehistoric archaeological site was located on the project site. However, Rincon was unable to discern the presence of a prehistoric archaeological site during the current survey efforts due to the amount of vegetation on the surface which limited the ground visibility. The built environment features were photographed and updated on DPR 523 series forms.

4.2.5 Impact Analysis

a. Methodology and Significance Thresholds

Consistent with the *CEQA Guidelines*, impacts related to Cultural Resources would be considered potentially significant if implementation of the project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5;
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to *CEQA Guidelines* Section 15064.5; or
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

The significance of an archaeological deposit and subsequently the significance of an impact are determined by the criteria established in the *CEQA Guidelines*. If an archaeological resource does not meet either the historical resource or the more specific "unique archaeological resource" definition, impacts do not need to be mitigated [13 PRC 15064.5 (e)]. Where the significance of a site is unknown, it is presumed to be significant for the purpose of the EIR investigation.

Impacts to tribal cultural resources in the 2040 General Plan EIR are shown in Table 2-2 in Section 2, Project Description. Impacts to impact historical and unique archaeological resources were found to be less than significant with Mitigation Measures CUL-1 and CUL-2 to a cultural resources study for applicable projects and consult with local tribes. Both mitigation measures have been fulfilled for the project. Impacts from ground-disturbing activities resulting in the potential disturbance of human remains were found to be less than significant with Mitigation Measure CUL-4 to unanticipated discovery of human remains.

Threshold 1:	Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?
Threshold 2:	Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Impact CUL-1 THE PROJECT SITE CONTAINS ARCHAEOLOGICAL RESOURCES AND COULD POSSIBLY BE A PREHISTORIC ARCHAEOLOGICAL SITE. ALTHOUGH THE FARMSTEAD DOES NOT QUALIFY AS A HISTORICAL RESOURCE, MITIGATION MEASURES CUL-1 THROUGH CUL-3 WOULD BE REQUIRED TO REDUCE IMPACTS TO HISTORICAL RESOURCES TO A LESS THAN SIGNIFICANT LEVEL. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

As described above in 4.2.3a *Cultural Resources Records Search*, the CHRIS search identified one resource (P-49-004535) recorded as a former farmstead consisting of a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c. 1950 prune dryer; fences and gates; and a Eucalyptus grove. Additionally, prehistoric artifacts have been identified within the project site; however, the artifacts were never formally recorded, and the majority were collected for testing. Rincon was unable to relocate the artifacts not previously collected within the project site during the current survey efforts for the project.

Pursuant to *CEQA Guidelines* Section 15064.5(b), a significant effect on the environment would occur if a project causes a substantial adverse change, or materially impairs, the significance of a historical resource. Material impairment occurs when a project involves demolition or alteration in

an adverse manner of those physical characteristics which convey a resources historical significance and justify its eligibility for the CRHR or a local register (*CEQA Guidelines* Section 15064.5(b)). Previous environmental documentation as well as the field study conducted by Rincon concluded that P-49-004535 is not recommended eligible for listing in the NRHP or CRHR due to its lack of historical significance under each of the evaluative criteria in addition to its diminished integrity, and does not qualify as a historical resource as defined at Public Resources Code Section 21084.1. Since P-49-004535 does not qualify as historical resource, its demolition would not constitute an impact pursuant to CEQA.

The SLF search conducted by the NAHC returned positive results and the cultural resources records search identified a prehistoric site within the surrounding vicinity of the project site. As discussed above under 4.2.3b, *Previous Environmental Documentation*, Greene (2005) and Jones (2010) noted the presence of naturally occurring "float" obsidian and chert within the project site. The pedestrian survey conducted by Rincon in August 2021 also identified an abundant amount of naturally occurring "float" obsidian and chert, and a single culturally modified obsidian flake on the surface. Although Rincon did not identify evidence of a prehistoric archaeological site on the surface of the project site, given the lack of development of the project site, poor ground visibility, prehistory of the area, the presence of culturally modified flakes on the surface, and known prehistoric sites within the vicinity, the project site is considered sensitive for archaeological resources. Implementation of mitigation measures CUL-1 through CUL-3 would ensure significant impacts to archaeological resources be mitigated to a less than significant level.

Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measures for development on the project site.

CUL-1 Worker's Environmental Awareness Program

A qualified archaeologist shall be retained by the applicant to conduct a WEAP training on archaeological sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The training shall be conducted by an archaeologist who meets or exceeds the Secretary of Interior's Professional Qualification Standards for archeology (National Park Service [NPS] 1983). Archaeological sensitivity training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find.

CUL-2 Archaeological and Native American Monitoring

Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983). Native American monitoring shall be provided by a locally affiliated Tribal member(s). Monitoring shall be paid for by the applicant. Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Tribal monitoring or both may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced

to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

CUL-3 Unanticipated Discovery of Cultural Resources

In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, following Archaeological and Native American monitoring reduction, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983) will be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative will be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources (CRHR) eligibility at expense of the applicant. If the discovery proves to be eligible for listing in the CRHR and cannot be avoided additional work, such as testing and data recovery excavations, may be warranted to mitigate any significant impacts to cultural resources to less than a significant level in consultation with locally affiliated Tribal member(s).

Significance After Mitigation

Impacts would be less than significant with implementation of new mitigation measures to conduct worker environmental awareness training, conduct monitoring during construction, and protocol for unanticipated discovery of cultural resources.

Threshold 3:	Would the project disturb any human remains, including those interred outside of formal cemeteries?

Impact CUL-2 RECORDS SEARCH RESULTS IDENTIFY A PREHISTORIC SITE OUTSIDE OF THE PROJECT SITE. THE PROJECT SITE ALSO CONTAINS ARCHAEOLOGICAL RESOURCES AND POSSIBLY BURIED HUMAN REMAINS. SINCE THE PROJECT WOULD INVOLVE GROUND DISTURBANCE, MITIGATION MEASURE CUL-4 WOULD BE REQUIRED TO REDUCE IMPACTS TO HUMAN REMAINS. IMPACTS WOULD BE LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED.

The project site contains obsidian flakes and prehistoric artifacts on the surface. A previous NWIC search also identified a prehistoric site outside of the project site (P-49-001136). Rincon was unable to discern the presence of a prehistoric archaeological site during the pedestrian survey due to the amount of vegetation on the surface which limited the ground visibility. However, since prehistoric archaeological sites often contain human remains, and project buildout would involve ground disturbing activities, the project site is considered sensitive for archaeological resources.

Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the California PRC. The California Health and Safety Code (Section 7050.5, 7051, and 7054) has specific provisions for the protection of human burial remains. Existing regulations address the illegality of interfering with human burial remains, and protect them from disturbance, vandalism, or destruction. They also include established procedures to be implemented if Native American skeletal remains are discovered. PRC Section 5097.98 also addresses the disposition of Native American burials, protects such remains, and established the NAHC to resolve any related disputes. Adherence to existing regulations as well as implementation of Mitigation Measure R-4 from the 2040 General Plan EIR would ensure impacts to human remains be reduced to a less than significant level.

Mitigation Measures

The project would be required to adhere to Mitigation Measure CUL-4 from the 2040 General Plan, as shown below.

CUL-4 Human Remains

In the unlikely event of an unanticipated discovery of human remains, all ground disturbing activities in the vicinity of the discovery shall be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be implemented including contracting the Sonoma County Department Coroner. If the human remains are determined to be prehistoric, the coroner shall notify the NAHC, which will determine and notify a mostly likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowners within 48 hours of being granted access.

Significance After Mitigation

Impacts would be less than significant with adherence to State regulations and Mitigation Measure CUL-4 from the 2040 General Plan EIR.

4.2.6 Cumulative Impacts

The analysis of cumulative impacts for cultural resources relates to whether project impacts and nearby proposed projects, considered together, may substantially impact and/or diminish historical and archaeological resources Required implementation of Mitigation Measures CUL-1 through CUL-4 has identified in this section would reduce impacts on the project site to a less than significant level. Cultural resources impacts are considered site specific because individual cultural resources occur on project sites. As such, the project would mitigate for any potential impacts on the project site and would not contribute to cumulative impacts on cultural resources. In addition, individual development proposals such as those shown in Table 3-1 Section 3.0, *Environmental Setting*, are reviewed separately by the appropriate jurisdiction and undergo environmental review when it is determined that the potential for significant impacts exist. In the event that future cumulative projects would result in impacts to known or unknown cultural resources, impacts to such resources would be addressed on a case-by-case basis. All individual projects would also be subject to Town of Windsor policies and local and state regulations regarding the protection of cultural resources. Therefore, with adherence to Mitigation Measures CUL-1 through CUL-4, the project would not result in a cumulatively considerable impact related to cultural resources.

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4.3 Transportation/Circulation

This section evaluates the impacts of the project on the local transportation system and vehicle miles traveled (VMT) in the region. The analysis in this section takes into account the transportation analysis contained in the 2040 General Plan EIR, supplemented by analysis of potential changes as proposed by the project. The analysis is based on a Traffic Impact Study prepared by W-Trans in August 2022, which is included as Appendix D of this document.

4.3.1 Setting

The existing transportation-related context for the project is described below.

a. Existing Street Network

Regional

Regional access to the project site is provided by Highway 101, which is approximately three miles west of the site.

Street Intersections within Project Site

The project site is within the northeastern portion of the Town of Windsor surrounded by residences and agricultural lands. Intersections are typically the most critical element within a roadway system because they are the points where opposing and intersecting streams of traffic must all be served, and the locations where the majority of vehicular delay occurs along a corridor. A variety of right-of-way controls exist to direct traffic through intersections. The study area for the traffic analysis was selected to include all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby generators or attractors. The road network surrounding the site includes the following intersections that were analyzed for the project:

- **Hembree Lane/Vinecrest Road** is a three-legged all-way stop-controlled intersection. A marked crosswalk is present on the east leg and bicycle lanes are available on all legs of the intersection.
- **Vinecrest Road/Vinecrest Circle** is a three-legged two-way stop-controlled intersection with stop control on the southbound Vinecrest Circle approach. Marked crosswalks do not exist at this intersection but a westbound bicycle lane is present on the west leg of the intersection.
- **Hembree Lane/Jensen Lane** is a "T" intersection with stop controls on all approaches. Marked crosswalks are available on the north and east legs while bicycle lanes exist on the north and south legs of the intersection. The intersection also includes a western Jensen Lane leg that is closed to vehicular traffic, but open for pedestrians and bicyclists.
- **Hembree Lane/Old Redwood Highway** is a signalized intersection with protected left-turn phasing on the northbound and southbound Hembree Lane approaches and protective-permissive left-turn phasing with flashing yellow arrow operation on eastbound and westbound approaches on Old Redwood Highway. Marked crosswalks exist on the north, south, and east leg of the intersection and bicycle lanes are present on all four legs.

Collision History

The collision history surrounding the site was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System reports. The calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same urban environment, with the same number of approaches, and the same controls. Collision data from over a five-year period from August 1, 2016, through July 30, 2021, was used for the four study intersections. No collisions occurred at the Vinecrest Road/Vinecrest Circle nor the Hembree Lane/Jensen Lane intersections. However, there was one collision at the Hembree Lane/Vinecrest Road intersection and eight collisions at the Hembree Lane/Old Redwood Highway intersection. Table 4.3-1 includes the collision rates for the four intersections. As shown in Table 4.3-1, the collision rates for the Hembree Lane/Vinecrest Road and the Hembree Lane/Old Redwood Highway intersections exceed the statewide average collision rate by 0.04 and 0.03 collisions per million vehicles entering, respectively. In 2019, the Town upgraded the signal at the Hembree Lane/Old Redwood Highway intersection to include a flashing yellow arrow operation to signal that left turns are permitted but vehicles must yield to oncoming traffic prior to turning. No broadside collisions other collision types involving left-turns from Old Redwood Highway have occurred since the signal was upgraded. Specific collision details at the intersections are included in Appendix D.

Based on signal modifications made by the Town in 2019 and the minimal amount by which the average statewide rate is exceeded, there are no apparent collision trends indicative of a potential safety concern at any of the intersections.

Table 4.3-1 Collision Rates for the Study Intersections

Intersection	Number of Collisions (2016-2021)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
Vinecrest Road/Vinecrest Circle	0	0	0.09
Hembree Lane/Jensen Lane	0	0	0.07
Hembree Lane/Vinecrest Road	1	0.11	0.07
Hembree Lane/Old Redwood Highway	8	0.27	0.24

Notes: c/mve = collisions per million vehicles entering
Source: W-Trans, Traffic Impact Study, Appendix D

b. Project Traffic Conditions

Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic operation a development adds to the surrounding roadway system. In the Transportation Impact Study, W-Trans calculated the trip generation of the proposed project. The Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021 for "Single Family Detached Housing" (ITE Land Use # 210) was used for the project. As shown in Table 4.3-2 and described in Appendix D, the

project is expected to generate an average of 292 trips per day, including 22 trips during the morning (AM) peak hour and 29 during the evening (PM) peak hour.

Table 4.3-2 Trip Generation Summary

Land Use	Units	Daily Rate	Daily Trips	AM Peak Hour Rate	AM Peak Hour Trips	AM Peak Hour Trips IN	AM Peak Hour Trips Out	PM Peak Hour Rate	PM Peak Hour Trips	PM Peak Hour Trips In	PM Peak Hour Trips Out
Single Family Detached Housing	31 DU	9.43	292	0.70	22	6	16	0.94	29	18	11

Source: W-Trans, Traffic Impact Study, Appendix D

Project Trip Distribution

The new trips generated by the development of the project were allocated to the street network based on an analysis of existing turn movements (Appendix D). The applied distribution assumptions and the number of trips is shown in Table 4.3-3.

Table 4.3-3 Trip Distribution

Route	Percent	Daily Trips	AM Trips	PM Trips
Hembree Lane north of Vincent Road	24%	69	5	7
Old Redwood Highway northwest of Hembree Lane	30%	87	7	9
Old Redwood Highway southeast of Hembree Lane	28%	83	6	8
Hembree Lane south of Old Redwood Highway	18%	53	4	5

Source: W-Trans, Traffic Impact Study, Appendix D

c. Pedestrian Conditions

Pedestrian facilities include crosswalks, sidewalks, pedestrian signals, and off-street paths, which provide safe and convenient routes for pedestrians to access destinations such as institutions, businesses, public transportation, and recreation facilities.

Existing Pedestrian Facilities

A connected pedestrian network does not currently exist along Vinecrest Road near the project site. There is a gap in the sidewalk network on the south side of the street along the entire Estates at Ross Ranch frontage, though connected sidewalks are present on the north side.

Pedestrian Safety

Collision records were reviewed from August 1, 2016, through July 30, 2021, to identify pedestrian-involved collisions. No pedestrian collisions were reported at the study intersections.

d. Bicycle Conditions

There are four categories of classified bikeways as defined in the Caltrans *Highway Design Manual*:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, striped buffers, or on-street parking.

Existing Bicycle Facilities

In the project area, Class II bike lanes exist on Vinecrest Road between Hembree Lane and Vinecrest Circle as well as on Hembree Lane between Arata Lane-Foothill Drive and Shiloh Road. As described in the Transportation Impact Study, Class II bicycle lanes on Vinecrest Road are planned to be extended as part of the *Windsor Bicycle and Pedestrian Master Plan* (2014) to the east as a Class III bicycle route between Vinecrest Circle and Vinecrest Road, which includes the project frontage. Additional planned bicycle facilities include Class III bicycle routes on Foothill Drive, Class III bicycle routes on the entire east-west length of Jensen Lane, and a Class I Jensen Trail along the north-south segments of Jensen Lane. The Class I trail is referred to as the Jensen Lane East Connector and is further described in the 2018 Class I Bicycle and Pedestrian Trails Study. A portion of this trail is adjacent to the project.

Bicyclist Safety

Collision records were reviewed from August 1, 2016, through July 31, 2021, to identify bicyclist-involved crashes. No bicyclist collisions were reported at the study intersections.

e. Transit Facilities

Transit service providers in the project site vicinity include the Windsor Unified School District and Sonoma County Transit (SCT). The Windsor Unified School District provides school bus services, while the SCT provides fixed-route bus services for the Town. Each service is described below.

Windsor Unified School District

The Windsor Unified School District provides school bus services throughout Windsor to all its school campuses. For the morning home-to-school trip, Route 5 provides service from residences in the northeastern part of the Town to Windsor Middle School, Brooks Elementary School, and Mattie Washburn Elementary School. The buses for this route operate between 7:00 a.m. and 8:20 a.m. with a scheduled stop at the intersection of Vinecrest Road/St. James Place at 7:07 a.m. During the afternoon, Route 4 provides school-to-home bus service between 2:15 p.m. and 4:25 p.m. and is scheduled to stop at the intersection of Vinecrest Road/St. James Place at 3:29 p.m.

Sonoma County Transit

SCT provides fixed-route bus services in the Town of Windsor and within the County of Sonoma. The transit stop nearest the project site is located on Hembree Lane near Vinecrest Road and is served by SCT Route 66 which is a loop route that runs along Hembree Lane. The buses for this route are currently operating with approximately one-hour headways between 7:45 a.m. and 5:00 p.m. from Monday through Saturday. Two bicycles can be carried on most SCT buses. Bike rack space is on a first-come, first-served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Sonoma County Transit Paratransit is designed to serve the needs of individuals with disabilities within the Town of Windsor and the greater Sonoma County area.

4.3.2 Regulatory Setting

a. State Regulations

State Senate Bill 375

Senate Bill (SB) 375, signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the California Air Resources Board (CARB) to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, CARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. On March 22, 2019, the regional targets were updated (CARB 2021).

The Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC) were assigned targets of a 10 percent reduction in GHGs from transportation sources by 2020 and a 19 percent reduction by 2035. On October 21, 2021, ABAG and MTC adopted the most recent RTP/SCS, called Plan Bay Area 2050, to meet the assigned reduction targets through implementation of housing, economic, transportation, and environmental measures (ABAG/MTC 2021).

State Senate Bill 743

SB 743 was signed into law by Governor Brown in 2013 and tasked OPR with establishing new criteria for determining the significance of transportation impacts under CEQA. SB 743 requires the new criteria to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." It also states that alternative measures of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

On September 27, 2013, California Governor Jerry Brown signed SB 743 into law and started the process to change transportation impact analysis as part of CEQA compliance. SB 743 required the Governor's OPR to identify new metrics for identifying and mitigating transportation impacts within CEQA. In January 2018, OPR transmitted its proposed CEQA Guidelines implementing SB 743 to the California Natural Resources Agency for adoption, and in January 2019 the Natural Resources Agency finalized updates to the *CEQA Guidelines*, which incorporated SB 743 modifications, and are

now in effect. SB 743 changed the way that public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (Public Resource Code, Section 21099 (b)(2)). In addition to new exemptions for projects consistent with specific plans, the *CEQA Guidelines* replaced congestion-based metrics, such as auto delay and level of service (LOS), with VMT as the basis for determining significant impacts, unless the Guidelines provide specific exceptions.

California Building Code

California provides minimum standards for building design through the California Building Code, which is located in Part 2 of Title 24 of the California Code of Regulations. The California Building Code is based on the 1997 Uniform Building Code with modifications specific for California conditions. The California Building Code provides fire and emergency equipment access standards for public roadways, which include specific width, grading, design and other specifications for roads which provide access for fire apparatus. Street modifications in the Town of Windsor are subject to these and other modified State standards. The current standards are the 2019 edition of the California Building Code, which the Town adopted on November 20, 2019.

b. Regional

Metropolitan Transportation Commission

The current RTP/SCS produced by ABAG and MTC, Plan Bay Area 2050, was adopted on October 21, 2021. The Plan sets forth regional transportation and land use policy, and provides capital program planning for all regional, State, and federally funded projects. In addition, the Plan provides strategic investment recommendations to improve regional transportation system performance through the year 2050, including investments in regional highway, transit, local roadway, bicycle, and pedestrian projects. Transportation projects programmed in the vicinity of Windsor include the extension of the Sonoma-Marin Area Rail Transit train from the Sonoma County Airport in Santa Rosa to Windsor though the timing for its arrival in Windsor is currently uncertain. The Plan also programs Countywide funding for roadway rehabilitation, improved transit headways, safe routes to school projects, and bicycle-pedestrian improvements.

c. Local

Town of Windsor 2040 General Plan

The Transportation and Mobility Element of the Town of Windsor 2040 General Plan contains the following policies and actions relevant to the proposed project:

- **Policy M-1.1. Multimodal Transportation System**. The Town shall continue to implement a multimodal transportation system that connects residents to activity centers throughout and near town, such as commercial centers and corridors, employment centers, the SMART train stop, the airport, schools, parks, recreation areas, and other attractions.
- **Policy M-1.3. Development of Pedestrian, Bicycle, and Transit Facilities**. The Town shall encourage the development of facilities and services (e.g., secure long-term bicycle parking, street lights, street furniture and trees, transit stop benches and shelters, and street sweeping of bike lanes) that enable bicycling, walking, and transit to become more widely used modes of transportation and recreation.

- **Policy M-1.4. Multimodal System Additions**. The Town shall require all new development that proposes or is required to construct or extend streets to develop a transportation network that complements and contributes to the town's multimodal system, maximizes connections, and minimizes barriers to connectivity.
- **Policy M-2.1. Complete Streets Design Guidelines**. The Town shall ensure that the concepts and design standards/guidelines in the adopted Complete Street Design Guidelines are considered during review of new development proposals, when constructing new streets, and when modifying existing corridors in order to ensure accessibility for all.
- **Policy M-2.6. Complete Street Urban Design Considerations**. The Town shall consider the land use and urban design context of adjacent properties in both residential and non-residential districts as well as urban, suburban, and rural areas when designing complete streets.
- **Policy M-2.8. Review Transportation Facilities for Development Proposals**. The Town shall consider on-site and off-site transportation facility improvements during the review of development proposals to ensure that connected facilities are provided for all modes of transportation.
- **Policy M-2.10. Bicycle and Pedestrian Connectivity**. The Town shall ensure that commercial and residential development, including affordable housing projects, provides convenient and direct connections to the nearest existing bikeways, pedestrian ways, and public transit facilities.
- **Policy M-3.7. Street Connections in New Developments**. The Town shall promote street designs in new developments that provide convenient connections to local destinations and to adjacent neighborhoods. Travel should be dispersed among several streets rather than a few high-volume local streets that divide neighborhoods and discourage walking.

Additionally, Figure M-1, of the 2040 General Plan Circulation Element, includes an extension of Jensen Lane as a new Rural Lane. The extension of Jensen Lane stretches from Vinecrest Road to Pleasant Road, which would improve circulation and provide another access point to Old Redwood Highway.

4.3.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Analysis Methodology

Pursuant to California Public Resources Code section 21099(b(2) and *CEQA Guidelines* Section 15064.3, "a project's effect on automobile delay shall not constitute a significant environmental impact." Therefore, this analysis uses the metric of VMT to analyze transportation-related impacts consistent with Senate Bill 743 and the *CEQA Guidelines*. Because the City has updated its CEQA thresholds in accordance with these state regulations, this analysis does not make significance conclusions with respect to changes to Levels of Service. The Town of Windsor has not yet adopted standards of significance for evaluating VMT. Therefore, guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory* was used to determine project VMT impacts.

Vehicle Miles Traveled

VMT refers to the amount and distance of automobile travel "attributable to a project." VMT re-routed from other origins or destinations as the result of a project would not be attributable to a project except to the extent that the re-routing results in a net increase in VMT. Daily VMT per capita is the average number of vehicle miles that a resident in a given area travels per day.

Prior Environmental Analysis Section 4.14, *Transportation*, of the 2040 General Plan EIR analyzed proposed buildout under the 2040 General Plan in relation to traffic and pedestrian conditions. The 2040 General Plan EIR does not address VMT since traffic-related impacts were addressed using level of service, which was the accepted approach at the time of publication. Therefore, VMT instead of level of service is used to address traffic-related impacts in this analysis. All the CEQA checklist items listed under *Significance Thresholds* are addressed in this analysis.

Significance Thresholds

For purposes of this Supplemental EIR, development facilitated by the project may have a significant adverse impact in respect to transportation and circulation if implementation of the project would:

1. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
2. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
3. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment); or
4. Result in inadequate emergency access.

Project VMT Threshold

According to OPR's Technical Advisory on Evaluating Transportation Impacts, a 15 percent reduction in VMT per capita from existing development is "generally achievable" and supportive of State goals to reduce GHG emissions (OPR 2018). However, State guidance allows localities to set their own VMT standards based on substantial supporting evidence. OPR recommends evaluating VMT impacts using an efficiency-based version of the metric, such as VMT per resident for residential developments or VMT per worker for office or other employment-based developments.

The Town of Windsor has not yet adopted VMT thresholds and the VMT significance threshold for the project is based on the Sonoma County per-capita VMT average. The Sonoma County Transportation Authority (SCTA) operates and maintains the regional travel demand model that produces baseline VMT estimates. The VMT thresholds and projections applied in this analysis reflect the current SCTA model as of October 2021. Based on output from the SCTA model, the existing average residential VMT per capita in the County of Sonoma is 16.60 miles. Therefore, a 15 percent reduction would set the VMT significance threshold for this analysis at 14.11 miles. The project would have a potentially significant impact on VMT if its projected residential VMT per capita exceeds 14.11 miles.

2040 General Plan EIR Environmental Assessment

Impacts to transportation and traffic in the 2040 General Plan EIR are shown in Table 2-2 in Section 2, *Project Description*. In the 2040 General Plan EIR, adverse impacts to transportation and traffic would occur if the buildout of the 2040 General Plan would conflict with applicable transportation plans for the circulation system; conflict with applicable congestion management programs; result

in a change in air traffic patterns, increase traffic-related hazards due to design feature or incompatible uses; result in adequate emergency access; or conflict with adopted policies or plans for alternative transportation. Under Impact T-1, the development of the 2040 General Plan would increase traffic at certain locations in Windsor, which would conflict with the performance of the circulation system and applicable congestion management programs. However, with implementation of Mitigation Measure T-1, which requires intersection improvements to maintain acceptable operations, this impact would be reduced to less than significant. For Impacts T-2, T-4, and T-5, the development facilitated by the 2040 General Plan would not result in a change in air traffic patterns, would not result in adequate emergency access, nor would it conflict with adopted policies relating to alternative transportation modes. These impacts would be less than significant without mitigation. However, the development proposed under the 2040 General Plan would increase traffic queuing at certain intersections that would exceed the acceptable queuing levels. Even with the queuing improvements proposed under Mitigation Measure T-2, the intersections would continue to operate at unacceptable levels, and the impact would be significant and unavoidable.

Since the adoption of the 2040 General Plan EIR, the thresholds of significance based on Appendix G of the CEQA Statue have been updated and transportation impacts must be evaluated using VMT pursuant with CEQA Guidelines Section 15064.3. Therefore, this analysis uses the significance thresholds described above.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Impact TRA-1 THE PROJECT WOULD NOT CONFLICT WITH APPLICABLE POLICIES ADDRESSING TRANSIT, BICYCLE, AND PEDESTRIAN FACILITIES. IMPACTS RELATED TO TRANSIT, BICYCLE AND PEDESTRIAN FACILITIES WOULD BE LESS THAN SIGNIFICANT.

Pedestrian Facilities

Pedestrian facilities along Vinecrest Road end west of the project site. As discussed in the Transportation Impact Study (Appendix D), project development would involve the construction of sidewalks along the project frontage to connect to the existing sidewalk network. Furthermore, new sidewalks would be constructed on both sides of the Prince George Way street extension and on the west side of Jensen Lane along the eastern project frontage as part of the project. Sidewalks would also be provided on site on both sides of Portland Way. Offside widening of the sidewalk on the north side of Prince George Way between Vancouver Lane and the project site would occur. Additional pedestrian facilities would be provided to the south of Jensen Lane as additional development is constructed in the future. The sidewalks would be required to be constructed pursuant with the Town's *Complete Street Design Guidelines*. Pedestrian connectivity to and from the project site would be adequate in the near-term and improve in the future. Therefore, the project would be generally consistent with Town policies related to pedestrian facilities, and this impact would be less than significant.

Bicycle Facilities

Class II bike lanes are located on Vinecrest Road between Hembree Lane and Vinecrest Circle as well as on Hembree Lane between Arata Lane-Foothill Drive. The Class II bicycle lanes on Vinecrest Road are planned to be changed to Class III bicycle routes between Vinecrest Circle and Vinecrest Road.

As part of its frontage improvements, the project would develop Vinecrest Road to include sufficient space to accommodate the Class III bike route planned for the future in the *Windsor Bicycle and Pedestrian Master Plan* (2014) in addition to completing the Class I Jensen Trail along the western side of Jensen Lane. Bicyclists would be able to access the surrounding bike network via existing bike lanes on Vinecrest Road, Hembree Lane, Arata Lane, and Old Redwood Highway. Existing and planned bicycle facilities would provide adequate access for bicyclists (Appendix D). Therefore, the project would be consistent with Town policies related to bicycle facilities, and this impact would be less than significant.

Transit Facilities

The Windsor Unified School District provides school bus service for all school campuses in Windsor and SCT provides a fixed-route bus service for the public. For those who are unable to independently use the transit system due to a disability, SCT also offers Dial-a-ride, which is a public transit door-to-door service. There is a school bus stop at Saint James Place, which is within a walking distance of one-half of a mile west of the project site. The nearest SCT bus stop is three quarters of a mile west of the project site on Hembree Lane (Appendix D).

The project involves the development of a residential subdivision with 31 single-family residences, which would not generate a substantial increase in new demand for transit services. However, with the completion of the sidewalks along Vinecrest Road, residents would be able to walk to the school bus stop and the SCT bus stop mentioned above. The existing public transit and school bus routes are adequate to accommodate the additional demand generated by the project, and existing bus stops accessible via continuous sidewalks are within an acceptable walking distance of the site (Appendix D). Therefore, the project would be generally consistent with Town policies related to transit facilities, and this impact would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation. Neither new mitigation measures or mitigation measures included in the 2040 General Plan EIR would be required.

Threshold 2:	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Impact TRA-2 THE PROJECT WOULD NOT MEET THE APPLICABLE SIGNIFICANCE THRESHOLD FOR VMT. EVEN WITH MITIGATION MEASURE TRA-1, THE PROJECT WOULD NOT FALL BELOW THE APPLICABLE VMT PER CAPITA THRESHOLD. IMPACTS WOULD BE SIGNIFICANT AND UNAVOIDABLE.

As described in Section 4.3.1, *Setting*, the 2040 General Plan EIR did not discuss existing residential VMT per capita since LOS was the preferred methodology at the time of the analysis. In compliance with SB 743 and *CEQA Guidelines* Section 15064.3, this analysis uses the metric of VMT to analyze transportation-related impacts. The significance threshold for residential VMT per capita is 14.11 (Appendix D). This analysis includes VMT reductions from the project's mini roundabout at the intersection of Vinecrest Road and Portland Way.

Table 4.3-4 summarizes the project VMT findings in the Traffic Impact Study. As shown in Table 4.3-4, the project's residents are anticipated to have a VMT per capita of 15.56. This exceeds the applied significance threshold of 14.11 VMT per capita. To meet the VMT target, the project's VMT would need to be reduced by 13.4 percent. The 2040 General Plan EIR does not include mitigation measures to reduce VMT. Therefore, the project would result in new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR. Implementation of Mitigation Measure TRA-1 would be required to reduce VMT impacts from the project.

Table 4.3-4 VMT Traffic Findings

VMT Metric	Countywide Baseline VMT Rate	Significance Threshold (15% Below Countywide Average)	Project Rate VMT	Exceed Threshold?
Residential VMT per Capita	16.60	14.11	15.56	Yes

Source: W-Trans, Traffic Impact Study, Appendix D

Mitigation Measures

The following new mitigation measure is required. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measure for development on the project site.

TRA-1 Vehicle Miles Traveled Reductions

The applicant shall implement the following measures aimed at achieving a reduction in overall vehicle trips to and from the site:

- **Bulbouts**: The project applicant shall incorporate bulbouts at new or reconfigured intersections.
- **Pedestrian Network Improvements**: The project applicant shall construct an enhanced pedestrian crossing including a refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.

Significance After Mitigation

Modest VMT reductions can be achieved through implementation of traffic calming measures, included in Mitigation Measure TRA-1, within the project site and on nearby streets since these measures tend to improve pedestrian and bicycle circulation and safety, while incentivizing travel by non-auto modes. A project's VMT may also be reduced by making off-site improvements to pedestrian and bicycle networks. Even with incorporation of the measures included in Mitigation Measure TRA-1, VMT per capita would not be reduced by 13.4 percent. Mitigation Measure TRA-1 would result in a 0.5 to 1.0 percent reduction in VMT. These reduction percentages are not enough to reduce the overall project VMT per capita by 13.4 percent. Incorporation of affordable housing units for individuals and families in lower income categories is a potential measure to further reduce VMT. The project location and zoning do not permit the necessary density to offset the costs of development and construction. In addition, 15 percent of units as low-income would only reduce the project's overall VMT per capita by approximately 1.5 percent. Accessory dwelling units (ADU) are another means available to reduce project VMT. However, for ADUs to reduce VMT, net residential density would need to exceed 9.1 dwelling units per acre (DUA). The project would have a density of 1.81 DUA assuming an ADU and Junior ADU on all 31 parcels. Therefore, project density with ADUs would not the exceed 9.1 DUA required to reduce VMT. Therefore, requiring the project

to include ADUs and/or Junior ADUs would not mitigate the projects impact to VMT even if every lot included such units.

Transportation Demand Management (TDM) strategies may be used as VMT mitigation measures. TDM refers to strategies that are intended to increase the efficiency of the transportation system and/or reduce demand on the system, particularly with respect to travel associated with single-occupancy passenger vehicles. TDM measures can be tailored to the project type and land use context in which a project is located. TDM can be used with residential projects and can include implementation of components such as rideshare matching, transit subsidies, reduced or priced parking supplies, and shuttles. However, TDM strategies would not achieve meaningful VMT reductions for this project for the following reasons:

1. TDM strategies that aim to shift travel to transit are reliant on the presence of convenient and frequent transit service; given the project's location in a low-density area near the urban fringe, it is unrealistic to presume that the area will ever be served by frequent bus service.
2. TDM strategies serving multiple users that require ongoing management and funding are difficult to implement without creation of some form of overseeing entity that can collect fees from residents, require relatively large potential user bases to achieve measurable reductions in VMT, and for strategies such as using dedicated shuttles can be prohibitively expensive for small projects; the project's small size and lack of common ownership among homes is not conducive to such measures.
3. Strategies involving reduced or priced parking are infeasible at the project site given readily available nearby on-street parking supplies beyond the project site and lack of convenient bus service to serve those who choose not to own a vehicle and instead use transit.

The following TDM strategies were considered for the project, but deemed to be limited in efficacy and feasibility:

1. Subsidized Transit Passes – Transit pass subsidies are a relatively common mitigation measure for multi-family housing, most often being implemented in areas with greater transit accessibility. While the project is one-half to three-quarters of a mile from a bus route operated by Sonoma County Transit line, its proximity to the urban edge suggests that the area is unlikely to ever be served by frequent transit service or multiple transit lines, and the ultimate effectiveness of providing subsidized transit passes is limited from a VMT reduction perspective. The project's relatively small number of units and single-family housing type without a common ownership entity also complicates the viability of establishing a transit subsidy program. Given these factors, subsidized transit passes are not included as a VMT reduction strategy.
2. Carsharing – Services such as Zipcar can provide a valuable incentive for some residents to forgo vehicle ownership. However, in a more suburban context, carsharing loses its effectiveness which explains why carsharing services are limited in suburban locations to places such as academic campuses with a high concentration of users. In this case and in consideration of the project's low density context, carsharing would likely have a negligible impact and is not included as a mitigation measure for the project.
3. Ridematching – Ridematching programs are cost-effective means to pair carpool and vanpool riders with each other. However, these programs are generally best suited based on an employee's job location rather than home location, which is the reason they are most commonly deployed by businesses as opposed to residences. While it is also possible for such programs to be overseen by a homeowner's association, the relatively small size of the project

would significantly limit its overall effectiveness. As such, ridematching is not included as a mitigation measure for the project.

4. Reduced Parking Supply – The amount of parking provided in a residential development can be correlated with its generation of VMT. Therefore, in some cases a reduction in the parking supply below zoning requirements (or the calculated peak demand) can lower VMT. This strategy is most effective in areas well-served by transit, where space for onsite parking is physically limited, and where alternative free parking options do not exist nearby. None of these conditions exist in the project area and is not included as a mitigation measure for the project.

No other mitigation measures are feasible to reduce the impacts to less than significant. Therefore, impacts to VMT would remain significant and unavoidable.

Threshold 3:	Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

Impact TRA-3 THE PROJECT WOULD NOT INTRODUCE DESIGN FEATURES OR INCOMPATIBLE USES THAT COULD INCREASE TRAFFIC HAZARDS. HOWEVER, THERE WOULD BE INADEQUATE SIGHT DISTANCE AT THE VINECREST ROAD/PORTLAND WAY INTERSECTION. IMPLEMENTATION OF MITIGATION MEASURE TRA-2 WOULD BE REQUIRED. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT WITH IMPLEMENTATION OF MITIGATION MEASURE TRA-2.

In the Transportation Impact Study, the project's impacts on safety were evaluated. In particular, project site access, sight distance, queuing, and speed were reviewed.

Site Access

There would be no safety issues when accessing the project site. The primary access would be via Vinecrest Road, which would connect to Portland Way via a mini-roundabout. Additional access would be provided by extending Prince George Way eastward and connecting it to a new section of Jensen Lane along the eastern frontage. In the future, access to Pleasant Avenue (located approximately 0.8 miles south of the southern project boundary) would be available via a Rural Lane roadway linkage that would be developed between the southern section of Jensen Lane to Pleasant Avenue, as is shown in Figure M-1 of the Town's 2040 General Plan. The site would be accessible and future residents would be able to access Hembree Lane, Pleasant Avenue, and Old Redwood Highway. In addition, the project created intersections would function acceptably with no safety issues (Appendix D). Therefore, the project would not create adverse safety impacts, nor would the project create intersection safety concerns.

Sight Distance

Sufficient sight distance is generally anticipated to be available at new intersections created by the project (Vinecrest Road/Portland Way intersection, the Prince George Way/Portland Way and Prince George Way/Jensen Lane intersections), except on the southwest corner of Vinecrest Road/Portland Way. At the southwestern corner of the Vinecrest Road and Vinecrest Circle intersection there is a brick monument sign that says "Vinecrest Estates." This structure would be an obstruction for drivers looking to the west along Vinecrest Road while on Portland Way. It is recommended that the monument sign be relocated at least three feet behind the Vinecrest Road sidewalk that would be constructed. Implementation of Mitigation Measure TRA-2 would ensure that sufficient sight

distance would be established at the Vinecrest Road/Portland Way intersection. The sight distance requirements would also be reviewed by the Town as part of the subdivision improvement plan and building permit process and would ensure that the project meets the adequate sight distance requirements (Appendix D).

Queuing

Pursuant with the 2040 General Plan Policy M-3.17, intersection queuing was evaluated with the policy only applying to the Hembree Lane/Old Redwood Highway intersection since it is the only intersection that has a left-turn pocket at all four approaches. As described in the Traffic Impact Study, queues in left-turn pockets were determined using the SIMTRAFFIC application of Synchro and averaging the projected 95th percentile queues for ten simulation runs.

As shown in Table 4.3-5, the left-turn queues in the southbound Hembree Lane currently exceed the available storage threshold of 110 feet. During the AM and PM peak hours, the traffic generated by the project would increase the 95th percentile queue length by approximately four to six feet. However, it was determined that the queuing projections at southbound Hembree Lane are a non-safety issue since the average queue is 135 feet and the wait time is less than ten seconds. Furthermore, based on 2040 General Plan Policy M-3.17, the project's potential queue length addition of four to six feet is under the ten feet threshold and would not lead to a significant queuing impact. Therefore, even though, the queuing at the southbound left-turn pocket at Hembree Lane/Old Redwood Highway does exceed the available storage capacity and would increase further with addition of the project's traffic, adverse safety or operational effects are not anticipated (Appendix D).

Table 4.3-5 95th Percentile Left-Turn Queues at Hembree Lane/Old Redwood Highway

Study Intersection	Available Storage	AM Peak Hour E	AM Peak Hour E+P	AM Peak Hour F	AM Peak Hour F+P	PM Peak Hour E	PM Peak Hour E+P	PM Peak Hour F	PM Peak Hour F+P
Northbound Hembree Lane	160	80	82	122	119	110	112	157	158
Southbound Hembree Lane	110	**153**	**157**	**252**	**258**	62	71	**123**	**129**
Eastbound Old Redwood Highway	195	51	67	75	87	77	77	164	166
Westbound Old Redwood Highway	200	31	34	40	42	24	50	28	33

95th percentile queue based on the average of ten SIMTRAFFIC runs; all distances are measured in feet; E = existing conditions; E+P = existing plus project conditions; F = future conditions; F+P = future plus project conditions; future scenarios reflect worst-case without Jensen extension (Eastside Connector); **Bold** text = queue length exceeds available storage

Source: Appendix D

Vinecrest Road Speed

The project would not create adverse safety conditions on Vinecrest Road. Currently, the average daily traffic on Vinecrest Road is 2,100 vehicles with traffic traveling 37 miles per hour on the roadway (85th percentile speed). The project would increase daily volumes on Vinecrest Road by approximately 292 vehicles with the future estimated average daily traffic volume being 3,200

vehicles. Daily traffic generated by the project would be expected to travel at similar speeds as existing traffic and no collisions have occurred along this roadway in the last five years as shown in Table 4.3-1. In addition, the project would include a mini roundabout at Vinecrest Road and Portland Way. The mini roundabout would reduce speeds around the project site. Therefore, the project would improve traffic safety conditions along Vinecrest Road.

Accordingly, the project would not increase roadway hazards or introduce incompatible uses, including vehicles or equipment, to the site or the surrounding area. All impacts to site access, queuing, and road speed would be less than significant. For impacts related to sight distance, impacts would be potentially significant but with implementation of Mitigation Measure TRA-2 impacts would be reduced to less-than-significant.

Mitigation Measures

The following new mitigation measure is required. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measure for development on the project site.

TRA-2 Improving Sight Distance

To ensure that drivers have visibility to the west at the Vinecrest Road/Portland Way intersection, the applicant shall relocate the existing "Vinecrest Estates" monument. The monument shall be relocated at least three feet behind the new proposed Vinecrest Road sidewalk along the project frontage. The relocation of the monument shall be indicated in project site plans for review by the Town of Windsor staff.

Significance After Mitigation

With incorporation of Mitigation Measure TRA-2, adequate sight distance would be established at the Vinecrest Road/Portland Way intersection for future drivers. Therefore, impacts would be reduced to a less than significant level.

Threshold 4: Would the project result in inadequate emergency access?

Impact TRA-4 THE PROJECT WOULD NOT RESULT IN INADEQUATE EMERGENCY ACCESS TO THE PROJECT SITE AND WOULD NOT SUBSTANTIALLY AFFECT RESPONSE TIMES. THIS IMPACT WOULD BE LESS THAN SIGNIFICANT.

The adequacy of emergency access depends on site access to properties and the response times of emergency vehicles. The residences would be accessible via private driveways off of Portland Way, Jensen Lane, and Prince George Way. The project would also include an extension from Prince George Way to the east, directly north of lots 13 through 17 until the road extension would intersect with Jensen Lane. These three access points would be accessible for emergency vehicles and responders traveling to and from the project site. Furthermore, during emergency evacuations (e.g., wildfire threats), residents would be able to drive to Highway 101 since Vinecrest Road and Jensen Lane both provide roadway connections to streets that lead to Old Redwood Highway, a major arterial street that provides the onramps for Highway 101 (Appendix D). From the project site, residents would drive west on Vinecrest Road, turn south on Hembree Lane, drive south to Old Redwood Highway, turn west on Old Redwood Highway, and connect onto Highway 101's northbound or southbound on-ramps in Downtown Windsor. Alternatively, residents could drive west on Vinecrest Road, turn north on Hembree Lane, travel west on Arata Lane, and turn south on

Old Redwood Highway, which connects to northbound or southbound Highway 101 in Downtown Windsor. (Appendix D).

Additionally, the proposed project would be required to comply with all building, fire, and safety codes and specific development plans would be subject to review and approval by the Town's Public Works Department, Building and Safety Division, and Sonoma County Fire District Fire Marshal. Required review by these departments would ensure the circulation system within and around the project site would provide adequate emergency access. Based on the access and connectivity of the street network and compliance with applicable design requirements, there would be adequate emergency vehicle circulation and access. Therefore, the project would not result in any new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR. Impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures included in the 2040 General Plan EIR would not be required.

4.3.4 Cumulative Impacts

Development that is considered part of the cumulative analysis includes buildout of the County and Town General Plans as well as buildout of nearby projects as show in Table 3-1 in the Environmental Setting Section. Development of nearby projects have the potential to cumulatively impact bicycle, transit, and pedestrian facilities. As discussed in Impact TRA-1, the proposed project would be consistent with applicable policies addressing transit, bicycle, and pedestrian facilities, and would thus not have a cumulatively considerable impact.

Build out of the 2040 General Plan and projects shown in Table 3-1 would result in additional vehicle trips throughout the Town and greater Sonoma County region. Therefore, there would be a substantial increase in VMT and cumulative impacts would be significant. As discussed in Impact TRA-2, the proposed project would contribute to VMT in the Town and would have significant and unavoidable impact related to VMT, even with implementation of Mitigation Measure TRA-1. Therefore, the project would have cumulatively considerable VMT impacts.

Build out of the 2040 General Plan and projects shown in Table 3-1 would be required to adhere to Town regulations related to design and safety. Therefore, cumulative impacts related to traffic hazards would not be significant. As discussed under Impact TRA-3, the proposed project would not introduce design features or incompatible uses that could increase traffic hazards. The mini roundabout at the junction of Vinecrest Road and Portland Way would reduce traffic hazards and provide traffic calming in accordance with Town standards. The project would therefore not have a cumulatively considerable impact.

This cumulative analysis for this project considered emergency access for existing residents in the Town and County and impacts from build out of the 2040 General Plan and projects listed in Table 3-1. As described and shown in Table 3-1 of Section 3, *Environmental Setting*, there are several proposed residential projects in the vicinity of the project site, which may utilize the same roadways for emergency access. During the Kincade Fire the Town was evacuated and residents experienced congestion on local roadways heading out of Town that impacted emergency access. Development of projects near the project site would exacerbate congestion on identified evacuation routes. Therefore, impacts to emergency access from cumulative projects would be cumulatively significant. However, the project site would have multiple access points for emergency vehicles and for

evacuation from the project site. While evacuation of the project site would add vehicles to evacuation routes during an emergency the number of vehicles from 31 residences would not be cumulatively considerable. The project would have multiple access points and would not significantly contribute to vehicles on area roadways during evacuation and thus would not have a cumulatively considerable contribution to significant cumulative impacts related to emergency access.

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4.4 Tribal Cultural Resources

This section evaluates the impacts of the proposed project on tribal cultural resources. The analysis in this section takes into account the tribal cultural resources analysis contained in the 2040 General Plan EIR, supplemented by analysis of potential changes as proposed by the project.

4.4.1 Tribal Cultural Setting

a. Ethnographic Context

The project site lies within the traditional territory of the Southern Pomo. Southern Pomo territory extends roughly from Gualala south to Duncan's Point, and east to the Russian River (McLendon and Oswalt 1978). Southern Pomo is one of several Pomo dialect groups.

The Southern Pomo were organized societies largely based on kinship, which also included one's adult specialization. These societies consisted of independent tribelets ranging in size from 100 to 2,000 people, with the most significant social unit being the kin group (Bean and Theodoratus 1978: 293). This also allowed them to travel for trade between villages and ceremonial networks (McLendon and Oswalt 1978: 312). The Southern Pomo participated in a clamshell bead exchange system internally and among other tribal groups (Bean and Theodoratus 1978: 298) as a form of currency, as evidenced by their use and each clamshell bead held a different monetary value (McLendon and Oswalt 1978: 311).

Pomo subsistence was finely adapted to the environment around them for which they based their patterns on hunting, gathering, and fishing, with acorns, grains, pepperwood nuts, and buckeyes as primary staples to be stored year round (Bean and Theodoratus 1978: 293; McLendon and Oswalt 1978: 310). Although the steams and lake were abundant with fish throughout the year, the Southern Pomo focused their fishing efforts during spawning season when resources were in more shallow waters with larger quantities, often between February to April (McLendon and Oswalt 1978: 309). Other important plant resources included berries and seeds. The Southern Pomo divided their lands into family-owned tracts where hunting and gathering rights were exclusive to the members of the family that owned the tract, with limited permitted use to non-family members (McLendon and Oswalt 1978: 310). Additionally, plots of land around the community and the main villages were communally shared and tended to McLendon and Oswalt 1978: 310). Big game included deer, elk, and antelope. Material culture included obsidian and chert tools, intricate basketry, and bone and shell implements (Bean and Theodoratus 1978: 291).

Similar to the Eastern Pomo, the Southern Pomo participated in ceremonies in which they danced between the wilderness and the ceremony house to ensure food sources. Other ceremonies and rituals included initiation of the boys, ghost hollering, and spear and bear dances. During the spear or bear dances, the boys were shot in the navel with a spear as initiation, to which they awoke the next day and the ritual was intended to make the boys grow more quickly (McLendon and Oswalt 1978: 317).

Southern Pomo political organization is focused on a consensus of expectations and behaviors for the group unit which were passed down by the elders. There was no harsh punishment for those who strayed from the accepted behavior; however, those individuals were identified during ceremonies and the consequences of their actions was assigned during the ceremony. The political organization depended on the community and did not value one more than another, as they were

continually reminded by the group leader through their actions and behaviors (McLendon and Oswalt 1978: 318).

b. Sacred Lands File Search

Rincon contacted the Native American Heritage Commission on July 9, 2021, to request a Sacred Lands File (SLF) search of the project site. As part of this request, Rincon asked the NAHC to provide a contact list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of Tribal heritage resources at the project site and/or in the vicinity. The NAHC emailed a response on July 27, 2021, stating the SLF search was positive. In their response, the NAHC provided a list of 14 Tribes who may have knowledge of cultural resources within the project site. The SLF search can be found in Appendix C.

4.4.2 Regulatory Setting

This regulatory framework section identifies the federal, state, and local laws, statutes, guidelines, and regulations that govern the identification and treatment of Tribal cultural resources as well as the analysis of potential impacts to Tribal cultural resources. The lead agency must consider the provisions and requirements of this regulatory framework when rendering decisions on projects that have the potential to affect Tribal cultural resources.

a. State Regulations

Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category: Tribal Cultural Resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (Public Resources Code Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC Section 21084.3).

PRC Section 21074(a)(1)(A) and (B) defines TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and requires that they meet either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC Section 5020.1(k).
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section5024.1. In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American Tribe.

AB 52 also establishes a formal consultation process for California Tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American Tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American Tribes that have requested notice of projects proposed in the jurisdiction of the lead agency are to be included in the process. As of the date of publication of this Draft EIR, the Town of

Windsor and the Federated Indians of Graton Rancheria (FIGR) are continuing to engage in the AB 52 Tribal consultation process.

Codes Governing Human Remains

The disposition of human remains is governed by Health and Safety Code Section 7050.5 and PRC Sections 5097.94 and 5097.98 and falls within the jurisdiction of the NAHC. If human remains are discovered, the County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to PRC Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native Americans so they can inspect the burial site and make recommendations for treatment of the remains and associated grave goods.

b. Local Regulations

2040 General Plan

The 2040 General Plan adopted in 2018 contains goals, policies, and Mitigation Measures related to Tribal cultural resources that are relevant to the proposed Project. Policy ER-7.2 ensures that archaeological and historical resources are protected by ensuring resources would be appropriately identified and evaluated. Policy ER-7.3 protects Native American cultural resources by encouraging the identification and preservation of Tribal cultural resources, traditional cultural landscapes, sacred sites, places, features, and objects. Policy ER-7.4 protects the treatment of human remains by ensuring that in the event of an encounter, no further disturbance occurs and that the Native American Heritage Commission is notified if the remains are determined to be Native American. Under Policy ER-7.5, development proposals must be referred to the Northwest Information Center of the California Archaeological Inventory, Native American Heritage Commission, local Native American Tribes, and Sonoma State University, for review and recommendations regarding supplemental field investigation. Policy ER-7.6 requires compliance with SB18 and AB52 by consulting with local Native American Tribes on potential disturbance, recovery, and preservation of Tribal cultural resources, including development of strong consultation protocols with appropriate Native American Tribes. Policy ER-7.9 advances public education efforts regarding the history and heritage of the area by requiring coordination with the County, the Northwest Archaeological Information Center, local historical societies, and appropriate Native American Tribes. Policy ER-7.10 protects prehistoric and historic resources by requiring all discretionary proposals to consider the potential to disturb significant prehistoric and historic resources. If the preliminary reconnaissance suggests that significant resources or Tribal cultural resources may exist, further survey and evaluation would be required by a qualified professional. In the event that resources are Native American, the appropriate Native American Tribes would participate with the qualified professional. Mitigation measures would be required for any significant impacts identified for important cultural resources. Where Tribal resources are involved, further consultation with the appropriate Tribes is required under AB52. These measures would comply with the California Environmental Quality Act.

The 2040 General Plan also includes four Mitigation Measures for cultural and tribal resources: CR-1: Cultural Resources Study Implementation Program, CR-2: Tribal Cultural Resource Consultation, CR-3: Paleontological Resources Studies, and CR-4: Human Remains.

c. AB52 Tribal Consultation

For the 2040 General Plan EIR, on February 27, 2019, the Town of Windsor, pursuant to Public Resources 21080.3.1 and AB 52, sent via certified mail notification letters to five California Native American Tribes that are traditionally and culturally affiliated with the project area. The letter was sent to representatives of Federated Indians of Graton Rancheria (FIGR), Lytton Rancheria of California (Pomo), Kashia Band of Steward's Point (Pomo), Mishewal-Wappa Tribe of Alexander Valley, and the Dry Creek Rancheria Band of Pomo Indians. On March 6, 2019, the Kashia Band of Stewart's Point replied and stated that the project area is outside of their Tribal lands. On March 13, 2019, Lytton Rancheria responded to the request for consultation for the project and asked to review the IS-MND and provided suggested Mitigation Measures. On April 22, 2019, the FIGR responded to request consultation for the project stating that the project site is within the Tribe's Ancestral Territory, and they would review the project within 10 business days. No further response was received by the Town.

As a significant amount of time had passed, on November 3, 2021, the Town of Windsor, pursuant to Public Resources 21080.3.1 and AB 52, again sent via certified mail notification letters to four (4) California Native American Tribes that are traditionally and culturally affiliated with the project area. The letter was sent to representatives of Federated Indians of Graton Rancheria (FIGR), Lytton Rancheria of California (Pomo), Mishewal-Wappo Tribe of Alexander Valley, and the Dry Creek Rancheria Band of Pomo Indians. Pomo confirmed receipt of AB 52 consultation letter and project information on November 19, 2021, in which they agreed that archeological and/or tribal monitoring should be provided. FIGR again responded to the Town of Windsor and requested formal consultation for the project. The Town of Windsor responded on December 7, 2021 to open consultation. On December 14, 2021, the Town of Windsor and FIGR held a Tribal consultation meeting over zoom. In attendance with FIGR Tribal Historic Preservation Officer (THPO), Buffy McQuillan, and Tribal Representatives Gene Buvelot and Maureen Geary, Town of Windsor Planner Kimberly Jordan, and two representatives from Rincon, Kari Zajac and Dr. Amanda Harvey. The presence of prehistoric artifacts and the natural setting were discussed. The Tribe asked for a Mitigation Measure for a canine investigation to identify any possible buried human remains on the project area. They also agreed with the mitigation suggestion of archaeological and Tribal monitoring in Mitigation Measure CUL-2. A second consultation meeting between FIGR and the Town occurred on May 2, 2022. On July 7, 2022, FIGR confirmed review of and agreement with the proposed mitigation measures in the SEIR.

4.4.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Consistent with the *CEQA Guidelines*, impacts related to Tribal Cultural Resources would be considered potentially significant if implementation of the project would:

1) Cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is:
    a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

Impacts to Tribal cultural resources in the 2040 General Plan EIR are shown in Table 2-2 in Section 2, *Project Description*. Impacts to Tribal cultural resources were found to be less than significant with implementation of Mitigation Measures CR-1, CR-2, and CR-4, as included in Section 4.2, *Cultural Resources*.

b. Project Impacts and Mitigation Measures

Threshold 1:	Would the project cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?

Impact TCR-1 THE PROJECT SITE HAS BEEN IDENTIFIED AS A PREHISTORIC SITE AND DEVELOPMENT ON THE PROJECT COULD ADVERSELY IMPACT TRIBAL CULTURAL RESOURCES. MITIGATION WOULD BE REQUIRED TO REDUCE IMPACTS TO TRIBAL CULTURAL RESOURCES TO A LESS THAN SIGNIFICANT LEVEL.

The Sacred Lands File search conducted by the NAHC in support of this study returned positive results and the cultural resources records search identified a prehistoric site within the surrounding vicinity of the project site. Previous surveys identified culturally modified prehistoric artifacts throughout the project site, consisting of obsidian flakes and chert fragments. Beyond the culturally modified flakes and fragments, Green (2005) and Jones (2010) noted the presence of naturally occurring "float" obsidian and chert within the project site. Rincon concurs with previous studies by Greene (2005) and Jones (2010, 2018) and recommends a worker's environmental awareness program prior to work commencing, and archaeological and Native American monitoring during ground disturbing activities. The project is also required to adhere to regulations regarding the unanticipated discovery of human remains, including Health and Safety Code Section 7050.5 and Public Resources Code Sections 5097.94 and 5097.98. Additionally, 2040 General Plan Policies ER-7.2, ER-7.3, ER-7-10 would ensure that resources would be appropriately identified and evaluated, and that Native American cultural resources are protected. With adherence to the 2040 General Plan polices and Mitigation Measure TCR-1 and CUL-1 through CUL-3 impacts to Tribal cultural resources would be less than significant.

Mitigation Measures

The following new mitigation measure is required. This measure was not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measure for development on the project site.

TCR-1 Canine Investigation

Prior to any ground disturbing activities, the project applicant shall conduct a Canine Investigation of the project site using a K9 team trained in the identification of human remains. The Canine Investigation is a noninvasive method for the discovery of buried human remains. If the Canine

Investigation identifies human remains within the project site, the area in which the remains are identified shall be avoided. If the area cannot be avoided for the project, further consultation with the consulting Native American Tribes to create Mitigation Measures and/or a Burial Recovery Plan that shall be implemented is required. The project applicant shall retain a qualified cultural resources specialist to draft the Mitigation Measures and/or a Burial Recovery Plan.

Significance After Mitigation

Implementation of Mitigation Measures TCR-1-, and CUL-1 through CUL-3, included in Section 4.2, *Cultural Resources*, as well as adherence to the 2040 General Plan EIR Mitigation Measure CR-4 would reduce impacts related to Tribal cultural resources, as actions would be taken to identify, avoid, and retain identified Tribal cultural resources. Impacts would be less than significant with mitigation.

4.4.4 Cumulative Impacts

Development that is considered part of the cumulative analysis includes buildout of the County and Town General Plans as well as buildout of nearby projects as show in Table 3-1 in Section 3.0, *Environmental Setting*. While there is the potential for impacts to tribal cultural resources on the project site, the proposed project would not contribute to tribal cultural resources impacts outside of the project site and impacts to tribal cultural resources can be considered site specific. Additionally, development shown on Table 3-1 would be reviewed on a case-by-case basis and include consultation with local Native American tribes. The proposed project and projects listed in Table 3-1 would be subject to state regulations regarding the protection of such resources and policies in the 2040 General Plan related to tribal cultural resources. For example, Policy ER-7.3 would ensure the identification, preservation, and protection of Tribal Cultural Resources in consultation or coordination with the appropriate Native America tribes, and would ensure appropriate treatment of Native American and other human remains discovered during a project. Furthermore, all individual projects would be subject to local and state regulations including Health and Safety Code Section 7050.5 and Public Resources Code Sections 5097.94 and 5097.98. The project would be required to implement Mitigation Measures CR-1, CR-2, and CR-4 that would further reduce impacts to tribal cultural resources on the project site to ensure that the project would not contribute to any cumulative impacts to such resources. . Existing polices, regulations, as well as mitigation measures would require future development to avoid or mitigate the loss of tribal cultural resources. Impacts of the proposed project would be reduced to a less than significant level with implementation of the Mitigation Measures TCR-1 described above, and CUL-1 through CUL-3 described in Section 4.2, *Cultural Resources*. Therefore, the project would not result in a cumulatively considerable impact related to tribal cultural resources.

4.5 Wildfire and Hazards

The analysis in this section addresses the potential for the proposed project to exacerbate wildfire risks. The requirement to evaluate wildfire hazards was added to the California Environmental Quality Act (CEQA) Guidelines along with a number of revisions that went into effect in December 2018. The Town of Windsor 2040 General Plan EIR was adopted in April 2018, prior to the addition of this section to CEQA. However, the Hazards and Hazardous Materials section of the Town of Windsor 2040 General Plan EIR contains a discussion of wildfire.

4.5.1 Setting

a. Overview of Wildfire

A wildfire is an uncontrolled fire in an extensive area of combustible vegetation. Wildfires differ from other fires in that they take place in areas of grassland, woodlands, brushland, scrubland, peatland, and other wooded areas that act as a source of fuel, or combustible material. Buildings may become involved if a wildfire spreads to adjacent communities. The primary factors that increase an area's susceptibility to wildfire include slope and topography, vegetation type and condition, and weather and atmospheric conditions. Extreme wildfire events are expected to increase in frequency by 20 percent by 2050 and by 50 percent by the end of the century (County of Sonoma 2017). The Office of Planning and Research has recognized that although high-density structure-to-structure loss can occur, structures in areas with low- to intermediate-density housing were most likely to burn, potentially due to intermingling with wildland vegetation or difficulty of firefighter access. Fire frequency also tends to be highest at low to intermediate housing density, at least in regions where humans are the primary cause of ignitions (California Natural Resources Agency 2018). Zoning around the project site is low density housing, allowing up to six dwelling units per acre.

The indirect effects of wildfires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

Between 1964 and 2015, Sonoma County experienced 18 large or costly wildfires (County of Sonoma 2017). None of the 18 wildfires occurred within the Town limits, although the Hanley Fire (1964), Porter Creek Fire (1996), Oceguera Fire (2004), and unnamed 13,170 acre fire (1965) occurred within close proximity to the Town (Town of Windsor 2017). More recently, the 2017 Sonoma Complex Fires caused 24 deaths, burned over 112,000 acres, and destroyed about 5,300 homes, of which the Tubbs Fire portion burned approximately 1 mile east of the Town; the 2019 Kincade Fire burned over 77,000 acres, destroyed 374 structures, including 174 residences, and damaged 60 additional structures, including 34 residences, burning up to the edge of the Town (California Department of Forestry and Fire Protection [CAL FIRE] 2019a); the Glass Fire of 2020 burned over 67,000 acres, destroyed 1,555 structures, and damaged an additional 282 structures across both Napa and Sonoma counties, burning as close as approximately 2 miles east of the Town (CAL FIRE 2021a); and the LNU Lightning Complex fires of 2020 burned over 355,000 acres, destroyed 159 residences, and damaged an additional 10 residences in Sonoma County, burning as

close as approximately 6 miles west of the Town (Graff 2020). The mountainous, highly combustible areas in eastern Sonoma County have a Fire Hazard Severity Zone (FHSZ) ranking of "very high" (CAL FIRE 2007a) and, therefore, are most susceptible to wildfires. Very high FHSZs are located approximately five miles east, six miles west, and five miles north of the Town.

There are no wildfire hazard severity zones within Windsor (Town of Windsor 2017). The project site is not in a State Responsibility Area (SRA), or lands classified as Very High Fire Hazard Severity Zone (FHSZ) (CAL FIRE 2007a). However, the Town is directly adjacent to SRA lands classified as Moderate Fire Hazard Severity Zone. The Kincade Fire started north of Geyserville approximately 17 miles north of the project site and reached the closest point to the project site within five days. Spot fires from the Kincade Fire occurred on the project site. Further, the Tubbs Fire in 2017 burned as close as 2 miles southeast of the project site. The fire burned over 36,000 acres, destroyed 5,636 structures, damaged an additional 317 structures, and caused 22 deaths (CAL FIRE 2021b). The Tubbs Fire started in Calistoga, about 11 miles east from the project site and reached the closest point to the project site within three hours.

Slope and Aspect

According to CAL FIRE, sloping land increases susceptibility to wildfire because fire typically burns faster up steep slopes, and they may hinder firefighting efforts (CAL FIRE 2007b). Following severe wildfires, sloping land is also more susceptible to landslide or flooding from increased runoff during substantial precipitation events. Aspect is the direction that a slope faces, and it determines how much radiated heat the slope will receive from the sun. Slopes facing south to southwest will receive the most solar radiation; thus, they are warmer and the vegetation drier than on slopes facing a northerly to northeasterly direction, increasing the potential for wildfire ignition and spread (University of California 2018).

The project site slopes westerly at 0 percent to 5 percent, totaling about 35 feet of vertical relief from the northeast corner to southwest corner. There is a 20-foot-tall east to west ridge in the middle of the property that is inclined at 8 percent to 10 percent. Steeper slopes (greater than 15 percent) are more likely to experience fast wildfire spread, while flatter slopes (5 percent or less) are not as likely to experience fast wildfire spread. One half mile east-northeast from the project site is a southwesterly facing slope among oak woodland and savanna, with a maximum slope of approximately 63 percent and an average slope of approximately 17 percent.

Vegetation

Vegetation is fuel to a wildfire, and it changes over time with seasonal growth and die-back. The relationship between vegetation and wildfire is complex, but generally some vegetation is naturally fire resistant, while other vegetation is extremely flammable. It is worth noting that some plant types in California landscapes are fire resistant, while others are fire dependent for their seed germination cycles. Wildfire behavior depends on the type of fuels present, such as ladder fuels, surface fuels, and aerial fuels. Ladder fuels, such as low-lying tree branches or shrubs under the canopy of a large tree, provide a path for a surface fire to climb upward into the crowns of trees; surface fuels include grasses, logs, and stumps low to the ground; and aerial fuels include limbs, foliage, and branches not in contact with the ground (CAL FIRE 2021c). Weather and climate conditions, including drought cycles, can lead to dry vegetation with low moisture content, increasing its flammability. The project site contains trees, shrubs, and grasses. The site is surrounded on the east and south by pastures and vineyards, with hillsides of oak woodland and

savanna further north and east. The land to the north and west of the project site is developed with single-family residences.

Weather and Atmospheric Conditions

Wind, temperature, and relative humidity are the most influential weather elements in fire behavior and susceptibility (National Parks Service 2021). Fire moves faster under hot, dry, and windy conditions. Wind may also blow embers ahead of a fire (known as "ember cast"), causing its spread. Drought conditions lead to extended periods of excessively dry vegetation, increasing the fuel load and ignition potential.

The National Oceanic and Atmospheric Administration (NOAA) maintains a weather monitoring station in Santa Rosa, approximately three miles southwest of the project site. Most precipitation is received from November through March, with an average annual rainfall of approximately 34 inches (NOAA 2021a). May through September is the driest time of the year and coincides with what has traditionally been considered the fire season in California. However, increasingly persistent drought and climatic changes in California have resulted in drier winters, and fires during the autumn, winter, and spring months are becoming more common. Prevailing winds in Sonoma County are generally from the northwest to the southeast (NOAA 2021b). It is possible that burnt areas from future fires in the vicinity of the project site would increase up to 20 percent by 2085 (Town of Windsor 2017).

b. Wildfire Hazards

In California, responsibility for wildfire prevention and suppression is shared by federal, state, and local agencies. Federal agencies are responsible for federal lands in Federal Responsibility Areas. The State of California has determined that some non-federal lands in unincorporated areas with watershed value are of statewide interest and have classified those lands as SRA, which are managed by CAL FIRE (US Department of the Interior, US Department of Agriculture, and CAL FIRE 2018). All incorporated areas and other unincorporated lands are classified as Local Responsibility Areas (LRA). The project site is within an LRA.

CAL FIRE is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code Sections 4201-4204 and California Government Code Sections 51175-89). As described above, the primary factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. CAL FIRE maps fire hazards based on zones, referred to as FHSZs. CAL FIRE maps three zones in SRA: 1) Moderate FHSZs; 2) High FHSZs; and 3) Very High FHSZs. Only the Very High FHSZs are mapped in LRA. Each of the zones influence how people construct buildings and protect property to reduce risk associated with wildfires. Under state regulations, areas within FHSZs must comply with specific building and vegetation management requirements, described under Section 4.5.2, *Regulatory Setting*, intended to reduce property damage and loss of life within these areas.

Fire protection services in the Town of Windsor are provided by Sonoma County Fire District. The closest station to the project site is Sonoma County Fire District Station 1, located approximately 0.8 miles southwest.

4.5.2 Regulatory Setting

a. Federal Regulations

The Disaster Mitigation Act of 2000

The Disaster Mitigation Act of 2000 requires a state-level mitigation plan as a condition of disaster assistance. There are two different levels of state disaster plans: "Standard" and "Enhanced." States that develop an approved Enhanced State Plan can increase the amount of funding available through the Hazard Mitigation Grant Program. The Act also established new requirements for local mitigation plans.

National Fire Plan

The National Fire Plan was developed in August 2000, following a historic wildfire season. Its intent is to establish plans for active response to severe wildfires and their impacts to communities while ensuring sufficient firefighting capacity. The plan addresses firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability.

b. State Regulations

California Board of Forestry

The Board of Forestry maintains fire safe road regulations, as part of Title 14 of the California Code of Regulations (CCR). This includes requirements for road width, surface treatments, grade, radius, turnarounds, turnouts, structures, driveways, and gate entrances. These regulations are intended to ensure safe access for emergency wildland fire equipment and civilian evacuation.

California Fire and Building Codes (2019)

The California Fire Code (Fire Code) is Chapter 9 of CCR Title 24. It establishes the minimum requirements consistent with nationally-recognized best practices to safeguard public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structure, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. The Fire Code is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The Fire Code regulates the use, handling and storage requirements for hazardous materials at fixed facilities. The Fire Code and the California Building Code (CBC) use a hazard classification system to determine what protective measures are required to protect property and life from fire hazards. These measures may include construction standards, separations from property lines and specialized equipment. To ensure that these safety measures are met, the Fire Code employs a permit system based on hazard classification. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California.

More specifically, the Fire Code is included in Title 24 of the CCR. Title 24, part 9, Chapter 7 addresses fire-resistance-rated construction; CBC (Part 2), Chapter 7A addresses materials and construction methods for exterior wildfire exposure; Fire Code Chapter 8 addresses fire related

Interior finishes; Fire Code Chapter 9 addresses fire protection systems; and Fire Code Chapter 10 addresses fire related means of egress, including fire apparatus access road width requirements. Fire Code Section 4906 also contains existing regulations for vegetation and fuel management to maintain clearances around structures. These requirements establish minimum standards to protect buildings located in all FHSZs within SRAs and Wildland-Urban Interface (WUI) Fire Areas. This Fire Code includes provisions for ignition-resistant construction standards for new buildings.

Wildland-Urban Interface Building Standards

On September 20, 2007, the Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending the CCR Title 24, Part 2, known as the 2007 CBC. These codes include provisions for ignition-resistant construction standards in the Wildland-Urban Interface (WUI). WUI zones are split into three categories, depending on the severity of the FHSZ, surrounding vegetation, and housing density.

Interface zones are areas with dense housing adjacent to vegetation that can burn and meeting all of the following criteria:

1. Housing density class 2 (one house per 20 acres to one house per 5 acres), class 3 (more than one house per 5 acres to one house per acre), or class 4 (more than one house per acre)
2. In Moderate, High, or Very High Fire Hazard Severity Zone
3. Not dominated by wildland vegetation (i.e., lifeform not herbaceous, hardwood, conifer, or shrub)
4. Spatially contiguous groups of 30-meter cells[1] that are 10 acres and larger

Intermix zones are housing development interspersed in an area dominated by wildland vegetation and meeting all of the following criteria:

1. Not interface
2. Housing density class 2
3. Housing density class 3 or 4, dominated by wildland vegetation
4. In moderate, high, or very high fire hazard severity zone
5. Improved parcels only
6. Spatially contiguous groups of 30-meter cells 25 acres and larger

Influence zones have wildfire-susceptible vegetation up to 1.5 miles from an interface zone or intermix zone (CAL FIRE 2019b).

The California Fire Plan

The Strategic Fire Plan (Fire Plan) for California is the State's road map for reducing the risk of wildfire. The most recent version of the Fire Plan was finalized in August 2018 and directs each CAL FIRE Unit to revise and update its locally-specific Fire Management Plan (Management Plan) (CAL FIRE 2018). Management Plans assess the fire situation within each of the 21 CAL FIRE units and six contract counties and address wildfire protection areas, initial attack success, assets and infrastructure at risk, pre-fire management strategies, and accountability within their geographical boundaries.

[1] Note that "30-meter cells" refers to raster data, and indicates data is presented as 30-meter by 30-meter squares.

California Office of Emergency Services

The California Office of Emergency Services (CalOES) prepares the State of California Multi-Hazard Mitigation Plan (SHMP). The SHMP identifies hazard risks and includes a vulnerability analysis and a hazard mitigation strategy. The SHMP is federally required under the Disaster Mitigation Act of 2000 for the State to receive Federal funding. The Disaster Mitigation Act of 2000 requires a State mitigation plan as a condition of disaster assistance.

State Emergency Plan

The foundation of California's emergency planning and response is a statewide mutual aid system, which is designed to ensure that adequate resources, facilities, and other support is provided to jurisdictions whenever their own resources prove to be inadequate to cope with an emergency situation.

The California Disaster and Civil Defense Master Mutual Aid Agreement (California Government Code Sections 8555–8561) requires signatories to the agreement to prepare operational plans to use within their jurisdiction, and outside their area. These operational plans include fire and non-fire emergencies related to natural, technological, and war contingencies. The State of California, all State agencies, all political subdivisions, and all fire districts signed this agreement in 1950.

Section 8568 of the California Government Code, the "California Emergency Services Act," (Act) states that "the State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof." The Act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a City Manager. The provisions of the act are further reflected and expanded on by appropriate local emergency ordinances. The Act further describes the function and operations of government at all levels during extraordinary emergencies, including war.

All local emergency plans are extensions of the State of California Emergency Plan. The State Emergency Plan conforms to the requirements of California's Standardized Emergency Management System (SEMS), which is the system required by Government Code 8607(a) for managing emergencies involving multiple jurisdictions and agencies (CalOES 2021). The SEMS incorporates the functions and principles of the Incident Command System (ICS), the Master Mutual Aid Agreement, existing mutual aid systems, the operational area concept, and multi-agency or inter-agency coordination. Local governments must use SEMS to be eligible for funding of their response-related personnel costs under state disaster assistance programs. The SEMS consists of five organizational levels that are activated as necessary, including: field response, local government, operational area, regional, and state. CalOES divides the state into several mutual aid regions. The Town of Windsor is located in Mutual Aid Region II, which includes Del Norte, Humboldt, Mendocino, Sonoma, Lake, Napa, Marin, Solano, Contra Costa, San Francisco, San Mateo, Alameda, Santa Clara, Santa Cruz, San Benito, and Monterey counties (CalOES 2019).

Government Code Sections 65302 and 65302.5, Senate Bill 1241 (Kehoe) of 2012

Senate Bill (SB) 1241 requires cities and counties to address fire risk in SRAs and Very High FHSZs in the safety element of their general plans. The bill also amended CEQA to direct amendments to the *CEQA Guidelines* Appendix G environmental checklist to include questions related to fire hazard impacts for projects located in or near lands classified as SRAs and Very High FHSZs. In adopting

these Guidelines amendments, the Governor's Office of Planning and Research recognized that generally, low-density, leapfrog development may create higher wildfire risks than high-density, infill development. [2] Zoning around the project site is low density housing, allowing up to six dwelling units per acre.

California Public Utilities Commission General Order 166

General Order 166 Standard 1.E requires that investor-owned utilities (IOU) develop a Fire Prevention Plan which describes measures that the electric utility will implement to mitigate the threat of power-line fires generally. Additionally, this standard requires that IOUs outline a plan to mitigate power line fires when wind conditions exceed the structural design standards of the line during a Red Flag Warning in a high fire threat area. Fire Prevention Plans created by IOUs are required to identify specific parts of the utility's service territory where the conditions described above may occur simultaneously. Standard 11 requires that utilities report annually to the California Public Utilities Commission (CPUC) regarding compliance with General Order 166 (CPUC 2017). In compliance with Standard 1.E of this General Order, Pacific Gas and Electric Company adopted a Fire Prevention Plan dated October 31, 2018.

c. Local Regulations

Sonoma County Multi-Jurisdictional Hazard Mitigation Plan

The Sonoma County Multi-Jurisdictional Hazard Mitigation Plan (HMP), which was adopted by the Town in 2021, incorporates wildfire hazard mitigation principles and practices into the routine government activities and functions of the County. The Multi-Jurisdictional HMP recommends specific actions that are designed to protect people and community assets from losses to those hazards that pose the greatest risk. Mitigation activities identified in the Multi-Jurisdictional HMP related to wildfire include fuel reduction and vegetation management, creation of defensible spaces, enhancement of building codes, use of fire-resistant materials, and increase education efforts (County of Sonoma 2021).

The Town of Windsor participated in the HMP, including the adoption of Windsor's Annex to the HMP. Windsor's Annex to the HMP identifies effective and feasible actions to reduce the risks posed by potential natural hazards. The plan assesses various risks from hazards such as, drought, earthquakes, flood, and wildfire, lists mitigation actions, and describes the process of implementing, monitoring, and evaluating the plan. Wildfire is identified as a high threat that is likely to increase as climate change is exacerbated.

Town of Windsor Climate Resilience Plan

The Town's Climate Resilience Plan identifies and quantifies the Town's potential climate change risks and vulnerabilities. The Climate Resilience Plan also identifies resilience strategies that resonate with the community and can be implemented in the coming years to reduce climate related risks. The Climate Resilience Plan guides current and future decision makers in protecting the natural and built environment, residents and visitors, the economic vibrancy of the community, and the overall quality of life within Windsor. Wildfire is identified as a risk with the Town. To address wildfire risks the Climate Resilience Plan includes goals to enhance vegetation management and defensible space efforts, expand home hardening, and cultivate wildfire adapted landscape

[2] "Leapfrog development" describes the construction of new development at a distance from existing developed areas, with undeveloped land between the existing and new development.

practices. The Climate Resilience Plan also includes a goal to enhance community evacuation planning and evacuation (Town of Windsor 2022).

Town of Windsor 2040 General Plan

The 2040 General Plan includes goals and policies that convey the Town's long-term vision and guide local decision making to reach that vision. Goal PHS-4 of the 2040 General Plan and associated policies are related to fire hazards.

Goal PHS-4: **Minimize the risks to lives and properties due to wildland fire hazards through education and an understanding of the natural environment.**

Policy PHS-4.1: **Fire Protection Design for New Development.** New development adjacent to heavily grassed and semi-arid hillsides shall be designed to minimize fire hazards to life and property, including the use of fire preventive site design (i.e., defensible space), landscaping and building materials, and fire suppression techniques.

Policy PHS-4.2: **County Fire Hazard Reduction Programs**. In areas beyond the town limits designated as a high fire hazard by Cal Fire, the Town shall encourage the County to undertake or continue programs to minimize fuel buildup around residences and other occupied structures. Such programs should include the establishment and maintenance of a fuel break between fire risk areas and urbanized areas

Policy PHS-4.3: **Fire Suppression Requirements.** The Town shall require additional mitigation for development projects unable to satisfy minimum fire flow requirements.

Policy PHS-4.4: **Fire Interjurisdictional Coordination.** The Town shall encourage the County to incorporate any measures provided by the fire protection service providers as conditions of project approval for projects in unincorporated areas located within a moderate or high fire hazard area along the wildland/urban interface.

Policy PHS-4.5: **State Responsibility Lands**. The Town shall generally avoid inclusion of lands within the State Responsibility Area in its Sphere of Influence, since annexation of these areas requires the Fire District to assume responsibility for wildland fire protection.

Policy PHS-4.6: **Project Review for Proposals in Fire Hazard Areas**. The Town shall require that fire hazards be identified during project review by comparing the project site against the fire hazard maps prepared by Cal Fire. Project sites that lie within the moderate to high hazard areas shall be subject to design modifications and conditions to minimize potential exposure to wildland fire.

Policy PHS-4.7: **Weed Abatement**. The Town shall continue to support the Fire District's efforts to maintain and implement a Weed Abatement program to prevent fire hazards created by vegetative growth.

Policy PHS-4.8: **Public Warning System**. Explore implementation of a public siren and broadcasting system, to be used in combination with reverse calling and other methods as a means of alerting residents of imminent threats.

Policy PHS-4.9: **Priority Undergrounding**. Prioritize undergrounding of utilities along emergency access and evacuation routes to make them more reliable and to minimize hazards from fallen power lines.

Town of Windsor Municipal Code

The 2013 California Fire Code and Appendices was adopted into the Town of Windsor Municipal Code under Title VI, Fire Prevention and Protection, Chapter 1, Article 2. The Town adopted the most recent 2019 California Fire Code under Ordinance No. 2019-339. The California Fire Code is discussed under *State Regulations*. Section 4904 of the California Fire Code and section 6-2-1036 of the Windsor Municipal Code calls for a fire protection plan that addresses water supply, access, building ignition and fire-resistance factors, fire protection systems and equipment, defensible space, and vegetation management for any new residential building within a wildland-urban interface fire area.

4.5.3 Impact Analysis

a. Methodology and Significance Thresholds

Methodology

Impacts related to wildfire hazards and risks were evaluated using FHSZ mapping for the Town of Windsor, aerial imagery, and topographic mapping. Additionally, weather patterns related to prevailing winds and precipitation trends were evaluated as they relate to the spread and magnitude of wildfire. CEQA does not generally require an agency to consider the effects of existing environmental conditions on a proposed project's future users or residents. Consequently, impacts under the thresholds identified below would only be considered significant if the risks associated with the proposed Project exacerbated the risks of the existing environmental conditions.

Significance Thresholds

The Town of Windsor 2040 General Plan EIR found that implementation of the General Plan could result in development in urbanized areas adjacent to wildlands. However, policies within the 2040 General Plan would reduce the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires and impacts would be less than significant. Impacts to wildfire and hazards in the 2040 General Plan EIR are shown in Table 2-2 in Section 2, *Project Description.* For purposes of this Supplemental EIR, development facilitated by the Project may have a significant adverse impact in respect to wildfire if the project site:

- is in or near (within 2 miles of) SRAs or FHSZs; and
- would do any of the following (thresholds 1 through 4), or in respect to hazards if it would (thresholds 5 and 6):

1. Substantially impair an adopted emergency response plan or emergency evacuation plan
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes

5. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
6. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires

Issues Not Evaluated Further

Hazards

The Initial Study (Appendix A) for the project determined that there is a less than significant impact and no new changes or new information requiring a preparation of an EIR was found in relation to routine transport, use, disposal, or foreseeable upset and accident conditions involving hazardous materials. Additionally, the Initial Study found no impact to hazardous material sites compiled pursuant to Government Code Section 65962.5, hazardous materials impacting schools, or a safety hazard or excessive noise in relation to airports. Thus, these impacts are not further discussed in the SEIR.

b. Project Impacts and Mitigation Measures

Threshold 1:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?
Threshold 5:	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Impact WFH-1 THE PROJECT SITE IS NOT WITHIN A VERY HIGH FHSZ OR SRA. THE PROJECT SITE IS DIRECTLY ADJACENT TO A MEDIUM FHSZ AND THERE WERE SPOT FIRES ON THE PROJECT SITE DURING THE 2019 KINCADE FIRE. HOWEVER, DEVELOPMENT OF SINGLE-FAMILY RESIDENCES WOULD NOT SUBSTANTIALLY IMPAIR AN ADOPTED EMERGENCY RESPONSE OR EVACUATION PLAN. IMPACTS WOULD BE LESS THAN SIGNIFICANT.

The primary evacuation routes from the Town of Windsor are Highway 101 and Old Redwood Highway, which runs roughly parallel to Highway 101 (Town of Windsor 2021). Other evacuation routes include Windsor River Road, Starr Road, Windsor Road, Hembree Lane, Arata Lane, Los Amigos Road, Conde Lane, Skylane Boulevard, and Shiloh Road, which are suitable for small-scale evacuations. The Town of Windsor Climate Resilience Plan splits the Town into four Evacuation Zone Areas. The project site is located in Zone WI-B, which utilizes Hembree Lane to evacuate to the south on Old Redwood Highway or Highway 101, Arata Lane to the north on Old Redwood Highway or Highway 101, or Windsor River Road to evacuate to the west (Town of Windsor 2021). The closest designated evacuation route is Hembree Lane, which is located approximately 0.5 mile west of the proposed site, which can also be used to access Arata Lane.

The site would be accessible by existing roadways and would not impair the use of emergency evacuation routes through the modification of existing roadways (either through elimination, reduction in width, or blockage). An additional roadway would be created, Portland Way, to connect the proposed development to Vinecrest Road to the north of the proposed site. Portland Way would provide an additional evacuation route from the site to the north and south. Prince George Way would be extended to the east to connect to Jensen Lane and create a junction with Portland Way. Jensen Lane would be extended to the north to intersect Vinecrest Road. The roadway

extensions would provide better access to existing evacuation routes in the Town and region, allowing future residents to leave the site during an emergency. Evacuation routes from the project site are shown in Figure 4.5-1.

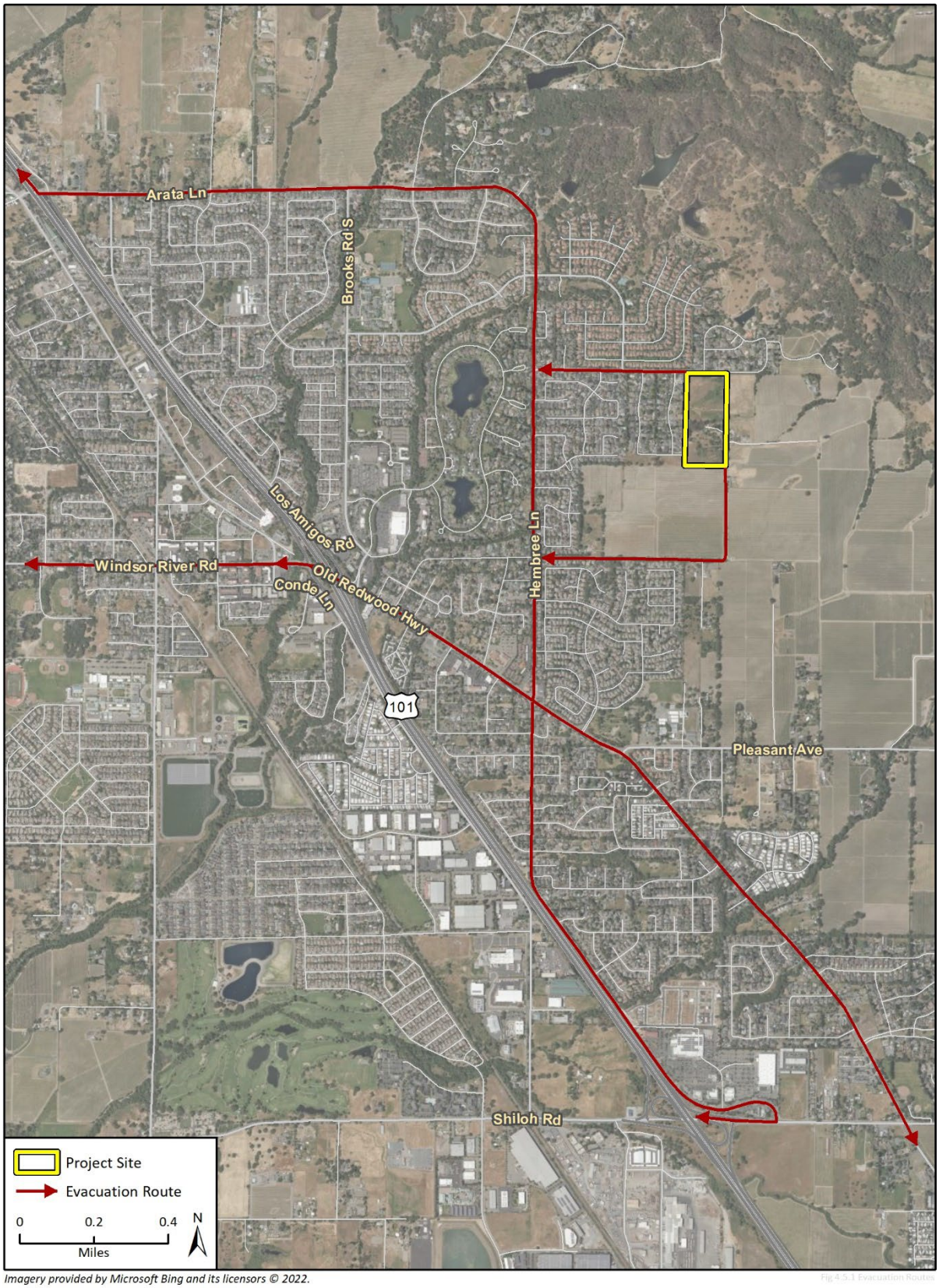
As described in Section 14, *Population and Housing* of the Initial Study for the project, the project would introduce approximately 93 new residents, which would cause growth within both Plan Bay Area and 2040 General Plan population projections. According to the Traffic Impact Study (TIS) (Appendix D) prepared by W-Trans in May 2022, additional population from the proposed project would generate an average of 292 trips per day. The TIS concluded that the proposed roadway network, including connectivity to existing and future roads, would provide adequate emergency circulation and access. Further, the proposed roadway configuration would accommodate multiple evacuation staging schemes (i.e., emergency responders direction of evacuating residents to arterials that lead to freeways) that could be used in the case of approaching wildland fire threats. Finally, the proposed project would be subject to review and approval by the Town's Fire Marshall to ensure adequate emergency access during a wildfire (Appendix D).

As described in Section 15, *Public Services* of the Initial Study, the project would not result in the need for new or expanded emergency services, including police and fire protection. Therefore, the implementation of emergency response procedures would not be affected. Sonoma County's HMP and The Town's Local HMP identify mitigation actions for disasters such as wildfires. The evacuation routes identified in the Town's HMP are expanded upon in the Climate Resilience Plan, as discussed above, and shown in Figure 4.5-1. The project would be constructed in accordance with federal, state, regional, and local requirements, which are intended to ensure the safety of county residents and structures to the extent feasible. The project would not impair an emergency response or emergency evacuation plan and impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures included in the 2040 General Plan EIR would not be required.

Figure 4.5-1 Evacuation Routes



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Threshold 2:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
Threshold 3:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
Threshold 6:	Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Impact WFH-2 THE PROJECT SITE IS NOT WITHIN A VERY HIGH FHSZ OR SRA BUT IS DIRECTLY ADJACENT TO A MEDIUM FHSZ AND THERE WERE SPOT FIRES ON THE SITE DURING THE 2019 KINCADE FIRE. THE PROPOSED PROJECT WOULD EXPOSE RESIDENTS AND STRUCTURES TO WILDFIRE RISKS. WILDFIRE RISK WOULD BE SIGNIFICANT AND UNAVOIDABLE.

The project would increase the population in a non-urbanized area approximately 0.5 miles from forested woodlands to the east, where the risk of wildfire is greater than in urban areas where fuels are less abundant. As demonstrated by recent wildfires in Sonoma County, areas on the outer edges of urban development are susceptible to wildfires, due to their proximity to typical abundant wildfire fuels. The project site is at the edge of an urban development and is surrounded on the south and east by agriculture. There is an oak woodland and savanna less than 0.5 to the east of the project site, which is classified as vegetation for wildfire fuel. In addition to being surrounded by wildfire fuel further to the east, vegetative wildfire fuels, such as trees, shrubs, and grasses are currently present on the site, and there are pastures and vineyards directly to the south and east.

Construction of the project would use equipment with combustion engines, which are known to create fires. Construction would be required to meet CBC requirements, including CCR Title 24, Part 2, which includes specific requirements related to exterior wildfire exposure. However, there would still be wildfire risk from construction, especially during dry months. Therefore, Mitigation Measure WF-1 would be required to reduce wildfire risk from construction activities.

As described in Section 19, *Utilities and Service Systems* of the Initial Study, the project would not require the installation of new power line infrastructure, and therefore would not exacerbate fire risk on that basis. Any new utilities that would be required would be built underground, in accordance with 2040 General Plan Policy PHS-4.9 and the Town's Municipal Code, which prioritizes undergrounding of utilities. Further, Mitigation Measure WF-2 would be required to ensure compliance with 2040 General Plan Policy PHS-4.3, which calls for additional mitigation to satisfy minimum fire flow requirements.

The project site is in proximity to woodlands, shrublands, and chaparral with flammable vegetation. New residences that would be constructed following the subdivision and on-site infrastructure would be constructed to current fire and building codes and safety standards. Construction of the 31 residential units would be subject to the California Fire Code, which includes safety measures to minimize the threat of fire, including ignition-resistant construction with exterior walls of noncombustible or ignition resistant material from the surface of the ground to the roof system and sealing any gaps around doors, windows, eaves and vents to prevent intrusion by flame or embers.

Fire sprinklers would be required in residential developments (with some exceptions) pursuant to the Windsor Municipal Code, which adopts the California Fire Code and calls for a fire prevention plan in Section 6-2-1036. The Board of Forestry, via CCR Title 14, sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent loss of structures and life by reducing wildfire hazards. The codes and regulations would reduce the risk of loss, injury, or death from wildfire for new residential developments encouraged by the project. Since the project site is not within a FHSZ, CBC Chapter 7A would not be statutorily required. However, the project site was experienced spot fires during the 2019 Kincade Fire and is therefore has a high potential for wildfire risk. Therefore, implementation of Mitigation Measure WF-3 would be required to use construction methods and materials that would harden the proposed residences from future wildfires. Even with implementation of Mitigation Measure WF-3, future residences would still be at risk from wildfires.

As noted in Section 4.19.2, *Regulatory Setting,* increases in urban density, such that would result from the project, have also been shown to reduce fire risk. Despite this, the project would have potentially significant wildfire impacts, as existing codes and regulations cannot fully prevent the potential for wildfires from damaging structures or occupants. The project would increase the exposure of new residential development to risk of loss or damage from wildfire given the history of wildfire in the direct vicinity of and on the project site (e.g. Kincade Fire) and wider region. Therefore, the project would result in new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR. Mitigation Measure WF-4 would be required to reduce the risk of wildfire for development on the project site.

Mitigation Measures

The following new mitigation measures are required. These measures were not included in the 2040 General Plan EIR. The Town of Windsor shall impose the following mitigation measures for development on the project site.

WF-1 Wildfire Risk Reduction During Construction

The Town shall require the applicant to take the following measures to reduce risk of loss, injury, or death from wildfire during construction of the proposed project:

1. Construction equipment powered by internal combustion engines shall be equipped with spark arresters. The spark arresters shall be maintained pursuant to manufacturer recommendations to ensure adequate performance.
2. Certain project construction activities with potential to ignite wildfires during red-flag warnings issued by the National Weather Service for the project site location shall be prohibited. Example activities that shall be prohibited during red-flag warnings include welding and grinding outside of enclosed buildings.
3. Fire extinguishers shall be required to be onsite during project construction. Fire extinguishers shall be maintained to function according to manufacturer specifications. Construction personnel shall receive training on the proper methods of using a fire extinguisher.

At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.

WF-2 Fire Suppression Requirements

During project design, the applicant shall ensure that all fire hydrants on the project site are able to satisfy the Town's minimum fire flow requirements. Compliance shall be verified by the Town prior to occupancy clearance.

WF-3 California Building Code Chapter 7A Compliance

During project design, the applicant shall ensure that materials and construction methods outlined in Chapter 7A of the California Building Code are followed. Compliance shall be verified by the Town prior to building permit approval.

WF-4 Fire Resistant Vegetation and Landscaping

The Town shall require that fire-resistant vegetation native to Sonoma County and/or the local microclimate of the site are planted by the applicant and shall prohibit the use of fire-prone species especially non-native, invasive species. No vegetation or wood fences, gates, or ornamental landscaping shall be allowed within five feet of residences or other structures. Metal or other fire-resistant materials shall be used for fences and gates within five feet of residences or other structures.

At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.

Significance After Mitigation

With implementation of Mitigation Measures WF-1 throughWF-4 the risk of loss of structures and the risk of injury or death due to wildfires would be reduced. These measures would make structures more fire resistant and less vulnerable to loss in the event of a wildfire. Mitigation measures would also reduce the potential for construction to inadvertently ignite a wildfire and require the use of fire-resistant native vegetation. However, it is not possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires, despite implementation of mitigation, California Fire Code, CBC, and Windsor Municipal Code. Thus, this impact would remain significant and unavoidable.

Threshold 4:	If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Impact WFH-3 THE PROJECT SITE IS NOT IN WITHIN A VERY HIGH FHSZ OR SRA BUT IS DIRECTLY ADJACENT TO A MEDIUM FHSZ AND THERE WERE SPOT FIRES ON THE PROJECT SITE DURING THE 2019 KINCADE FIRE. HOWEVER, THE PROPOSED PROJECT SITE WOULD BE GRADED TO BE RELATIVELY FLAT AND THE SITE ITSELF IS NOT DOWNSLOPE FROM A HILLSIDE THAT COULD RESULT IN A LANDSLIDE FOLLOWING A WILDFIRE. THERE WOULD BE ADEQUATE DRAINAGE ON THE PROJECT SITE TO PREVENT FLOODING. WILDFIRE RISK FROM FLOODING OR LANDSLIDES WOULD BE LESS THAN SIGNIFICANT.

As discussed under Impact WFH-2, the project would increase the population in a non-urbanized area, where the risk of wildfire is greater than in more urban areas where fuels are less abundant.

Severe wildfires damage the forest or shrub canopy, the plants below, as well as the soil. In general, this can result in increased runoff after intense rainfall, which can put residences and other structures below a burned area at risk of localized floods and landslides. The project site is mostly flat, as described in Section 4.5.1(a), *Overview of Wildfire*, but there is one moderately steep slope in the center of the site. The slope would be graded to accommodate new roadways and later development on each lot. Grading of the site to be relatively flat would prevent the site from experiencing landslides after a wildfire.

Vegetative wildfire fuels are currently present in the agricultural areas to the south and east of the project site. There is oak woodland and savanna less than 0.5 to the east of the project site is on a southwesterly facing slope with an approximately 25 percent grade, angling towards the project site. Slopes greater than 15 percent and facing south or southwest are more likely to cause severe landslides after wildfires. If a severe wildfire were to occur adjacent to the project site, structures directly downslope may be at risk of flooding or landslides and would expose project residents to wildfire pollutants. The nearest slope that may result in a landslide is approximately 0.5 miles to the east. Therefore, the project site is far enough from the slope and would not be impacted from a landslide. Additionally, as discussed in Section 10, *Hydrology and Water Quality* of the Initial Study, the site would include on-site drainage channels and bioretention basins, which would minimize adverse impacts of flooding following a wildfire.

The project site's flat grade, distance from any hillside, and adequate drainage would prevent exposure of people or residences to downslope landslides and flooding. Therefore, impacts would be less than significant.

Mitigation Measures

Impacts would be less than significant without mitigation. New mitigation measures or mitigation measures included in the 2040 General Plan EIR would not be required.

4.5.4 Cumulative Impacts

A project's environmental impacts are "cumulatively considerable" if the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (*CEQA Guidelines* Section 15065[a][3]). The geographic scope for cumulative wildfire impacts the areas surrounding the project site, including incorporated Town of Windsor lands and unincorporated Sonoma County lands, as well as buildout of nearby projects as show in Table 3-1 in the *Environmental Setting* Section. This geographic scope is appropriate for wildfire because wildfires can cause impacts to large areas.

Development that is considered part of the cumulative analysis include projects involving primarily residential, mixed-use, and commercial uses near the project site. The buildout of this project site in combination with the buildout of other surrounding projects were already considered as a part of the 2040 General Plan EIR and have been designed within the buildout density of the General Plan. However, cumulative development in the project vicinity could contribute to increased wildfire and evacuation impacts. Together, cumulative projects (both individual projects and full buildout of the 2040 General Plan) cover a substantial area, primarily within or along the edges of previously developed areas. Cumulative impacts to wildfire would be potentially significant by providing additional fuel for wildfire.

Within the geographic scope for this cumulative analysis wildfire-related impacts could be significant considering that the project could exacerbate risks by adding additional structures to the project site. However, residential development of the project site would be a minimal addition in the context of the geographic scope and would convert existing non-native vegetative fuels to residential uses that are less susceptible to wildfire. Project development and infrastructure would be subject to statewide standards for fire safety in the California Fire Code, as described in Impact WF-2. Additionally, Mitigation Measures listed under Impact WF-2 would reduce wildfire impacts of the project. Given, the project's small nature in the context of the geographic scope, conversion of existing wildfire fuels, California Fire Code, and Mitigation Measures in this EIR, the project would not have a cumulatively considerable contribution to a significant cumulative impact regarding wildfires.

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5 Other CEQA Required Discussions

This section discusses growth-inducing impacts and irreversible environmental impacts that would be caused by the proposed project . The analysis in this section takes into account the other CEQA required discussions analysis contained in the 2040 General Plan EIR, supplemented by analysis of potential changes as proposed by the project . The 2040 General Plan EIR concluded that projects facilitated by the 2040 General Plan would limit the potential for uncontrolled population growth and would not remove obstacles to growth. Additionally, the 2040 General Plan EIR found that the 2040 General Plan would not significantly affect energy supplies or public services.

5.1 Growth Inducement

Section 15126(d) of the *CEQA Guidelines* requires a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. The proposed project's growth inducing potential is therefore considered significant if project-induced growth could result in significant physical effects in one or more environmental issue areas.

5.1.1 Population Growth

As discussed in Section 14, *Population and Housing*, of the Initial Study (Appendix A), the proposed project would result in 31 single family units on a primarily vacant site with an existing single-family residence. According to the Department of Finance (DOF) the average single-family residence in the Town of Windsor has three (3) persons per household. The existing single-family residence on the site is vacant. Therefore, the proposed project would introduce 93 new residents (DOF 2021). The 2040 General Plan anticipates the Town's population to increase to 38,028 persons by 2040. Plan Bay area anticipates that the population of Windsor will increase to 32,805 in 2040 (Association of Bay Area Governments 2020). The current population of Windsor is approximately 25,942 persons; thus, the project would increase population by approximately 0.3 percent to 26,720 persons. The population increase generated by the project, therefore, falls within the growth projected by both Plan Bay Area and the 2040 General Plan. Accordingly, the project would not induce substantial population growth directly or indirectly because the project is part of planned growth in the region. Therefore, a population growth of 93 persons could be accommodated within the Town's growth projections.

Moreover, as discussed in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions*, of the Initial Study, construction and operation of the project would not generate air quality or greenhouse gas emissions that would result in a significant impact with the implementation of Mitigation Measure AQ-1, which requires best management practices for construction emissions. Therefore, any population growth associated with the project would not result in significant long-term physical environmental effects.

5.1.2 Economic Growth

The proposed project would generate temporary employment opportunities during construction. Because construction workers would be expected to be drawn from the existing regional work force, construction of the project would not be growth-inducing from a temporary employment standpoint. Additionally, the project is a residential development and operation of the project would not introduce new jobs. The proposed project would not be expected to induce substantial economic expansion to the extent that direct physical environmental effects would result.

5.1.3 Removal of Obstacles to Growth

The proposed project is located in a non-urbanized part of Windsor. The east property line is coterminous with the Town limits and Urban Growth Boundary and the south property line is coterminous with the Town limits. However, it is surrounded by existing neighborhoods and residences to the north and west. The project would be served by existing utilities adjacent to the project site. As discussed in Section 19, *Utilities and Service Systems*, of the Initial Study (Appendix A), existing infrastructure in Windsor would be adequate to serve the project. Minor improvements to water, sewer, and drainage connection infrastructure could be needed, but would be sized to specifically serve the project. No additional utility infrastructure or facilities beyond those necessary to accommodate new residences within the project site would be required. The project would result in a new segment of Jensen Lane that would run north-south along the project's eastern property frontage and the extension of Prince George Way to the east until the road extension would intersect with new section of Jensen Lane. Portland Way, a proposed roadway, would bisect the project site from north to south and connect to Vinecrest Road and Prince George Way. The new roadway would only serve the project site. None of the roadways associated with the project would be high-capacity roadways or remove obstacles to growth. Because the project would be adequately served by existing utilities and would not introduce high-capacity roadways, project implementation would not remove an obstacle to growth.

5.2 Irreversible Environmental Effects

The *CEQA Guidelines* require that EIRs contain a discussion of significant irreversible environmental changes. This section addresses non-renewable resources, the commitment of future generations to the proposed uses, and irreversible impacts associated with the proposed project.

Growth facilitated by the proposed project would require a long-term, irreversible commitment of law enforcement, fire protection, water supply, and wastewater treatment. As discussed in Section 15, *Public Services,* and Section 16*, Recreation*, and Section 19, *Utilities and Service Systems* of the Initial Study, impacts to public services and utilities would be less than significant given that the 2040 General Plan has accounted for the project's population growth. Additionally, Windsor police chief, Michael Raasch, determined that development of project would not have an impact on police services (Appendix A).

The project involves residential development on a currently underdeveloped lot with a vacant single-family residence in the Town of Windsor. Construction and operation of the project would involve the use of non-renewable building materials and energy sources (e.g., fossil fuels). Consumption of these resources would occur with any development in the region and are not unique to the proposed project.

The project would also irreversibly increase local demand for non-renewable energy resources such as natural gas. However, increasingly efficient building design would offset this demand to some degree by reducing energy demands of the project. As discussed in Section 6, *Energy*, and Section 19, *Utilities and Service Systems*, of the Initial Study (Appendix A), solar panels and water conservation elements would be incorporated into the project design to reduce the building's energy utilization. In addition, the project would be subject to the energy conservation requirements of the California Energy Code (Title 24, Part 6, of the California Code of Regulations, *California's Energy Efficiency Standards for Residential and Nonresidential Buildings*) and the California Green Building Standards Code (Title 24, Part 11 of the California Code of Regulations). The California Energy Code provides energy conservation standards for all new and renovated commercial and residential buildings constructed in California, and the Green Building Standards Code requires solar access, natural ventilation, and stormwater capture. Additionally, residents would have access to electricity generated from renewable sources through Sonoma Clean Power (SCP), a Community Choice Aggregation, which allows the purchase of electricity from renewable sources through Pacific Gas and Electric (PG&E) infrastructure. Even if residents choose to opt out of SCP, electricity supplied by PG&E is required to comply with the State's Renewable Portfolio Standard, which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030. Consequently, the project would not use unusual amounts of energy or construction materials and impacts related to consumption of non-renewable and slowly renewable resources would be less than significant.

As discussed in Section 3, *Air Quality*, and Section 9, *Greenhouse Gas Emissions*, of the Initial Study (Appendix A), development and operation of the project would not generate air quality or greenhouse gas emissions that would result in a significant impact with the implementation of Mitigation Measure AQ-1, which requires best management practices for construction emissions. Therefore, the project would not have significant irreversible environmental effects with mitigation incorporated.

CEQA requires decision makers to balance the benefits of a project against its unavoidable environmental risks in determining whether to approve a project. The analysis contained in this SEIR concludes that the project would result in a significant and unavoidable impact to traffic and wildfire. The project site is adjacent to a medium fire hazard severity zone and was evacuated due to the 2019 Kincade fire, which resulted in spot fires on the project site and the evacuation of the entire Town. Additionally, the project site is in proximity to woodlands, shrublands, and chaparral with flammable vegetation. Although the proposed project would implement mitigation, as discussed in Section 4.5, *Wildfire and Hazards*, impacts would remain significant and unavoidable. As discussed in Section 4.3, *Transportation and Circulation*, the project would not meet the significance threshold for VMT. The project is anticipated to have a VMT per capita of 16.38 which exceeds the significance threshold of 14.11 VMT per capita. In order to meet threshold for VMT the project would need to reduce VMT by 13.9 percent. The project would be required to implement Mitigation Measure TR-1, however, even with the incorporation of this mitigation measure VMT would not be reduced by 13.9 percent.

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6 Alternatives

As required by Section 15126.6 of the *CEQA Guidelines*, this Supplemental Environmental Impact Report (SEIR) examines a range of reasonable alternatives to the proposed project that would attain most of the basic project objectives (stated in Section 2.0 of this SEIR) but would avoid or substantially lessen the significant adverse impacts.

As discussed in Section 2.0, *Project Description*, the objective for the proposed project is to provide more housing opportunities within the Town that are consistent with the Estate Residential (ER) land use designation of the site.

Included in this analysis are three alternatives, including the CEQA-required "no project" alternative, that involve changes to the project that may reduce the project-related environmental impacts as identified in this SEIR. Alternatives have been developed to provide a reasonable range of options to consider that would help decision makers and the public understand the general implications of revising or eliminating certain components of the proposed project.

The following alternatives are evaluated in this SEIR:

- Alternative 1: No Project, No Build
- Alternative 2: No Project, Build to Lowest Density of Existing Land Use Designation
- Alternative 3: Trail instead of Jensen Lane Extension
- Alternative 4: Maximum Buildout

As required by CEQA, this section includes a discussion of the "environmentally superior alternative" among those studied (see Section 6.5).

Section 15126.6(a) of the *CEQA Guidelines* states the following:

> An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.

The Town of Windsor, in its role as lead agency, has determined that the alternatives analyzed in this section of the SEIR represent a reasonable range of alternatives to the proposed project.

6.1 Alternatives Considered but Rejected

Prior to preparation of this SEIR two other options for alternatives were considered by the Town and subsequently rejected during the SEIR scoping period. These additional options and why they were considered but rejected are described in more detail below.

- **Elementary School.** In 2010 the Windsor Unified School District (WUSD) proposed to construct and operate an elementary school on a 12-acre portion of 1295 Jensen Lane, but subsequently chose not to develop a school in this location During the preparation of the 2040 General Plan, the WUSD indicated that its preferred location for a school site was in the North of Arata area. In order to provide adequate locations large enough (approximately 10 acres) to accommodate locations for schools within the Town's Urban Growth Boundary, potential school sites were identified in the North of Arata area, on the project site, and in two other locations. 2040 General Plan Eastern Edge Residential Community Place Area Policy LU-15.7 states that a school site shall be identified in consultation with the Windsor Unified School District (WUSD), if the School District determines this is an appropriate location for a school. The proposed Project's NOP and Initial Study were referred to WUSD during the 30 day public review period and no comments from WUSD were received The WUSD has continued to support a school in the North of Arata area.
- **Traffic-Focused Development.** A potential alternative for the site would be to increase the density to 9.1 dwelling units per acre (dua), which is the minimum density necessary to achieve vehicle miles traveled reductions, according to CAPCOA methodology (CAPCOA 2021). A density of 9.1 dua would require 156 units to be developed on the 17.17 acre parcel. Increased density would therefore avoid the significant and unavoidable transportation impact that was identified in this SEIR. However, this density would not be compatible with the lot's designation as ER, which has a maximum density of 3 dua. Increased density would also be inconsistent with the 2040 General Plan Eastern Edge Community Place Area Policy LU-15.7, which requires the density of development within the Eastern Edge Residential area designated for ER to be "feathered", with a density transitioning eastward from a minimum of 1 acre per unit. Increasing density on the project site would require changing the General Plan land use designation of the project site and thus is not feasible and would conflict with Eastern Edge Community Place Area policies that call for ER destiny. Further, the increased density would potentially result in other significant impacts related to air quality, greenhouse gases, and emergency evacuations. Therefore, this alternative is also rejected.
- **100 Percent Affordable Housing.** The project applicant could develop all units as affordable housing (i.e., below area mean income). Research by the Governor's Office of Planning and Research (OPR) indicates that VMT generated by residents of deed restricted affordable housing is less than that generated by residents of market rate housing (OPR 2018). Evidence suggests that a presumption of a less than significant transportation impact is acceptable for a 100 percent affordable infill residential development (OPR 2018). While this impact would reduce the transportation impact of the project from significant and unavoidable to less than significant, no other impact findings would be altered. This alternative is not feasible since the applicant would not move forward with this alternative due to economic infeasibility.[1] Therefore, this alternative is also rejected.

6.2 Alternative 1: No Project Alternative, No Build

6.2.1 Description

Alternative 1 would involve no modification of the existing parcel. The vacant residential development would remain and no subdivisions or subdivision improvements would occur.

[1] The project applicant, Pink Viking Returns LLC, provided justification for the infeasibility of affordable housing for the project site in a letter dated July 8, 2022.

Alternative 1 would not be consistent with the Town's ER zoning designation since the existing development of one unit on 17.17 acres is below the ER zoning designation density range of 0.2 to 3.0 dua. Further, Alternative 1 would not fulfill the project's objective to provide more ER housing opportunities in the Town.

6.2.2 Impact Analysis

No new housing would be developed under Alternative 1 and existing conditions would remain unchanged. Alternative 1 would result in no new development or residents and would thus result in fewer environmental impacts related to all criteria analyzed under this SEIR, including biological resources, cultural resources, transportation, tribal cultural resources, and wildfire and hazards. All impacts would be reduced as compared to impacts analyzed within this SEIR. There would be no impact since existing conditions would remain unchanged. However, Alternative 1 would be inconsistent with the project's objective to provide additional ER housing in Windsor. Further, no subdivision would not eliminate the possibility of development under its current ER designation (as discussed under Alternative 2) and therefore Alternative 1 is unlikely to occur.

6.3 Alternative 2: No Project Alternative, Build to Lowest Density of Existing Land Use Designation

6.3.1 Description

Alternative 2 would involve maintaining the existing parcel and would not allow for a subdivision into 31 lots. The 17.17 acre parcel would still be viable for development under the ER zoning designation, allowing residential development of one single-family residence, accessory dwelling unit (ADU), and Junior ADU. This alternative would not impact existing conditions but would allow for demolition of the existing residence on the site and construction of the single-family residence, Junior ADU, and ADU. However, this development would be below the lowest allowable site density of 0.2 dua. Any new development would be required to comply with current State and local regulations for energy efficiency, such as green building practices in CALGreen. This alternative may reduce the potential for significant impacts but would not entirely avoid significant and unavoidable impacts identified in the SEIR, since development would still be permitted. Further, Alternative 2 would not be within the allowable density range nor would meet the objective to provide more ER housing.

6.3.2 Impact Analysis

a. Biological Resources

Under Alternative 2 subdivision of the project site would not occur. Development of the mostly vacant lot would be possible under Alternative 2 because the site has a land use and zoning designation of ER that permits future development. Site development would be required to adhere to 2040 General Plan policies, the Town's Municipal Code and Zoning Ordinance, the Santa Rose Plain Conservation Strategy, and State and federal regulations. Construction of one single family residence, an ADU, and a Junior ADU under this alternative would involve less ground disturbance during construction, as compared to the proposed project. Therefore, there would be less extensive grading and building construction. Any development that would occur on the site would be less intensive than proposed under the 31 lot subdivision. Still, development of this alternative would

have the potential to impact the seasonally wet swales, special-status species, sensitive natural communities, or wildlife movement on the site. However, the intensity of development would be lower overall than under the proposed subdivision since less of the site would be disturbed. Impacts from Alternative 2 would be consistent with impacts analyzed in the 2040 General Plan EIR, since the existing parcel's land use designation was previously analyzed in that EIR. Therefore, potential to impact biological resources would be less than significant, and impacts would be less than under the proposed project and the 2040 General Plan EIR.

b. Cultural Resources

Under Alternative 2 subdivision of the project site would not occur. Development of the mostly vacant lot would be possible under Alternative 2 because the site has a land use and zoning designation of ER. Alternative 2 assumes that the site would be built out according to existing land use and zoning, accommodating one single-family residence, one ADU, and one Junior ADU. Site development would be required to adhere to 2040 General Plan policies, the Town's Municipal Code and Zoning Ordinance, and federal and State regulations. Construction of one single-family residence, one ADU and one Junior ADU would involve less ground disturbance during construction, as compared to the proposed project. Therefore, there would be less extensive grading during building construction, and development that would occur on the site would be less intensive than under the proposed subdivision. Still, development under this alternative would have the potential to impact known archeological resources, a potential prehistoric archaeological site, previously undisturbed historic resources, and previously undisturbed human remains during ground disturbing activities. However, the intensity of ground disturbance would be overall lower than under the proposed subdivision since less of the site would be disturbed. Impacts from Alternative 2 would be less than the impacts analyzed in the 2040 General Plan EIR, since the proposed subdivision and land use designation was previously analyzed in that EIR. Therefore, potential to impact cultural resources would be less than significant, and impacts would be less than under the proposed project and the 2040 General Plan EIR.

c. Transportation

Under Alternative 2 subdivision of the project site would not occur. Development of the mostly vacant lot would be possible for Alternative 2 because the site has a land use and zoning designation of ER. Alternative 2 assumes that the site would be built out with one single-family residence, one ADU, and one Junior ADU. Site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, and federal and State regulations. Alternative 2 would result in fewer residents traveling to and from the project site than under the proposed project, and therefore would have a lesser impact to the circulation system and vehicle miles traveled. Minimal changes to the existing transportation would occur and no new roads would be constructed under Alternative 2. Impacts from Alternative 2 would be consistent with impacts analyzed in the 2040 General Plan EIR, since the proposed subdivision and land use designation were analyzed as part of the EIR. Impacts to transportation would be less than analyzed under the proposed project and the 2040 General Plan EIR, and impacts would be less than significant.

d. Tribal Cultural Resources

Under Alternative 2 subdivision of the project site would not occur. Development of the mostly vacant lot would be possible for Alternative 2 because the site has a land use and zoning designation of ER. Alternative 2 assumes that the site would be built with one single-family residence, one ADU,

and one Junior AUD. Site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, and federal and State regulations. Construction of one single-family residence, ADU, and Junior ADU would involve less ground disturbance during construction, as compared to the proposed project. Therefore, there would be less extensive grading and building construction, and development that would occur under this alternative would be less intensive than the proposed project. Development under Alternative 2 would still have the potential to impact previously undisturbed tribal cultural resources during ground disturbing activities. However, the intensity of ground disturbance would be overall lower than under the proposed project because less of the site would be disturbed. Impacts from Alternative 2 would be consistent with impacts analyzed in the 2040 General Plan EIR, since the proposed subdivision and land use designation were previously analyzed in that EIR. Therefore, potential to impact tribal cultural resources would be less than significant, and impacts would be less than under the proposed subdivision and the 2040 General Plan EIR.

e. Wildfire and Hazards

Under Alternative 2 subdivision of the project site would not occur. Development of the mostly vacant lot would be possible for Alternative 2 because the site has a land use and zoning designation of ER. Alternative 2 assumes that the site would be built out with one single-family residence, ADU, and Junior ADU. However, site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, Windsor Local Hazard Mitigation Plan, and federal and State regulations. Despite less intense development, residences constructed on the site would be exposed to significant and unavoidable wildfire impacts due to the proximity of the site to Fire Hazard Severity Zones and 2019 Kincade Fire, during which there were spot fires on the project site. Impacts from Alternative 2 would be greater than impacts analyzed in the 2040 General Plan EIR, since new wildfire information has emerged and more wildfires in the vicinity of the project have occurred since adoption of the 2040 General Plan EIR. Further, Wildfire was not an impact analyzed under CEQA when the 2040 General Plan EIR was adopted. Therefore, impacts are less than those analyzed for the proposed project in the SEIR, since less development would occur, but greater than the 2040 General Plan EIR. Impacts would be significant and unavoidable.

6.4 Alternative 3: Trail instead of Jensen Lane Extension

6.4.1 Description

Alternative 3 would involve the same subdivision of the 17.17-acre parcel as the proposed project into 31 lots. However, development under Alternative 3 would include a Class I shared-use trail, which would replace Jensen Lane along the eastern boundary of the site, as proposed under the project. A Class I trail is a separated path with right-of-way for pedestrians and bicyclists. Access to lot 28 would be provided from Vinecrest Road. Access to lots 29 and 30 would be provided via an access easement from Portland Way between lots 21 and 22. Access to lot 31 would be provided from Prince George Way. Portland Way would still be constructed, and Prince George Way would still be extended under Alternative 3. The trail would be located along the eastern boundary of the parcel and extend from Vinecrest Road to the south property line, with the same alignment as Jensen Lane under the proposed project. The shoulders of the trail would be landscaped with various vegetation, including trees, shrubs, grasses, perennials, and groundcover. The trail would connect to the sidewalks of Prince George Way and Vinecrest Road. No additional trail connections would be provided. However, as designated in the Town's 2040 General Plan, Jensen Lane is a Rural

Lane, so a trail extension instead of lane extension would not be consistent with this part of the 2040 General Plan. Besides the trail, the subdivision and future proposed development of the new lots would remain the same as under the proposed project.

6.4.2 Impact Analysis

a. Biological Resources

Construction of the trail instead of Jensen Lane extension would involve less ground disturbance during construction since it would be narrower than the Jensen Lane extension and not require as extensive paving, grading, and stripping. Therefore, there would be reduced opportunity for impacts to biological resources. In addition, preventing vehicle access along the eastern boundary of the project site would reduce impacts to wildlife movement through the site. However, development of the trail would have the potential to impact the seasonally wet swales, special-status species, sensitive natural communities, or wildlife movement since the site would still be subdivided into 31 residential lots. Under Alternative 3, development would be required to adhere to all applicable 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, the Santa Rose Plain Conservation Strategy, State and federal regulations, and Mitigation Measures proposed in the SEIR to reduce impacts to biological resources to a less than significant level. Applicable mitigation measures would include Mitigation Measure BIO-1 Worker Environmental Awareness Program, Mitigation Measure BIO-2 Roosting Bats Survey and Avoidance Measures, Mitigation Measure BIO-3 Pre-Construction Nesting Bird Survey, and Mitigation Measure BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan. Therefore, potential to impact biological resources would remain less than significant with mitigation, but impacts would be slightly less than under the proposed project.

b. Cultural Resource

The Class I trail under this alternative would involve less ground disturbance during construction, as compared to the proposed project, and would reduce the potential for disturbing cultural resources. Construction of the trail instead of Jensen Lane extension would involve less ground disturbance during construction since it would be narrower than Jensen Lane extension and would not require as extensive paving, grading, and striping. Therefore, there would be less opportunity to impact unknown cultural resources during ground disturbing activities. However, development of the trail would have the potential to impact known archeological resources, a potential prehistoric archaeological site, historic resources, and potential human remains since the site would be subdivided into 31 residential lots. Therefore, development under Alternative 3 would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, federal and State regulations, and mitigation measures proposed in this SEIR to reduce impacts to historic and archaeological resources. Mitigation Measures that would apply to Alternative 3 include Mitigation Measure CUL-1 Worker's Environmental Awareness Program, Mitigation Measure CUL-2 Archaeological and Native Monitoring, Mitigation Measure CUL-3 Unanticipated Discovery of Cultural Resources, and Mitigation Measure CUL-4 Unanticipated Discovery of Human Remains. Therefore, potential to impact cultural resources would remain less than significant with mitigation, but impacts would be slightly less than under the proposed project.

c. Transportation and Traffic

Alternative 3 would result in similar impacts to vehicles miles traveled and geometric design features as analyzed in the SEIR. Alternative 3 would introduce the same number of residents as analyzed under the proposed project and would not include increased access to transit or pedestrian and bicycle facilities outside of the proposed trail. While the circulation system would be slightly altered due to the absence of the Jensen Lane extension, there would be no substantial change since all lots would still be accessible to residents by vehicles. Therefore, impacts to vehicle miles traveled would remain similar to the proposed project. Other than the trail, which would connect to existing sidewalks, the roadway extensions of Prince George Way and creation of Portland Way would have the same geometric design under Alternative 3 as analyzed under the proposed project. Impacts to the circulation system in the Town would be more significant under Alternative 3. Figure M-1, of the 2040 General Plan Circulation Element, includes an extension of Jensen Lane as a new Rural Lane that would extend from Vinecrest Road to Pleasant Avenue, the purpose of which is to improve circulation and provide another access point to Old Redwood Highway, which provides access to Highway 101. Thus, Alternative 3 would conflict with the Town's 2040 General Plan and intent to provide access to Old Redwood Highway via Pleasant Avenue. In addition, Alternative 3 could result in inadequate emergency access on the site because emergency vehicles would not be able to access residences from the Class I shared-use path as easily as they would be able to for the proposed project. Further, there would be fewer evacuation access points on the site, resulting in potential congestion on Portland Way or Prince George Way during evacuation as vehicles attempt to access Vinecrest Road. Impacts to transportation would be significant and unavoidable and potentially require additional mitigation that is not included in the SEIR. Therefore, impacts would be greater than those analyzed under the proposed project and remain significant and unavoidable.

d. Tribal Cultural Resources

The Class I trail proposed under this alternative would involve less ground disturbance during construction as compared to the proposed project, since it would be narrower than the Jensen Lane extension and would not require as extensive paving, grading, and striping. Therefore, Alterative 3 would impact fewer potential tribal cultural resources during ground disturbing activities than may occur on the project site. However, Alternative 3 would have the potential to impact previously undisturbed tribal cultural resources during ground disturbing activities. Development under Alternative 3 would still be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, federal and State regulations, and mitigation measures proposed in this SEIR to reduce impacts to tribal cultural resources. Mitigation that would apply under Alternative 3 would include Mitigation Measure TCR-1 Archaeological and Native American Monitoring and Mitigation Measure TCR-2 Cultural Resources Study Implementation Program. Therefore, potential to impact tribal cultural resources would remain less than significant with mitigation, but impacts would be slightly less as compared to the proposed project.

e. Wildfire and Hazards

Addition of the Class I trail under Alternative 3 would not increase the proximity of residents to Fire Hazard Severity Zones compared to the project. Residences constructed under this alternative would still be exposed to wildfire due to the proximity of the site to Fire Hazard Severity Zones and previous spot fires that occurred on the site during the 2019 Kincade Fire, similar to the proposed project. A Class I shared use trail instead of Jensen Lane extension would result in emergency access

or evacuation issues on the project site because the trail would be designed only for emergency and maintenance vehicles. A trail would only permit a single vehicle to access the trail constructed in place of the Jensen Lane extension and would reduce the amount of defensible wildfire space between residences and lands to the east. Although, the trail would accommodate an emergency vehicle, the presence of an emergency vehicle would prevent resident evacuation on the trail and additional emergency vehicle access. In comparison to the proposed project, evacuation would be hampered. Additionally, a trail would provide a smaller defensible space between residences and fuels to the east of the project site, as compared to the proposed project because the trail would be narrower and not paved. Development under Alternative 3 would be required to adhere to 2040 General Plan policies, the Town Municipal Code and Zoning Ordinance, Windsor Local Hazard Mitigation Plan, federal and State regulations, and mitigation measures proposed in this SEIR to reduce impacts to wildfire and hazards. Mitigation that would apply under Alternative 3 would include Mitigation Measure WF-1 Wildfire Risk Reduction During Construction, Mitigation Measure WF-2 Fire Suppression Requirements, and Mitigation Measure WF-3, Fire Resistant Vegetation. Even with mitigation from the SEIR, Alternative 3 would have significant and unavoidable impacts from wildfires, since it is not fully possible to prevent a significant risk of wildfires or fully protect people and structures from the risks of wildfires. Overall, Alternative 3 would provide less access for emergency vehicles, impact on site evacuation, and inadequately provide defensible space between residences and wildland to the east, as compared to the proposed project. Therefore, impacts to wildfire risks are greater than those analyzed under the proposed Project in the SEIR and would remain significant and unavoidable

6.5 Alternative 4: Maximum Buildout

6.5.1 Description

Alternative 4 would involve maximum lot subdivision on the site as and subsequent buildout as permitted under the Town of Windsor 2040 General Plan land use designation of ER. Buildout of the site under the ER land use would result in a subdivision of 37 lots. Based on the maximum allowed ER density of 3 dua, the subdivision would be 51 lots, but the 2040General Plan Eastern Edge Community Place Area Policy LU-15.7, described under Section 6.1, *Alternatives Considered But Rejected*, decreases the maximum subdivision to 37 lots. Under this alternative, construction of all 37 lots is presumed to include an accessory dwelling unit (ADU) in addition to each single-family home on all 37 lots to assume maximum buildout of the site. Therefore, Alternative 4 would create 74 new dwelling units, assuming each lot includes one single-family residence and one ADU. Other than new roads (creation of Portland Way and extension of Prince George Way and Jensen Lane) already discussed within the SEIR, no other new roads or infrastructure would be constructed under Alternative 4. The site plan for Alternative 4 is shown in Figure 6-1. Alternative 4 would fulfill the project's objective to provide more housing opportunities in the Town of Windsor and would provide maximum housing as allowed under the 2040 General Plan.

Figure 6-1 Alternative 4 Maximum Buildout



Source: T.D.G. Consulting Civil Engineers, Inc., 2022.

6.5.2 Impact Analysis

a. Biological Resources

Under Alternative 4, subdivision of the project site would increase to 37 lots and include buildout of ADUs on each lot in addition to single-family residences for a total of 74 residences. Development of the mostly vacant parcel would be maximized under the land use and zoning designation of ER. Construction of 74 residences would involve more ground disturbance during construction, as compared to the proposed project. Therefore, there would be more extensive grading and building construction. Development that would occur on the site would be more intensive than proposed under the proposed project's 31 lot subdivision. Development with 37 lots would have the potential to impact the seasonally wet swales, special-status species, sensitive natural communities, or wildlife movement on the project site. The intensity of development would be greater overall than under the proposed subdivision since more of the site would be disturbed. However, site development would still be required to adhere to 2040 General Plan policies, the Town's Municipal Code and Zoning Ordinance, the Santa Rose Plain Conservation Strategy, State and federal regulations, and mitigation measures proposed in the SEIR to reduce impacts to a less than significant level. Applicable mitigation measures would include Mitigation Measure BIO-1 Worker Environmental Awareness Program, Mitigation Measure BIO-2 Roosting Bats Survey and Avoidance Measures, Mitigation Measure BIO-3 Pre-Construction Nesting Bird Survey, and Mitigation Measure BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan. Therefore, potential impacts to biological resources would remain less than significant with mitigation, but impacts would be greater than under the proposed project.

b. Cultural Resources

Under Alternative 4 subdivision of the project site would increase to 37 lots and include buildout of ADUs on each lot in addition to single-family residences. Development of the mostly vacant lot would be maximized under the land use and zoning designation of ER. Construction of 74 residences would involve more ground disturbance during construction, as compared to the proposed project. Therefore, there would be more extensive grading and building construction and development that would occur on the site would be more intensive than under the proposed project. Development with 37 subdivisions would have the potential to impact known archeological resources, a potential prehistoric archaeological site, historic resources, and human remains during ground disturbance. The intensity of ground disturbance would be greater overall than under the proposed project since more acreage would be disturbed. Site development would be required to adhere to 2040 General Plan policies, the Town's Municipal Code and Zoning Ordinance, federal and State regulations, and mitigation measures proposed in the SEIR to reduce impacts to a less than significant level. Mitigation measures that would apply to Alternative 4 include Mitigation Measure CUL-1 Worker's Environmental Awareness Program, Mitigation Measure CUL-2 Archaeological and Native Monitoring, Mitigation Measure CUL-3 Unanticipated Discovery of Cultural Resources, and Mitigation Measure CUL-4 Unanticipated Discovery of Human Remains. Therefore, potential impacts to cultural resources would remain less than significant with mitigation, but impacts would be greater than under the proposed project.

c. Transportation and Traffic

Under Alternative 4 subdivision of the project site would increase to 37 lots and include buildout of ADUs on each lot in addition to single-family residences. Development of the mostly vacant lot would be maximized under the land use and zoning designation of ER. Alternative 4 would result in more residents traveling to and from the project site than compared to the proposed project. However, according to the California Office of Planning and Research, increased density can lead to lower vehicle miles traveled (OPR 2018). Therefore, Alternative 4 would potentially have a marginally lower impact on the circulation system and vehicle miles traveled but would be similar since there would be only seven more lots. The roadway creation of Portland Way and roadway extensions of Jensen Lane and Prince George Way would have the same geometric design under Alternative 4 as analyzed under the proposed project. Site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, and federal and State regulations. Impacts would be similar to those analyzed under the proposed project, with perhaps a slight decrease related to VMT impacts, but would remain significant and unavoidable.

d. Tribal Cultural Resources

Under Alternative 4 subdivision of the project site would increase to 37 lots and include buildout of ADUs on each lot in addition to single-family residences. Development of the mostly vacant parcel would be maximized under the land use and zoning designation of ER. Construction of 74 residences would involve more ground disturbance during construction, as compared to the proposed project. Therefore, there would be more extensive grading and building construction and development than would occur on the site would be more intensive than under the proposed project. Development with 37 lots would have the potential to impact previously undisturbed tribal cultural resources during ground disturbing activities. The intensity of ground disturbance would be greater overall than under the proposed project since more of the site would be disturbed. Site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, federal and State regulations, and mitigation measures proposed in the SEIR to reduce impacts to a less than significant level. Mitigation that would apply under Alternative 4 would include Mitigation Measure TCR-1 Archaeological and Native American Monitoring and Mitigation Measure TCR-2 Cultural Resources Study Implementation Program. Therefore, the potential to impact tribal cultural resources would remain less than significant with mitigation, but impacts would be greater than under the proposed project.

e. Wildfire and Hazards

Under Alternative 4 subdivision of the project site would increase to 37 lots and include buildout of ADUs on each lot in addition to single-family residences. Development of the mostly vacant site would be maximized under the land use and zoning designation of ER. Site development would be required to adhere to 2040 General Plan policies, Town Municipal Code and Zoning Ordinance, Windsor Hazard Mitigation Plan, federal and State regulations, and mitigation measures proposed in the SEIR to reduce impacts to a less than significant level. Mitigation that would apply under Alternative 4 would include Mitigation Measure WF-1 Wildfire Risk Reduction During Construction, Mitigation Measure, WF-2 Fire Suppression Requirements, and Mitigation Measure WF-3 Fire Resistant Vegetation. Even with mitigation, any residences constructed would be subject to significant and unavoidable wildfire impacts due to the proximity of the lots to Fire Hazard Severity Zones and spot fires on the project site that occurred during the 2019 Kincade Fire. Therefore,

impacts are similar to those analyzed under the proposed project in the SEIR and would be significant and unavoidable.

6.6 Environmentally Superior Alternative

CEQA requires identification of the environmentally superior alternative among the alternatives to the proposed project. The environmentally superior alternative must be an alternative that reduces some of the proposed project's environmental impacts, regardless of the financial costs associated. Identification of the environmentally superior alternative is an informational procedure and the alternative identified as the environmentally superior alternative may not be that which best meets the objective of the proposed Project. In assessing alternatives, an EIR must meaningfully discuss alternatives to meet the goal of fostering informed decision-making (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 402–403.). "But whether to reject or approve any of the alternatives is a decision only for the decisionmakers. They may reject alternatives that are undesirable from a policy standpoint as well as alternatives that fail to meet project objectives" (*Ocean Street Extension Neighborhood Assn. v. City of Santa Cruz* (2021) 73 Cal.App.5th 985, 1016 (citations omitted).). "While it is up to the EIR preparer to identify alternatives as potentially feasible, the decision-making body 'may or may not reject those alternatives as being infeasible' when it comes to project approval. Rejection by the decision-makers does not undermine the validity of the EIR's alternatives analysis." (*California Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 999 [99 Cal.Rptr.3d 572, 602 (citations omitted).) Table 6-1 indicates whether each alternative's environmental impact is greater than, less than, or similar to that of the proposed project for each of the issue areas studied.

Based on the analysis of alternatives in this section, the No Project Alternatives are the environmentally superior alternatives as they would either avoid or lessen the severity of most impacts of the proposed project. Because the No Project Alternatives would involve minimal development or subdivision, impacts related to biological resources, cultural resources, transportation tribal cultural resources, and wildfire would be reduced compared to the proposed project. However, Alternative 1 would not meet the project's objective, as it would not provide more housing opportunities within the Town, and Alternative 2 would not provide as many housing opportunities as the proposed project or the remaining alternatives.

If the No Project Alternative is determined to avoid or reduce more impacts than any other alternative, CEQA requires that the EIR identify an environmentally superior alternative among the other alternatives (*CEQA Guidelines* Section 15126.6[e]). Of the other alternatives evaluated in this EIR, Alternative 3 (Trail instead of Jane Lane Extension to be Constructed) would adversely impact the fewest number of environmental impact categories. Because this alternative would result in less ground disturbance where the Jensen Lane extension would have been constructed, impacts to biological resources, cultural resources, and tribal cultural resources would be reduced compared to the proposed Project. However, the magnitude of impacts to transportation and wildfire under Alternative 3 would be greater than under Alternative 4 (Maximum Buildout), since the removal of the Jensen Lane extension would have substantial evacuation and emergency access impacts. Jensen Lane would provide essential access to the site for emergency vehicles during a wildfire and allow additional evacuation for residents. Therefore, Alternative 3 would result in significant impacts to residents on the project site and would increase wildfire risk. Additionally, Alternative 3 would be inconsistent with the 2040 General Plan, since Jensen Lane is designated a Rural Lane and a trail would be inconsistent with that designation. Therefore, Alternative 4 is considered the

environmentally superior alternative. Alternative 4 would achieve the project objectives similar to the proposed Project, as it would accommodate more dwelling units than the proposed project.

Table 6-1 Impact Comparison of Alternatives

Issue	Proposed Project Impact Classification	Alternative 1: No Project/No Build	Alternative 2: No Project/ Build to Lowest Density of Existing Land Use Designation	Alternative 3: Trail instead of Portland Way to be Constructed	Alternative 4: Maximum Buildout
Biological Resources	Less than Significant with Mitigation Incorporated	+	+	+	-
Cultural Resources	Less than Significant with Mitigation Incorporated	+	+	+	-
Transportation	Significant and Unavoidable	+	+	-	-
Tribal Cultural Resources	Less than Significant with Mitigation Incorporated	+	+	+	-
Wildfire and Hazards	Significant and Unavoidable	+	+	-	=

+ Superior to the proposed project (reduced level of impact)

- Inferior to the proposed project (increased level of impact)

= Similar level of impact to the proposed project

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7.2 List of Preparers

This EIR was prepared by the Town of Windsor, with the assistance of Rincon Consultants, Inc. Consultant staff involved in the preparation of the SEIR are listed below.

RINCON CONSULTANTS, INC.

Matt Maddox, AICP, Principal
Kari Zajac, MESM, Senior Environmental Planner
Jesse Voremberg, MS, Associate Environmental Planner
David Brodeur, MS, Associate Environmental Planner
Amanda Harvey, PhD, Senior Archaeologist
Anastasia Ennis, MS, Biologist
Beth Wilson, Biologist

8 Responses to Comments on the Draft SEIR

8.1 Purpose of the Response to Comments on the Draft SEIR

This section contains responses to comments received during the public review period for the Draft Supplemental Environmental Impact Report (SEIR) prepared for the 1295 Jensen Lane Project. It then includes responses to those comments, and indicates when information has been added to the Final SEIR, in response to comments relative to the project and its environmental effects. Corrections or additional text discussed in the responses to comments are also shown in the text of the Final SEIR in ~~strikethrough~~ (for deleted text) and underline (for added text) format.

8.2 Environmental Review Process

Pursuant to the California Environmental Quality Act (CEQA), lead agencies are required to consult with public agencies having jurisdiction over a proposed project and to provide the general public with an opportunity to comment on the Draft SEIR.

On November 23, 2021, the Town of Windsor circulated a Notice of Preparation (NOP) for a 30-day comment period to request input on the types of impacts that could result from the proposed project. The Draft SEIR and a Notice of Availability (NOA) of a Draft SEIR was made available for public review for a 48-day comment period that began on September 6, 2022 and ended on October 24, 2022. The NOA, was posted with the County Clerk, sent to the State Clearinghouse, published on the Town's website, and mailed to responsible agencies. The City also held a virtual and in person public meeting along with the Planning Commission as an opportunity for the public to submit verbal comments on the SEIR at 5:30 p.m. on September 13, 2022.

8.3 Comments and Responses

This section includes written comments received during the circulation of the Draft SEIR prepared for the proposed project, and responses to those comments.

During the 48-day public review period described above, the Town of Windsor received seven comment letters on the Draft SEIR. The commenters and the page number on which each commenter's letter appear are listed below.

Letter No.	and Commenter	Page No.
1	David B. Harrison	8-3
2	Mark Millan	8-7
3	Karen Alves	8-9
4	Karen Alves	8-11
5	Jeffrey Leasure	8-14
6	California Department of Fish and Wildlife	8-18

The comment letters and responses follow. The comment letters have been numbered sequentially and each separate issue raised by the commenter, if more than one, has been assigned a number. The responses to each comment identify first the number of the comment letter, and then the number assigned to each issue (Response 1.1, for example, indicates that the response is for the first issue raised in comment Letter 1).

In some cases, specific changes to the text of the Draft SEIR have been made in response to comments received. In no case do these revisions involve new significant impacts or a substantial increase in the severity of impacts identified in the Draft SEIR. Where revisions to the main text are called for, the page and paragraph are set forth, followed by the appropriate revision. Added text is indicated with underlined and deleted text is indicated with ~~strikeout~~. Page numbers correspond to the page numbers of the Draft SEIR.

Comment Letter 1

David B. Harrison
9459 Vinecrest Road
Windsor, CA 95492

September 13, 2022

TOWN OF WINDSOR
RECEIVED
SEP 13 2022

Ms. Kimberly Jordan, Planner III
Windsor Planning Division
9291 Old Redwood Highway
Windsor, CA 95492

Dear Ms. Jordan:

I am writing to you about my concern relating to the Draft Supplemental Environment Impact Report for the Estates at Ross Ranch (State Clearinghouse #2016112065).

My concern lies with its findings and conclusions relating to Impact TRA-3 that the project as defined would not introduce design features or incompatible uses that could increase traffic hazards.

Vinecrest Road is essentially a straight road from its eastern-most limit until it reaches Hembree Lane at its western terminus. It defines a downwardly sloping plane, most pronounced from its eastern extent to the Vinecrest Circle intersection. Accordingly, I am gravely concerned about the roundabout proposed at the intersection of Vinecrest Road and Vinecrest Circle and what would be added as Portland Way in alignment with Vinecrest Circle.

1

After retiring from law practice, I moved with my wife to our address above in 2007. Our home is the second house on the north side of Vinecrest Road and east of Vinecrest Circle. We directly face the proposed project site and welcome its improvement with the proposed estate-zoned single family residences.

During the time we have lived here, we have witnessed countless instances when bicyclists and young people on skate boards have raced down Vinecrest Road toward Vinecrest Circle. Because of the road's downward slope, in many instances, the skateboarders have been unable to stop moving forward when they reach the Vinecrest Circle intersection and have either jumped off or fallen off their skateboards. Bicyclists descending Vinecrest Road also tend to operate at accelerated speeds toward the Vinecrest Circle intersection. They rarely have to stop due to sparse and visible traffic on Vinecrest Circle waiting at the stop sign.

The stop sign at Vinecrest Circle provides time for drivers to look both ways before proceeding out onto Vinecrest Road. I don't see how a driver entering the roundabout from the proposed Portland Way or from Vinecrest Circle would be motivated to

appreciate or react to a kid on a skateboard or a bicyclist zooming down Vinecrest Road at an accelerated rate and who could not stop before also entering the roundabout. If a collision occurred it would be the bicyclist or skateboarder who would most likely be injured.

The proposed mini-roundabout is one that does not consider prevalent bicycle and skateboard traffic. Motorists enter roundabouts on a yield basis to other motor vehicle traffic. They are not required to stop before entering if vehicle traffic permits; and, they are not likely to look up the street to see a rapidly oncoming child on a skateboard or a bicycle rider going at significant speed.

1, cont

Today, I traveled Old Redwood Highway southbound around the two roundabouts immediately preceding Oliver's Market. Those roundabouts are on a level road plane. The bike lanes end abruptly before each roundabout without any path or guidance leading cyclists to the adjacent sidewalk pedestrian crossings.

In the proposed plan, there would be bicycle lanes on Vinecrest Road that necessarily would end at the proposed Vinecrest Circle roundabout as I understand the Draft Supplemental EIR. In my view, this situation would be "a design feature. . .that could increase traffic hazards as a dangerous intersection" (Threshold 3). In my view the very slight improvement in motor vehicle flow is not worth the added risks to bicyclists and skateboarders which would be presented by the proposed roundabout. A stop sign at Portland Way is a much safer and surer approach in my view and should be seriously evaluated and implemented, All the other streets entering the straight portion of Vinecrest Road have stop signs.

2

On another subject, I agree that a pedestrian crosswalk is needed at the T intersection of Foothill Drive and Vinecrest Road. I suggest that the Town of Windsor install a pedestrian actuated, solar powered bidirectional flashing warning system of the type presently protecting the crosswalk at the Hembree-Jensen Lane crossing. It works very well and I use it every time I walk that way. Through traffic is usually stopped when the signal lights flash. It would also work very well to alert the "37" mile per hour traffic on Vinecrest Road to the presence of a pedestrian seeking to cross the road.

3

Finally, if the Vinecrest Estates monument on the south side of Vinecrest Road at Vinecrest Circle needs to be removed, we ask you to insist that the developer move and reinstall the signage to the north monument.

I have no other issues at this time with the Supplemental EIR. Thank you for your careful and thorough work on this project and your continued service to the Town of Windsor.

Sincerely,

David B. Harrison

Letter 1

COMMENTER: David B. Harrison

DATE: September 13, 2022

Response 1.1

The commenter disagrees with the findings and conclusions regarding Impact TRA-3, and expresses the opinion that the project would introduce design features that could increase traffic hazards. The commenter expresses his concern regarding the proposed roundabout. The commenter states that the proposed mini-roundabout does not consider bicycle and skateboard traffic, including racing activities on the downward-sloping road, and that the very slight improvement in motor vehicle flow would not offset added risks to bicyclists and skateboarders at the proposed roundabout. The commenter expresses the opinion that a stop sign should be added in Portland Way instead since all other streets entering the straight portion of Vinecrest Road have stop signs.

The proposed mini-roundabout is intended not only to provide traffic control at the Vinecrest Road/Vinecrest Circle-Portland Way intersection, but also to help regulate vehicle speeds on the Vinecrest Road corridor. Currently, vehicle speeds on Vinecrest Road are higher than the 30 mph design speed guidance contained in the Town's *Complete Street Design Guidelines*. The mini-roundabout would be expected to reduce speeds on the corridor, improving safety for all users including pedestrians and bicyclists. Per the *Windsor Bicycle and Pedestrian Master Plan*, bike lanes will remain on Vinecrest Road between Hembree Lane and Vinecrest Circle, transitioning to a signed bike route to the east. Bike lanes terminate in advance of roundabouts and mini-roundabouts per design guidance contained in *Roundabouts: An Informational Guide*, Second Edition, National Cooperative Highway Research Program, 2010, which serves as the primary roundabout design reference in the United States. A fundamental aspect of this design treatment is that vehicle speeds are substantially reduced through roundabouts, allowing bicyclists to claim the lane, thereby eliminating the potential for sideswipe conflicts and allowing bicyclists to proceed safely through the intersection.

The commenter expresses concern that some westbound skateboarders and bicyclists currently traverse through the intersection at higher speeds (due to the grade on the street) and may not be seen by entering side street drivers. The presence of a mini-roundabout versus the existing side-street stop controls would have a negligible effect on the driver sight lines of oncoming bicyclists or skateboarders; in fact the skewed entry created at a mini-roundabout would cause drivers entering from Portland Way to look more directly toward these oncoming users than a conventional intersection. Importantly, the mini-roundabout would also implement traffic controls on all four intersection legs, requiring all users to yield entry to circulating traffic. Bicyclists and skateboarders will be subject to these yielding requirements just as auto drivers will. This is in contrast to the current condition with no traffic controls on Vinecrest Road; all users will need to adjust their travel behavior accordingly, including reducing their travel speeds. The speed regulation effects created by roundabout-controlled intersections are a key contributing factor to their inherent safety benefits. For these reasons, the proposed mini-roundabout is considered to be a safety benefit, not a design hazard.

No revisions to the Draft SEIR are required in response to this comment.

Response 1.2

The commenter concurs that a pedestrian crosswalk is required at the T section of Foothill Drive and Vinecrest Road. The commenter suggests the Town install a pedestrian actuated, solar powered bidirectional flashing warning system similar to the type at the crosswalk of the Hembree-Jensen Lane crossing.

The comment does not pertain to the adequacy of the Draft SEIR, and no response is required. This comment has been forwarded to decisionmakers for their review. No revisions to the Draft SEIR are required in response to this comment.

Response 1.3

The commenter requests that the developer move and reinstall the signage to the north monument if the Vinecrest Estates monument on the south side of Vinecrest Road at Vinecrest Circle is removed.

The comment does not pertain to the adequacy of the Draft SEIR, and no response is required. This comment has been forwarded to decisionmakers for their review. No revisions to the Draft SEIR are required in response to this comment.

Comment Letter 2

Kimberly Jordan

From: Mark Millan <millan@datainstincts.com>
Sent: Tuesday, September 27, 2022 8:12 AM
To: Kimberly Jordan
Subject: DSEIR for the Estates at Ross Ranch

Follow Up Flag: Follow up
Flag Status: Flagged

Attn: Kim Jordan

As a resident on Vinecrest Road who has resided here since 1990, I have read and concur with the findings of the Traffic Impact Study for the Estates at Ross Ranch conducted by WTRans. I found their analysis to be accurate and support their findings that:

- The proposed project would not be expected to result in an adverse safety condition on Vinecrest Road.
- And, that the mini roundabout to be constructed by the proposed project would help to calm traffic on the Vinecrest Road corridor. 1

I also found the recommendation that the project construct a pedestrian crossing with median refuge at Vinecrest Road/Foothill Drive to be beneficial toward traffic calming along Vinecrest Road to reduce speeding.

Appreciate the Town for preparing this needed and extensive Draft Supplemental EIR for the Estates at Ross Ranch project.

Sincerely,

Mark Millan
9481 Vinecrest Road
Windsor, CA 95492

Cell: 707.756.0366

Letter 2

COMMENTER: Mark Millan

DATE: September 27, 2022

Response 2.1

The commenter concurs with the findings with the Traffic Impact Study and appreciates the Draft Supplemental EIR.

The comment is noted. No revisions to the Draft SEIR are required in response to this comment.

Comment Letter 3

Windsor Planning Commission
Town Hall
9291 Old Redwood Hwy., Bldg. 400
Windsor, CA 95492-0100

RE SEIR Estate of Ross Ranch Project

October 7, 2022

Good evening, Commissioners

1 I've written comments and made public comments in regards to the Ross Ranch projects over the years. My comments have been about environmental concerns, such as wetlands, and the threat to wildlife. This time I'd like still say I'm concerned about wetland and wildlife, but I'd also bring attention to the Cultural and Trible mention in the SEIR.

- Please refer to letters from the Native American Heritage Commission on July 27, 2021 and November 24, 2021, referred to in the SEIR.

- I ask that the Commission consider the option of No Development, not only for environmental reasons but for Historical and Cultural/Tribal reasons.

2 So, with that in mind, according to the SEIR the Ross Property is "positive", for a record of "Sacred Land Files". As the July 27, 2021 letter states, the developers, should consult with the Tribe (s) , which in this case is the Mishewal-Wappo Tribe of Alexander Valley. The SEIR that Native monitoring should be required during the developing of the land, and I hope all Planning Commissioners agree with the Native American Heritage Commission and require monitoring by local Native Tribe (s). If the local Tribal leaders do no respond, it would be good to contact the California Museum and Cultural Center in Santa Rosa for help in finding a Native monitor.

When the Windsor Planning Commission makes their recommendations to the developer, consider the Mishewal-Wappo or Pomo history that lays in and on the Ross Property as being more than significant. Ideally, I'd like to think that this is Windsor's opportunity to protect the land and leave it undeveloped.

3 Also, there should be a restoration of the wetlands and not a mitigation by buying credits. Years down the road a restoration could bring back the historical wetlands, cattails, redwing black-birds, frogs and more to this rural space that I recall over 30 years ago, as being much more than, "less than significant".

4 Currently the wildlife that still enjoy this piece of land should not be forced into the hills or extinction.

- Could this land be considered by Sonoma County Agriculture and Open Space or the Sonoma Land Trust rather than development?

Thank you, Commissioners, for considering my comments.

Sincerely,
Karen Alves
256 La Quinta Dr.
Windsor, CA. 95492
707-328-9719

Letter 3

COMMENTER: Karen Alves

DATE: October 7, 2022

Response 3.1

The commenter expresses her concerns regarding wetlands, wildlife, and cultural and tribal resources.

The commenter's concerns are addressed in the specific responses below.

Response 3.2

The commenter asks for consideration of the No Development option and monitoring by local tribes and offers suggestions on how to find a tribal monitor. The commenter also opines on the importance of tribal history and the opportunity for the Town to leave the land undeveloped.

As discussed in Section 4.2, Cultural Resources, Mitigation Measure CUL-2 would require Native American monitoring provided by a locally affiliated Tribal member(s). The commenter's opinion to leave the land undeveloped does not pertain to the adequacy of the Draft SEIR, and no response is required. This comment has been forwarded to decisionmakers for their review. No revisions to the Draft SEIR are required in response to this comment.

Response 3.3

The commenter recommends restoration of wetlands instead of implementing mitigation through buying credits.

Development of the project would require removal of all on-site seasonal wetlands, which would not allow for the restoration of wetlands. However, as discussed in Section 4.1, Biological Resources, removal of wetlands in conjunction with the project would be required to comply with the Programmatic Biological Opinion (PBO) for the Santa Rosa Plain, which would require mitigation for loss of potential vernal pool habitat at a reduced ratio of 1.5:1. Implementation of Mitigation Measure BIO-4 would reduce potential impacts to sensitive natural communities to a less than significant level by requiring the offset of lost sensitive natural communities through the purchase of mitigation credits or through habitat restoration and monitoring of restored or created habitats. No revisions to the Draft SEIR are required in response to this comment.

Response 3.3

The commenter opines that wildlife should not be forced into the hills or extinction, and asks if this land could be considered by Sonoma County Agriculture and Open Space or the Sonoma Land Trust rather than development.

The comment does not pertain to the adequacy of the Draft SEIR, and no response is required. This comment has been forwarded to decisionmakers for their review. No revisions to the Draft SEIR are required in response to this comment.

Comment Letter 4

December 13, 2021

Town of Windsor

Via Email

kjordan@townofwindsor.com Town of Windsor Planning-Planner

benlehr@me.com Planning Commissioner

Good evening,

RE: Ross Property Scoping Meeting December 13, 2021 6:00 p.m.

I'd like to comment in regards to the Supplemental EIR for this project.

Around 2010-2011 the Windsor Unified School District did an EIR for a proposed school site on the Ross Property. The report did address wetlands on the Ross Property. In a conversation with the new Superintendent that proceeded Dr. Herrington, Tammy Gabel, she recognized the significance of the wetland and the importance of restoring it as part of the development of the school site. Her plan also included teaching students to be sensitive to wildlife that live in this areas. The WUSD ultimately walked away from the project.

Now we have a new development being considered, one of many since the WUSD walked away. With that in mind I'd like to give some history about the property. I moved into a home off Vinecrest in 1988. At that time there was a viable wetland on the Ross property. Redwing Blackbirds migrated to that wetland every year. The reeds in the wetland were clearly visible from my kitchen window. The property was part of a Special D designation with the Town of Windsor, meaning it couldn't be developed for a certain number of years, I believe it was 20 years. As the clock started ticking down till the land was no longer designated Special D the Ross property owners at the time began a systematic destruction of the wetland. A lot of the drainage problem with the land draining towards the homes to the west is due to the Ross property owners reconfiguring the land and forcing the wetland water to run west instead of percolating back into the aquifer. 1

At this stage of consideration, I'd like to propose that the Planning Department, Planning Commission and the developer consider restoring the wetland and let the water percolate down and recharge our ground water systems instead of directing the water into a storm drain, that goes to Pool Creek. Windsor Creek, then to the Russian River and ultimately into the ocean where it doesn't help with our lack of drinking water.

I'd also like to suggest that the Town do a wildlife study, as that field has foxes, bob cats, owls (Barn Owls and Horned owls), coyotes and a mountain lion roaming through there also. 2

Thank you for considering my comments and making them part of the public record.

Warm Regards,

Karen Alves

707-328-9719

sums@pacbell.net

Letter 4

COMMENTER: Karen Alves

DATE: October 7, 2022 (Resubmission of her December 13, 2021 Scoping Meeting Comment Letter)

Response 4.1

The commenter states that there is an existing drainage issue with land draining towards homes to the west from the project site. The commenter recommends restoring the wetland to let water percolate down and recharge groundwater systems.

This comment will be forwarded to decision makers for their review. The comment does not pertain to the adequacy of the Draft SEIR, and no response is required. However, as discussed in Section 10, *Hydrology and Water Quality*, of the Initial Study, the proposed project would include the addition of rain gardens, permeable concrete gutters, and bioretention basins which would allow for capture of runoff from the site and permit groundwater recharge. Additionally, the project would be required to comply with the NPDES General Construction Permit and prepare a SWPPP in order to reduce impacts to drainage patterns, as well as undergo design review process to demonstrate that the drainage route for a 100-year flood event would not impact adjacent structures. No revisions to the Draft SEIR are required in response to this comment.

Response 4.2

The commenter states the project site has foxes, bob cats, owls, coyotes, and mountain lions, and suggests for the Town to conduct a wildlife study.

Impacts to wildlife and special-status species are analyzed in Section 4.1, *Biological Resources*, of the Draft SEIR. Section 4.1 evaluates the potential for significant impacts to biological resources based on a *Biological Assessment* conducted by Charles A. Patterson (September 2021), among others. This report is included as Appendix B of the Draft SEIR. As discussed in Section 4.1, none of the species mentioned by the commenter are special-status species that have been documented within the nine-quadrangle search radius for the site. Only three special-status bat species, the Pallid bat (*Antrozous pallidus*), the Townsend's big-eared bat (*Corynorhinus townsendii*), and the western red bat (*Lasiurus blossevillii*) were identified to have moderate potential to occur in the study area. Implementation of Mitigation Measure BIO-2 would reduce impacts to roosting bats to a less than significant level. No revisions to the Draft SEIR are required in response to this comment.

Comment Letter 5

From: Patrick Streeter
To: Kimberly Jordan
Subject: FW: Item 9.1 Estates at Ross Ranch SEIR
Date: Tuesday, October 11, 2022 9:19:40 AM

From: JEFF Leasure <heyjeff124@comcast.net>
Sent: Monday, October 10, 2022 10:40 AM
To: Patrick Streeter <pstreeter@townofwindsor.com>
Subject: Item 9.1 Estates at Ross Ranch SEIR

Ms. Jordan and Director Streeter,

My name is Jeffrey Leasure and I live at 9588 Vancouver Lane, which abuts the project known as Estates at Ross Ranch.
I am speaking on my own behalf and do not represent anyone else in my remarks.

In reviewing the SEIR, I have several observations and questions for the Planning Department or Planning Commission.

1 Several years ago, I met with the developers of the project and discussed my concerns, which included traffic, wildfire evacuation risk, Lot Size and Aesthetics for the existing neighbors.

I was pleased when the developers showed real concern for these issues and we discussed ways to mitigate the impacts of each concern. Obviously, the project has changed during the planning process.

2 While examining the current Draft SEIR, I did not see Aesthetics listed as an unavoidable impact.

The reason this is significant is the Vista Views Lost by adding new homes, affects all homes to the West and North of the project. This will have a significant impact on the market value and enjoyment of those neighbors, which includes me.

For this reason, I believe it should be studied further by interviewing the neighbors and discussing mitigation to lessen the impact. One such way to mitigate is to reduce the height maximum to single level homes, changing minimum front and rear setbacks on adjoining lots to preserve some vista views and therefore protect home values and enjoyment, with no loss to the developer.

3 I also have a few questions regarding the Listed Alternatives :

In **Maximum Buildout** with 37 Lots and ADUs, how was this determined to be more attractive than the current tentative map proposal?

4 In the **Traffic Focused Development,** wouldn't this have required the completion

4, cont

of the North South Jensen Lane Extention or a new Eastern Ave per the 2040 General Plan due to wildfire risk and traffic congestion? Why would this have met the VMT Goal for approval?

Would this also have applied to the **Elementary School** or **100% affordable housing option??**

Kind Regards,

Jeffrey Leasure
9588 Vancouver Lane

Letter 5

COMMENTER: Jeffrey Leasure

DATE: October 10, 2022

Response 5.1

The commenter states he met with developers of the project several years ago to discuss his concerns, which included traffic, wildfire evacuation risk, lot size, and aesthetics for existing neighbors. He acknowledges the project has changed during the planning process.

The comment does not pertain to the adequacy of the Draft SEIR, and no response is required. No revisions to the Draft SEIR are required in response to this comment.

Response 5.2

The commenter states aesthetics is not listed as a significant and unavoidable impact in the Draft SEIR. The commenter opines that views of the vista will be lost by adding new homes. The commenter expresses the view that the issue should be studied further and mitigated by reducing the maximum height to single-level homes and changing the minimum front and rear setbacks on adjoining lots.

The commenter is correct that aesthetics is not listed as a significant and unavoidable impact in the Draft SEIR. As discussed in Section 1, *Aesthetics*, of the Initial Study, the proposed project would include single-family residences with maximum heights of approximately 35 feet and no more than two stories tall, which is consistent with surrounding single-family development, and thus would not be tall enough to significantly obstruct views of the surrounding mountain ranges. The project would also be required to comply with 2040 General Plan Policies LU-1.7 and LU-1.8, which would require compatible design for new residential development including compatibility with scale, mass, and height of the surrounding residencies. Additionally, the project would be required to adhere to 2040 General Plan Policies ER-9.2 and ER-9.3, which would ensure project design features do not detract from public views, including those along Jensen Lane, and preserve significant public views of the surrounding lands. The Initial Study found that impacts would be less than significant and within those analyzed under the 2040 General Plan EIR. No revisions to the Draft SEIR are required in response to this comment.

Response 5.3

The commenter questions how the Maximum Buildout Alternative with 37 lots and ADUs was determined to be superior to the current tentative map proposal.

As discussed in Section 6, *Alternatives*, the Maximum Buildout Alternative (Alternative 4) would be the environmentally superior alternative. Alternative 4 would fulfill the project's objective to provide more housing opportunities within Windsor. This alternative would also create more housing opportunities in comparison to the proposed project as it would develop the maximum units allowed under the 2040 General Plan. Although the No Project Alternatives (Alternative 1 and Alternative 2) would result in reduced impacts to biological resources, cultural resources, transportation tribal cultural resources, and wildfire, they would not meet the project's objective or provide as many housing opportunities as the proposed project or other alternatives. Additionally, although Alternative 3 would adversely impact the fewest number of environmental impact

categories, the magnitude of impacts to transportation and wildfire would be greater than Alternative 4 due to the removal of the Jensen Lane extension. Therefore, Alternative 4 was determined to be the environmentally superior alternative. This comment does not suggest any changes to the Draft SEIR, and no revisions to the Draft SEIR are required in response to this comment.

Response 5.4

The commenter asks if the Traffic Focused Development Alternative would have required the completion of the north-south Jensen Lane extension or a new Eastern Avenue pursuant to the General Plan due to wildfire and traffic congestion. The commenter questions if this alternative would meet the VMT goal for approval. The commenter also asks if this would have applied to the Elementary School or 100% Affordable Housing alternative.

The commenter is referring to three alternatives discussed in Section 6.1, *Alternatives Considered But Rejected*, in the Draft SEIR. As these alternatives were rejected from further analysis, the Draft SEIR does not contain information on the VMT impacts of the rejected alternatives, nor full descriptions of the off-site improvements for the rejected alternatives. CEQA Guidelines Section 15126.6(a)(c) states that EIRs 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 underlying the lead agency's determination." This information is included within Section 6.1 of the Draft SEIR, and further information is not required to be provided in the Draft SEIR. No revisions to the Draft SEIR are warranted.

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
Oct 28 2022
STATE OF CALIFORNIA

October 28, 2022

Kimberley Jordan, Associate Planner
Town of Windsor Community Development Department
9291 Old Redwood Highway, Building 400
Windsor, CA, 95492
kjordan@townofwindsor.com

Subject: Estates at Ross Ranch Development Project, Supplemental Environmental Impact Report, SCH No. 2016112065, Town of Windsor, Sonoma County

Dear Ms. Jordan:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a Draft Supplemental Environmental Impact Report (SEIR) from the Town of Windsor (Town) for the Estates at Ross Ranch Development Project (project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

CDFW is submitting comments on the SEIR to inform the Town, as the Lead Agency, of our concerns regarding potentially significant impacts to biological resources associated with the project.

CDFW ROLE

1 CDFW is a **Trustee Agency** with responsibility under CEQA (Pub. Resources Code, § 21000 et seq.) pursuant to CEQA Guidelines section 15386 for commenting on projects that could impact fish, plant, and wildlife resources. CDFW is also considered a **Responsible Agency** if a project would require discretionary approval, such as permits issued under the California Endangered Species Act (CESA), Lake and Streambed Alteration (LSA) Program, or other provisions of the Fish and Game Code that afford protection to the state's fish and wildlife trust resources.

PROJECT DESCRIPTION SUMMARY

Proponent: Pink Viking Returns, LLC

2 **Objective:** The project would develop a 31-lot residential subdivision ranging in size from 12,200 to 40,931 square feet. The project would involve the demolition of the existing single-family residence. Water and sewer for the project would be provided by the Town and all utilities would be underground. All structures, septic tanks, and fences

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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(with exception of the westerly fence along the Vintage Hills subdivision lots) on the project site would be removed. Any existing wells would either be removed or retained for irrigation purposes.

2, cont

Location: The project is located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor, Sonoma County, California. The project site is on a 17.17-acre parcel (Assessor's Parcel Number 162-020-004) in the Healdsburg, California, United States Geographical Survey 7.5-minute Topographic Quadrangle Map, Township 8 North, Range 8 West, Section 7 (Latitude 38.553358° North; Longitude -122.789645° West).

REGULATORY AUTHORITY

California Endangered Species Act

Please be advised that a CESA Incidental Take Permit (ITP) must be obtained if the project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the project. **The project has the potential to result in take of Sonoma sunshine (*Blennosperma bakeri*), Burke's goldfields (*Lasthenia burkei*), man-flowered navarretia (*Navarretia leucephala* ssp. *plieantha*), and Sebastopol meadowfoam (*Limanthes vinculans*), all listed as endangered species, as further described below.** Issuance of a CESA ITP is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the project will impact CESA listed species, early consultation is encouraged, as significant modification to the project and mitigation measures may be required in order to obtain a CESA ITP.

3

Lake and Streambed Alteration

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et seq., for project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. **The project may fill unnamed ephemeral drainages, therefore an LSA Notification may be required, as further described below.** CDFW will consider the CEQA document for the project and may issue an LSA Agreement. CDFW may not execute the final LSA Agreement (or ITP) until it has complied with CEQA as a Responsible Agency.

4

Fully Protected Species

Fully Protected species, such as white-tailed kite (*Elanus leucurus*), may not be taken or possessed at any time and no licenses or permits may be issued for their take except

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for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan (Fish & G. Code, §§ 3511, 4700, 5050, & 5515).

Raptors and Other Nesting Birds

6

CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections protecting birds, their eggs, and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nests or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird). Migratory birds are also protected under the federal Migratory Bird Treaty Act.

COMMENTS AND RECOMMENDATIONS

7

CDFW offers the comments and recommendations below to assist the Town in adequately identifying and/or mitigating the project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the project's avoidance of significant impacts on biological resources with implementation of mitigation measures, including those CDFW recommends below CDFW concludes that an SEIR is appropriate for the project. **Attachment** includes a Draft Mitigation Monitoring and Reporting Program for CDFW's recommended mitigation measures below.

I. Environmental Setting and Related Impact Shortcoming

Mandatory Findings of Significance: Does the project have the potential to substantially reduce the number or restrict the range of a rare or endangered plant or animal?

COMMENT 1: Section 4.1.1, Page 4.1-6

8

Issue: The SEIR indicates that wetlands within the project site have the potential to support four CESA and federally listed as endangered plants: Sonoma sunshine, Burke's goldfields, many-flowered navarretia, and Sebastopol meadowfoam, however these species were not detected during surveys.

The Santa Rosa Plain Conservation Strategy, Appendix D: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain* and CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* provide guidelines for acceptable survey documentation for protocol-level surveys for CESA and federally listed plants on the Santa Rosa Plain. Appendix B in the

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SEIR provides a partial list of the information required for protocol rare plant surveys and states “More detailed support data (field notes, plant lists by survey date, wetland data forms, photos, reference site information) are available upon request.” Given that a full report of the protocol-level surveys was not provided, it is unclear if surveys were conducted according to the Santa Rosa Plain Conservation Strategy and CDFW 2018 protocols.

Specific impacts and why they may occur and be significant: If CESA and federally listed plants that may be impacted by the project go undetected, the project may result in mortality of individuals from direct impacts or degradation of habitat adjacent to ground disturbance. CESA and federally listed plant mentioned above are considered endangered under CEQA pursuant to CEQA Guidelines section 15380. Therefore, if CESA and federally listed plants are present on or directly adjacent to the project site where they may be indirectly impacted, the project may substantially reduce the number or restrict the range of these species, which would be a *mandatory finding of significance* pursuant to CEQA Guidelines section 15065, subdivision (a)(1).

Recommended Mitigation Measure: For an adequate environmental setting and to reduce impacts to CESA and federally listed plants to less-than-significant, CDFW recommends implementing the following mitigation measure:

The project shall submit to CDFW two years of completed botanical survey results and obtain CDFW’s written approval of the results. The botanical survey results shall follow CDFW’s 2018 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* and the Santa Rosa Plain Conservation Strategy, Appendix D: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain*. If CDFW is unable to accept the survey results, the project applicant shall conduct additional surveys prior to initiation of project activities or may assume presence of Sonoma sunshine, Burke’s goldfields, many-flowered navarretia, and Sebastopol meadowfoam. Please be advised that for CDFW to accept the results, they must be completed in conformance with CDFW’s 2018 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* and the Santa Rosa Plain Conservation Strategy, Appendix D: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain,* including but not limited to conducting surveys during appropriate conditions, utilizing appropriate reference sites, and evaluating all direct and indirect impacts such as altering offsite hydrological conditions where the above species may be present. Surveys conducted during drought conditions may not be acceptable. If the botanical surveys result in the detection of the above CESA listed plants that may be impacted by the project, or the presence of these species is

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assumed, the project applicant shall obtain a CESA ITP from CDFW prior to construction and comply with all requirements of the ITP.

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or U.S. Fish and Wildlife Service (USFWS)?

COMMENT 2: Section 4.1.1, Page 4.1-6

Issue: The project is within the wintering distribution of burrowing owl (*Athene cunicularia*) and contains and is adjacent to grasslands that may be suitable wintering habitat for the species (Klute et al. 2003). Burrowing owls have been documented overwintering in the project vicinity (California Natural Diversity Database (CNDDB) Occurrence Numbers 564, 921, 2023; CDFW 2022). Appendix B of the SEIR indicates that burrowing owl would not be impacted by the project because no suitably sized burrows or evidence of potential burrows are present on or immediately adjacent to the project site. However, suitable burrows may be excavated within a single day by, for example, American badger (*Taxidea taxus*) (Ministry of Environment Ecosystems 2007 as cited in Brehme et al. 2015). Additionally, burrowing owls can be impacted up to 500 meters or 1,640 feet away from a project from auditory and visual disturbances and may utilize burrow surrogates, such as culverts, piles of concrete rubble, piles of soil, burrows created along soft banks of ditches and canals, pipes, and similar structures (CDFW 2012). Therefore, the absence of natural burrows does not necessarily exclude burrowing owls.

9

Specific impacts and why they may occur and be significant: If burrowing owls that may be impacted by the project are not detected, the project may result in reduced health and vigor, or mortality, of owls from direct impacts to occupied wintering habitat or from wintering burrow abandonment caused by auditory and visual disturbances. Burrowing owl is a California Species of Special Concern and protected under Fish and Game Code sections 3503 and 3503.5 and the federal Migratory Bird Treaty Act. Therefore, if wintering burrowing owls are present on or within 1,640 feet of the project site, project impacts to burrowing owl would be *potentially significant*.

Recommended Mitigation Measure: For an adequate environmental setting and to reduce impacts to burrowing owl to less-than-significant, CDFW recommends implementing following mitigation measure:

A qualified biologist shall conduct a habitat assessment for wintering burrowing owl, and surveys if habitat is present. The qualified biologist shall follow the California Department of Fish and Game (now CDFW) *2012 Staff Report on Burrowing Owl*

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Mitigation (CDFW 2012 Staff Report) habitat assessment and survey methodology prior to project activities occurring during the burrowing owl wintering season from September 1 to January 31. The habitat assessment and surveys shall encompass a sufficient buffer zone to detect owls nearby that may be impacted, which shall be a minimum of 1,640 feet unless otherwise approved in writing by CDFW. Surveys shall include four non-breeding season surveys spread evenly throughout the nonbreeding season pursuant to the CDFW 2012 Staff Report. Time lapses between surveys or project activities shall trigger subsequent surveys, as determined by a qualified biologist, including but not limited to a final survey within 24 hours prior to ground disturbance and before construction equipment mobilizes to the project area. The qualified biologist shall have a minimum of two years of experience implementing the CDFW 2012 Staff Report survey methodology resulting in detections.

Detected burrowing owls shall be avoided pursuant to the buffer zone prescribed in the CDFW 2012 Staff Report, unless otherwise approved in writing by CDFW, and any eviction plan shall be subject to CDFW review. Please be advised that CDFW does not consider eviction of burrowing owls (i.e., passive removal of an owl from its burrow or other shelter) as a "take" avoidance, minimization, or mitigation measure; therefore, off-site habitat compensation shall be included in the eviction plan. Habitat compensation acreages shall be approved by CDFW, as the amount depends on site specific conditions, and completed before project construction unless otherwise approved in writing by CDFW. It shall also include placement of a conservation easement and preparation and implementation of a long-term management plan prior to project construction.

COMMENT 3: Section 4.1.1, Page 4.1-6

10

Issue: The project is within the range and potential habitat for California red-legged frog (*Rana draytonii*). California red-legged frogs require a variety of habitats, including aquatic breeding habitats and upland dispersal habitats. Breeding sites of the species are in aquatic habitats including pools and backwaters within streams and creeks, ponds, marshes, springs, sag ponds, dune ponds and lagoons. Additionally, California red-legged frogs frequently breed in artificial impoundments such as stock ponds (USFWS 2002). Breeding sites are generally found in deep, still, or slow-moving water (>2.5 feet) and can have a wide range of edge and emergent cover amounts. California red-legged frogs can breed at sites with dense shrubby riparian or emergent vegetation, such as cattails (*Typha* sp.) or overhanging willows (*Salix* sp.), or can proliferate in ponds devoid of emergent vegetation (i.e., stock ponds). California red-legged frog habitat includes nearly any area within one to two miles of a breeding site that stays moist and cool through the summer; this includes non-breeding aquatic habitat in pools of slow-moving streams, perennial or ephemeral ponds, and upland sheltering habitat such as rocks, small mammal

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burrows, logs, densely vegetated areas, and man-made structures (i.e., culverts, livestock troughs, spring-boxes, and abandoned sheds) (USFWS 2017b).

Specific impacts and why they may occur and be potentially significant: The project could injure or kill California red-legged frogs if they occur on site. California red-legged is listed as threatened under the federal Endangered Species Act and is a Species of Special Concern, and their populations throughout the State have experienced ongoing and drastic declines and many have been extirpated (Thompson et al. 2016). Habitat loss from growth of cities and suburbs, mining, overgrazing by cattle, invasion of nonnative plants, impoundments, water diversions, stream maintenance for flood control, degraded water quality, and introduced predators, such as bullfrogs are the primary threats to the species (Thompson et al. 2016; USFWS 2017b). Therefore, if California red-legged frog is present in the project area and would be impacted, project impacts to California red-legged frog would be potentially significant.

10, cont

Recommended Mitigation Measure: For an adequate environmental setting and to reduce potential impacts to California red-legged frog to less-than-significant, CDFW recommends the following mitigation measure.

Within 48 hours prior to the commencement of ground-disturbing activities, the project area and nearby vicinity, including a minimum 500-foot radius surrounding the project area, shall be assessed by a qualified biologist for the presence of California red-legged frog individuals and habitat features. Habitat features include both aquatic habitat such as plunge pools and ponds and terrestrial habitat such as burrows. The results of the habitat feature assessment shall be submitted to CDFW for written acceptance prior to starting project activities. Habitat features shall be flagged for avoidance to the extent feasible. If California red-legged frogs are encountered during the assessment or project activities, the project shall not proceed or all work shall cease, and CDFW shall immediately be notified. Work shall not proceed until the frog, through its own volition, moves out of harm's way and CDFW has provided permission in writing to proceed with the project. If California red-legged frog is encountered or the qualified biologist believes that California red-legged frog is likely to occur in the project area, the project shall consult with USFWS pursuant to the federal Endangered Species Act.

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 CDFW or USFWS?

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COMMENT 4: Section 4.1.1, Pages 4.1-7 – 4.1-8

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Issue: As noted above, the project would permanently impact several unnamed drainages which may constitute streams under Fish and Game Code section 1600 et seq. These drainages may fall within CDFW jurisdiction, which would require the Project to submit an LSA Notification. The SEIR states "Because the seasonal wetlands and swales are in upland areas, lack riparian vegetation, and do not redirect a natural stream course, these features are unlikely to be under CDFW jurisdiction pursuant to CFGC Section 1600 et seq." However, the SEIR indicates that a stream occurs onsite as it states, "While there is a short section of channel and minor scour near the lower part of the main drainage swale convergence…". Additionally, the California Aquatic Resources Inventory database shows a stream occurring on the project site. The description and nature of the drainages within the project site is unclear. Although the drainages may tie into the storm drain system as stated in the SEIR, the characteristics of the drainages onsite may provide substantial habitat value for plant and wildlife species under the jurisdiction of CDFW.

11, cont

Specific impacts and why they may occur and be potentially significant: The project proposes to permanently impact several small drainages. This may entail substantial alteration of the bed, bank, and channel of these unnamed drainages which may be considered streams. Stream habitat including connected wetlands is of critical importance to protecting and conserving the biotic and abiotic integrity of an entire watershed. When stream habitat is substantially altered, riparian functions become impaired, thereby likely substantially adversely impacting aquatic and terrestrial species. Removing connected wetland habitat may also result in the degradation of stream habitat. Therefore, if the above impacts to stream habitat occur, project impacts to stream habitat would be *potentially significant*.

Recommended Mitigation Measure: For an adequate environmental setting, to comply with Fish and Game Code section 1600 et seq., and to reduce impacts to stream habitat to less-than-significant, CDFW recommends that the SEIR: 1) identify that CDFW may be a Responsible Agency for the project if impacts to any stream would occur, and 2) incorporate the following mitigation measure.

The project shall consult with CDFW to demine if on-site aquatic features are subject to Fish and Game Code section 1600 et seq. For project activities that may substantially alter the bed, bank, or channel of any streams (including ephemeral or intermittent streams), a LSA Notification shall be submitted to CDFW pursuant to Fish and Game Code section 1602 prior to project construction. If CDFW determines that an LSA Agreement is warranted, the project shall comply with all required measures in the LSA Agreement, including but not limited to requirements to mitigate impacts to the streams and riparian habitat. Permanent impacts to the stream and associated riparian habitat shall be mitigated by restoration of riparian habitat at a 3:1 mitigation to impact ratio based on acreage and linear distance as close to the project area as possible and within the same watershed and year as the

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impact, unless otherwise approved in writing by CDFW. Temporary impacts shall be restored on-site in the same year as the impact.

II. Mitigation Measures and Related Impact Shortcoming

COMMENT 5: Section 4.1.3, Page 4.1-18

Issue: Mitigation Measure BIO-3 requires a pre-construction nesting bird survey prior to all new development that may remove trees or vegetation, which may not be adequate to avoid impacts to special status and common nesting raptors such as white-tailed kite, a California Fully Protected species. This measure also does not account for nesting birds that may nest on the ground or on the abandoned man-made structures within the project site. The mitigation measure also does not specify a timeframe prior to construction in which the surveys should take place.

Recommended Mitigation Measure: To reduce impacts to nesting birds to less-than-significant, CDFW recommends replacing Mitigation Measure BIO-3 with the following mitigation measure: 12

If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.

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12, cont **Please be advised that an LSA Agreement obtained for this Project would likely include the above recommended mitigation measures, as applicable.**

ENVIRONMENTAL DATA

13 CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during project surveys to CNDDB. The CNNDB field survey form can be filled out and submitted online at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

ENVIRONMENTAL DOCUMENT FILING FEES

14 The project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

CDFW appreciates the opportunity to comment on the MND to assist the Town in identifying and mitigating project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Nick Wagner, Senior Environmental Scientist (Specialist), at (707) 428-2075 or nicholas.wagner@wildlife.ca.gov; or Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or melanie.day@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Erin Chappell
B77E9A6211EF486...

Erin Chappell
Regional Manager
Bay Delta Region

Attachment: Draft Mitigation Monitoring and Reporting Program

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ec: Office of Planning and Research, State Clearinghouse, Sacramento

REFERENCES

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Attachment 1

Draft Mitigation Monitoring and Reporting Program

Biological Resources (BIO)		
Mitigation Measure (MM) Description	**Implementation Schedule**	**Responsible Party**
MM-BIO-1: Botanical Surveys: The project shall submit to CDFW two years of completed botanical survey results and obtain CDFW's written approval of the results. The botanical survey results shall follow CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* and the Santa Rosa Plain Conservation Strategy, Appendix D: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain*. If CDFW is unable to accept the survey results, the project applicant shall conduct additional surveys prior to initiation of project activities or may assume presence of Sonoma sunshine, Burke's goldfields, many-flowered navarretia, and Sebastopol meadowfoam. Please be advised that for CDFW to accept the results, they must be completed in conformance with CDFW's 2018 *Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities* and the Santa Rosa Plain Conservation Strategy, Appendix D: *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants on the Santa Rosa Plain,* including but not limited to conducting surveys during appropriate conditions, utilizing appropriate reference sites, and evaluating all direct and indirect impacts such as altering offsite hydrological conditions where the above species may be present. Surveys conducted during drought conditions may not be acceptable. If the botanical surveys result in the detection of the above CESA listed plants that may be impacted by the project, or the presence of these species is assumed, the project applicant shall obtain a CESA ITP from CDFW prior to construction and comply with all requirements of the ITP.	Prior to ground disturbance	Project Applicant

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MM-BIO-2: Burrowing Owl Wintering Surveys: A qualified biologist shall conduct a habitat assessment for wintering burrowing owl, and surveys if habitat is present. The qualified biologist shall follow the California Department of Fish and Game (now CDFW) *2012 Staff Report on Burrowing Owl Mitigation* (CDFW 2012 Staff Report) habitat assessment and survey methodology prior to project activities occurring during the burrowing owl wintering season from September 1 to January 31. The habitat assessment and surveys shall encompass a sufficient buffer zone to detect owls nearby that may be impacted, which shall be a minimum of 1,640 feet unless otherwise approved in writing by CDFW. Surveys shall include four non-breeding season surveys spread evenly throughout the nonbreeding season pursuant to the CDFW 2012 Staff Report. Time lapses between surveys or project activities shall trigger subsequent surveys, as determined by a qualified biologist, including but not limited to a final survey within 24 hours prior to ground disturbance and before construction equipment mobilizes to the project area. The qualified biologist shall have a minimum of two years of experience implementing the CDFW 2012 Staff Report survey methodology resulting in detections. Detected burrowing owls shall be avoided pursuant to the buffer zone prescribed in the CDFW 2012 Staff Report, unless otherwise approved in writing by CDFW, and any eviction plan shall be subject to CDFW review. Please be advised that CDFW does not consider eviction of burrowing owls (i.e., passive removal of an owl from its burrow or other shelter) as a “take” avoidance, minimization, or mitigation measure; therefore, off-site habitat compensation shall be included in the eviction plan. Habitat compensation acreages shall be approved by CDFW, as the amount depends on site specific conditions, and completed before project construction unless otherwise approved in writing by CDFW. It shall also include placement of a conservation easement and preparation and implementation of a long-term management plan prior to project construction.	Prior to ground disturbance and annually	Project Applicant

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MM BIO-3: California Red-Legged Frog Habitat Assessment and Surveys: Within 48 hours prior to the commencement of ground-disturbing activities, the project area and nearby vicinity, including a minimum 500-foot radius surrounding the project area, shall be assessed by a qualified biologist for the presence of California red-legged frog individuals and habitat features. Habitat features include both aquatic habitat such as plunge pools and ponds and terrestrial habitat such as burrows. The results of the habitat feature assessment shall be submitted to CDFW for written acceptance prior to starting project activities. Habitat features shall be flagged for avoidance to the extent feasible. If California red-legged frogs are encountered during the assessment or project activities, the project shall not proceed or all work shall cease, and CDFW shall immediately be notified. Work shall not proceed until the frog, through its own volition, moves out of harm's way and CDFW has provided permission in writing to proceed with the project. If California red-legged frog is encountered or the qualified biologist believes that California red-legged frog is likely to occur in the project area, the project shall consult with USFWS pursuant to the federal Endangered Species Act.	Prior to ground disturbance	Project Applicant
MM BIO-4: Lake and Streambed Alteration: The project shall consult with CDFW to demine if onsite aquatic features are subject to Fish and Game Code section 1600 et seq. For project activities that may substantially alter the bed, bank, or channel of any streams (including ephemeral or intermittent streams), a LSA Notification shall be submitted to CDFW pursuant to Fish and Game Code section 1602 prior to project construction. If CDFW determines that a LSA Agreement is warranted, the project shall comply with all required measures in the LSA Agreement, including but not limited to requirements to mitigate impacts to the streams and riparian habitat. Permanent impacts to the stream and associated riparian habitat shall be mitigated by restoration of riparian habitat at a 3:1 mitigation to impact ratio based on acreage and linear distance as close to the project area as possible and within the same watershed and year as the impact. Temporary impacts shall be restored onsite in the same year as the impact.	Prior to ground disturbance	Project Applicant

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MM BIO-5: Nesting Bird Surveys: If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.	Prior to ground disturbance and ongoing	Project Applicant

Letter 6

COMMENTER: Erin Chappell, Regional Manager, California Department of Fish and Wildlife Bay Delta Region

DATE: October 28, 2022

Response 6.1

The commenter states that the California Department of Fish and Wildlife (CDFW) is considered as both a Trustee Agency and a Responsible Agency.

The comment is noted. The comment does not pertain to the adequacy of the Draft SEIR, and no response is required.

Response 6.2

The commenter provides a summary of the project, the project's location, and the project's timeframe.

The comment is noted. The comment does not pertain to the adequacy of the Draft SEIR, and no response is required.

Response 6.3

The commenter states that the project has the potential to result in take of Sonoma sunshine (*Blennosperma bakeri*), Burke's goldfields (*Lasthenia burkei*), man-flowered navarretia (*Navarretia leucephala* ssp*. Plieantha*), and Sebastopol meadowfoam (*Limanthes vinculans*), all listed as endangered species. The commenter opines that a California Endangered Species Act (CESA) Incidental Take Permit (ITP) must be obtained, and encourages early consultation due to the possibility of significant modification to the project and mitigation measures.

Please see Response 6.8 regarding special-status plant species.

Response 6.4

The commenter states that the project may fill unnamed ephemeral drainages and therefore a Lake and Streambed Alteration (LSA) Notification may be required and obtained from the CDFW.

Please refer to Response 6.11 regarding potential impacts to streams.

Response 6.5

The commenter states that fully protected species such as white-tailed kite (Elanus leucurus) may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research, relocation of the bird species for the protection of livestock, or if they are a covered species whose conservation and management is provided for in a Natural Community Conservation Plan.

The comment provides the applicant with information on protections for fully protected species and does not pertain to the adequacy of the Draft SEIR. The comment is noted, and no response is required.

Response 6.6

The commenter states that the CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds, and that migratory birds are also protected under the federal Migratory Bird Treaty Act.

The comment provides the applicant with information on protections for nesting and migratory birds and does not pertain to the adequacy of the Draft SEIR. The comment is noted, and no response is required.

Response 6.7

The commenter states that an SEIR is appropriate for the project based on the project's avoidance of significant impacts on biological resources with implementation of mitigation measures.

The comment is noted.

Response 6.8

The commenter comments on Section 4.1.1, Page 4.1-6, of the Draft SEIR. The commenter opines that wetlands within the project site have the potential to support four CESA and federally listed as endangered plants: Sonoma sunshine, Burke's goldfields, many-flowered navarretia, and Sebastopol meadowfoam, although none of these species were detected during surveys. The commenter states that a full report of protocol-level surveys was not provided in Appendix B of the Draft SEIR, and therefore it was unclear whether surveys were conducted according to the Santa Rosa Plain Conservation Strategy and CDFW 2018 protocols. The commenter expresses the opinion that if CESA and federally listed plants are present on or directly adjacent to the project site where they may be indirectly impacted, the project could potentially result in a significant impact. The commenter recommends adding the mitigation measure proposed by the CDFW to the Draft SEIR to ensure impacts are less than significant.

Five years of protocol-level rare plant surveys (2017 to 2021) were conducted on the project site by an experienced Santa Rosa Plain Botanist, Mr. Charles Patterson, implementing both the Santa Rosa Plain Conservation Strategy and CDFW 2018 protocols.

Multiple surveys were completed at the time of year when plants were both evident and identifiable, as demonstrated through reference site confirmation of blooming (e.g., Alton Lane, Madera, Francisco, & Piner Road) and were spaced throughout the growing season.

The CDFW 2018 protocol identifies when existing surveys require additional supplemental survey work, and none of the conditions identified within the protocol have occurred:

- The surveys are current (completed between 2017 – 2021).
- Although seasonal wetlands are systems that commonly experience year-to-year fluctuations such as periods of drought, five years of surveys were conducted. As such, surveys cover a wide range of potential environmental conditions (from drought years to years of excess rainfall).
- The surveys covered the entire project area.
- The surveys were completed during the appropriate time of year.
- Surveys were completed more than the number of years required (i.e., five years compared to the typical two).

- Plants were identified to the appropriate taxonomic level.
- The site has not experienced fire or land use change since the surveys were completed.
- Vegetation or plant distributions on the site have not changed since the surveys were completed, and
- There are no new studies that would raise questions as to the effectiveness for detection of rare plants.

The Biological Assessment Report of the project site prepared by Mr. Patterson and included as Appendix B of the Draft SEIR includes a description of survey methodology, including survey dates and a complete list of species observed onsite.

The CDFW 2018 protocol does not include any requirement for CDFW written approval of the results, and in accordance with CDFW protocol, conditions have not occurred such that additional surveys are required. In addition, the protocol does not call for an assessment of "evaluating all direct and indirect impacts such as altering offsite hydrological conditions where the above species may be present," as the commenter suggests. Impacts are assessed when presence of the species is demonstrated as a result of the survey, and not hypothetically during the initial site assessment (or survey) period.

Therefore, based on the surveys already completed in accordance with CDFW 2018 protocols, the conclusions in Section 4.2, *Biological Resources*, of the Draft SEIR that there are no special-status plant species on the project site are valid, and no mitigation is required for special-status plant species.

Response 6.9

The commenter comments on Section 4.1.1, Page 4.1-6, of the Draft SEIR. The commenter states that the project is within the wintering distribution of burrowing owl (Athene cunicularia) and contains and is adjacent to grasslands that may be suitable for wintering habitat for the species. The commenter opines that burrowing owls can be impacted up to 500 meters or 1,640 feet away from a project and the Draft SEIR's finding of the absence of natural burrows does not necessarily exclude burrowing owls. The commenter states that burrowing owl is a California Species of Special Concern and protected under Fish and Game Code sections 3503 and 3503.5 and the federal Migratory Bird Treaty Act, therefore, if wintering burrowing owls are present on or within 1,640 feet of the project site, project impacts to burrowing owl would be potentially significant. The commenter recommends adding the mitigation measure proposed by the CDFW to the Draft SEIR to ensure impacts are less than significant.

A single record for burrowing owls exists within 10 miles of the project site (CNDDB Occurrence No. umber 921). This record is for an individual presumably utilizing a culvert adjacent to the Santa Rosa Airport for overwintering. The other proximal records of overwintering burrowing owls cited by the commenter occur 10.4 miles northwest (CNDDB Occurrence No. 921) and 15.6 miles southeast (CNDDB Occurrence No. 564) of the project site. None of these records occur within a landscape comparable to the project site (i.e., grassland habitat surrounded by residential development and active agricultural lands).

The habitat assessment conducted in support of the CEQA analysis and the extensive site assessments conducted by Mr. Patterson over the course of five years (detailed in Response 6.8) clearly demonstrate that the site has continuously supported minimal ground squirrel activity, does not support suitably sized burrows or burrow surrogates, and exhibits no evidence of presence of

burrowing owls. Given the lack of suitable habitat onsite, coupled with the lack of proximal records for this species, an additional habitat assessment and surveys beyond the preconstruction nesting bird surveys required by Mitigation Measure BIO-3 (refer to Response 6.12 for revisions to this measure) are not warranted and would not result in any additional protection for this species. As such, no revisions to the Draft SEIR are required in response to this comment.

Response 6.10

The commenter comments on Section 4.1.1, Page 4.1-6, of the Draft SEIR. The commenter states that the project is within the range and potential habitat for California red-legged frogs (Rana draytonii). The commenter states that California red-legged frog is listed as threatened under the federal Endangered Species Act and is a Species of Special Concern, and the project could potentially injure or kill California red-legged frogs and result in a significant impact. The commenter recommends adding the mitigation measure proposed by the CDFW to the Draft SEIR to ensure impacts are less than significant.

The following Physical and Biological Feature (PBFs) for California red-legged frog were developed by USFWS and are based on the current knowledge of the life-history, biology, and ecology of the species:

1. **Aquatic Breeding Habitat.** Standing bodies of fresh water (with salinities less than 4.5 ppt), including natural and manmade (e.g., stock) ponds, slow-moving streams or pools within streams, and other ephemeral or permanent water bodies that typically become inundated during winter rains and hold water for a minimum of 20 weeks in all but the driest of years.
2. **Aquatic Non-Breeding Habitat.** Freshwater pond and stream habitats, as described above, may not hold water long enough for the species to complete its aquatic life cycle but which provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult California red-legged frog. Other wetland habitats considered to meet these criteria include but are not limited to: plunge pools within intermittent creeks, seeps, quiet water refugia within streams during high water flows, and springs of sufficient flow to withstand short-term dry periods.
3. **Upland Habitat.** Upland areas adjacent to or surrounding breeding and non-breeding aquatic and riparian habitat up to 1 mile, in most cases (i.e., depending on surrounding landscape and dispersal barriers), including various vegetation types such as grassland, woodland, forest, wetland, or riparian areas that provide shelter, forage, and predator avoidance for California red-legged frog. Upland features are also essential in that they are needed to maintain the hydrologic, geographic, topographic, ecological, and edaphic features that support and surround the aquatic, wetland, or riparian habitat. These upland features contribute to: (1) filling of aquatic, wetland, or riparian habitats; (2) maintaining suitable periods of pool inundation for larval frogs and their food sources; and (3) providing nonbreeding, feeding, and sheltering habitat for juvenile and adult frogs (e.g., shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat should include structural features such as boulders, rocks and organic debris (e.g., downed trees, logs), small mammal burrows, or moist leaf litter.
4. **Dispersal Habitat.** Accessible upland or riparian habitat within and between occupied or previously occupied sites that are located within 1-2 miles of each other, and that support movement between such sites. Dispersal habitat includes various natural habitats, and

altered habitats such as agricultural fields, that do not contain barriers (e.g., heavily traveled roads without bridges or culverts) to dispersal. Dispersal habitat does not include moderate- to high-density urban or industrial developments with large expanses of asphalt or concrete, nor does it include large lakes or reservoirs over 50 ac in size, or other areas that do not contain those features identified in PBF 1, 2, or 3 as essential to the conservation of the species.

While the project site is located within the greater range of the California red-legged frog, there are no records for this species within 10 miles of the project site. The wetlands on the project site do not maintain a hydroperiod of sufficient duration to qualify as aquatic breeding habitat (i.e., evidence indicates they do not maintain water for a minimum of 20 weeks) or aquatic non-breeding habitat (i.e., wetland habitats such as plunge pools within intermittent creeks, seeps, quiet water refugia within streams during high water flows, and springs of sufficient flow to withstand short-term dry periods). The site does not occur within two miles of any known or documented California red-legged frog breeding site. Given the lack of suitable wetland habitat on the site and within proximity of the project area for the species, the site would also not qualify as upland or dispersal habitat consistent with the PBFs outlined above. The project site is surrounded by residential development and active agricultural lands, which further reduces the potential for California red-legged frog to access the site.

Given lack of suitable habitat, lack of documented presence of the species within 10 miles of the site, and adjacent land use, preconstruction surveys for this species both on and within a minimum of a 500-foot radius surrounding the project site are not warranted and would not result in any additional protections for this species. Consistent with the determination in Section 4.2, *Biological Resources*, of the Draft SEIR, impacts to the California red-legged frog would be less than significant, and no further revisions to the Draft SEIR are required in response to this comment.

Response 6.11

The commenter comments on Section 4.1.1, Pages 4.1-7 through 4.1-8, of the Draft SEIR. The commenter states that the project would permanently impact several unnamed drainages which may constitute as streams under the Fish and Game Code section 1600 et seq and may fall within the CDFW jurisdiction, which would require the project to submit an LSA Notification. The commenter opines that although the drainages may tie into the storm drain system as stated in the Draft SEIR, the characteristics of the drainages onsite may provide substantial habitat value for plant and wildlife species under CDFW jurisdiction. The commenter states that the project proposes to permanently impact several small drainages, which could substantially alter stream habitat and adversely impact aquatic and terrestrial species, resulting in potentially significant impacts. The commenter recommends that the Draft SEIR identifies that CDFW may be a Responsible Agency for the project if impacts to any stream would occur, and to incorporate the mitigation measure proposed by the CDFW to the Draft SEIR to ensure impacts are less than significant.

As described in Section 4.2, *Biological Resources*, of the Draft SEIR, a Preliminary Jurisdictional Determination was issued by the United States Army Corps of Engineers (USACE) on July 29, 2019, confirming the presence of 1.43 acres of wetland on the project site. The delineation did not identify waters of the U.S. or features with bed, bank or an Ordinary High Water Mark (OHWM). California Code, Fish and Game Code Section 1602 establishes the requirement for a Lake and Streambed Alteration (LSA) Agreement when a project would "divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake". Any river, stream, or lake would be identified as a water of the U.S., even an ephemeral

feature, by the USACE as a part of the verification process. A site visit was conducted October 26, 2022 by Professional Wetland Scientist, Ms. Paula Gill, with Johnson Marigot Consulting, LLC, and it was further confirmed that wetland swales on the site, while eroded in some locations, did not exhibit bed, bank, or OHWM and would therefore not require a LSA if filled. As such, no features occur on the project site that would require a LSA Agreement and the commenter's recommended mitigation measure would be unnecessary.

Section 4.2, *Biological Resources*, of the Draft SEIR includes Mitigation Measure BIO-4, which would require sensitive community offsets and wetlands mitigation plans for losses and impacts to the seasonal wetlands onsite. As such, no further revisions to the Draft SEIR are required in response to this comment.

Response 6.12

The commenter comments on Section 4.1.3, Page 4.1-18, of the Draft SEIR. The commenter opines that Mitigation Measure BIO-3 may not be adequate to avoid impacts to special-status and common nesting raptors such as the white-tailed kite, and does not account for nesting birds that may nest on the ground or on abandoned man-made structures within the project site. The commenter also expresses the opinion that the mitigation measure does not specify a timeframe prior to construction in which the surveys should take place. The commenter recommends replacing Mitigation Measure BIO-3 in the Draft SEIR with the mitigation measure proposed by the CDFW to ensure impacts are less than significant.

While Mitigation Measure BIO-3 of the Draft SEIR would be sufficient to preclude impacts to nesting birds that nest in vegetation such as trees and shrubs, revisions have been made to incorporate the commenter's recommendations into for Mitigation Measure BIO-3 Changes to Mitigation Measure BIO-3 do not rise to the level of "new information" as defined in Section 15088.5 of the *CEQA Guidelines*, and thus recirculation of the Draft SEIR is not required. Page 4.1-18 of the Final SEIR has been revised with the following (changes shown in ~~strikeout~~/underline):

BIO-3 Nesting Bird Protection ~~(2040 General Plan EIR Mitigation Measure BIO-1).~~ ~~The Town shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures.~~

If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations

directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.

Response 6.13

The commenter asks that any special-status species and natural communities detected during project surveys be reported to California Natural Diversity Database (CNDDB).

The comment is noted. Any special-status species and natural communities detected during project surveys will be sent to the CNDDB for reporting.

Response 6.14

The commenter states that the project would have an impact on fish and/or wildlife and an assessment of environmental document filing fees is necessary. The commenter also states that the payment of environmental document filing fee is required in order for the project approval to be operative, vested, and final.

The comment is noted. The applicant will submit applicable environmental document filing fees upon filing of the Notice of Determation.

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9 Revisions to the Draft Supplemental EIR

This section presents minor changes to the Final SEIR since the publication of the Draft SEIR and revisions that have been made to the Draft SEIR as a result of comments received on the document. None of the changes would warrant recirculation of the SEIR pursuant to CEQA Guidelines Section 15088.5.

Changes in text are signified by strikeouts (~~strikeouts~~) where text is removed and by underlined font (underline font) where text is added.

Section 4.1, Biological Resources

Page 4.1-18:

BIO-3 Nesting Bird Protection (2040 General Plan EIR Mitigation Measure BIO-1)

~~The Town shall require project applicants to retain the services of a qualified biologist(s) to conduct a pre-construction nesting bird survey during the nesting season (February 1 through August 31) prior to all new development that may remove any trees or vegetation that may provide suitable nesting habitat for migratory birds or other special-status bird species. If nests are found the qualified biologist(s) shall identify appropriate avoidance measures.~~

If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s) apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established.

The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.

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Appendix A

Initial Study – Notice of Preparation

NOTICE OF PREPARATION
of a Draft Environmental Impact Report for the Estates at Ross Ranch Project

Date:	November 23, 2021
To:	State Clearinghouse Responsible Agencies Trustee Agencies Federal Agencies Interested Parties Property Owners and Occupants within 300-feet of the Project Parcel
Project Title/Sponsor	Estates at Ross Ranch Project/Pink Viking Returns, LLC
NOP Comment Period:	November 23, 2021 to January 6, 2022 by 6:00 p.m.
Project Scoping Meeting:	The Town of Windsor will host a scoping meeting to solicit input on the content of the environmental analysis that will be included in the Draft Supplemental EIR. Date and Time: December 13, 2021 from 6:00 to 7:00 p.m. in person or via Zoom Civic Center Council Chambers 9291 Old Redwood Highway, Building 400 Windsor, California 95492 Or via Zoom at: https://zoom.us/j/97956666072
Project Location:	The project area is located in the northeastern portion of the Town of Windsor at 1295 Jensen Lane. The project area is approximately 17-acres and comprises Assessor's Parcel Number 162-020-004 (project site). The project site is located approximately one mile east of Highway 101 and the eastern and southern boundaries of the site comprise the Town limit lines. Figure 1 shows the location of the site.
Lead Agency Contact Person:	Kimberly Jordan, Planner III Town of Windsor Planning Division (707) 838-5331 kjordan@townofwindsor.com

The Town of Windsor is preparing a Supplemental Environmental Impact Report (SEIR) for the Estates at Ross Ranch Project and is requesting comments on the scope and content of the SEIR, possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the proposed project. The SEIR and associated Initial Study will address the potential physical and environmental effects of the proposed project for each of the environmental topics outlined in the California Environmental Quality Act (CEQA), as set forth in Section 15162 of the CEQA Guidelines.

The Town of Windsor is the Lead Agency for the proposed project. This notice is being sent to the California State Clearinghouse, potential responsible agencies, and other interested parties. Responsible

agencies are those public agencies, besides the Town of Windsor, that also have a role in approving or carrying out the project. When the SEIR is published, a Notice of Availability of a SEIR will be sent to Responsible Agencies, other public agencies, and interested parties and individuals who have indicated that they would like to review the SEIR.

Project Description

The project is a subdivision of an approximately 17.17-acre parcel (Assessor's Parcel Number 162-020-004) located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor. The project would subdivide the site for 30 single family lots. Subdivided lots would range in size from approximately 10,976 to 43,186 square feet. The average lot size would be approximately 19,370 square feet. Water and sewer for the site would be provided by the Town of Windsor and all utilities would be underground. All structures, wells, septic tanks, and fences (with exception of the westerly fence along the Vintage Hills lots) on the site would be removed as part of the project. Figure 2 shows an exhibit of the subdivision.

The project would include a 100-foot agricultural buffer along the southern and eastern boundaries of the project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer when a property that is proposed for development adjoins land that is zoned for or being used as agriculture. The Town requires a buffer of 200-feet, but allows the width of the buffer to be reduced to a minimum of 100-feet in certain circumstances with Town Council approval. Lots 13, 14, 15, and 16 along the southern portion of the project site and near the existing vineyard would not be developed until the parcels to the south are annexed to the Town and no longer used for agriculture.

Probable Environmental Effects and Scope of the SEIR

The SEIR will evaluate whether the proposed project would result in one or more significant environmental effects. Based on the initial analysis and past CEQA analysis conducted for the project site as part of the 2040 General Plan EIR, the following issues will be analyzed in depth in the SEIR:

- Biological Resources. The project site contains several sensitive habitats and potential for special-status species. Future development on the project site could result in loss of sensitive habitats and direct and/or indirect impacts to special-status species.
- Cultural Resources and Tribal Cultural Resources. The project site contains existing structures over 50 years of age that may be historic and has the potential to include archaeological and/or tribal cultural resources. Future development on the project site could impact these resources.
- Hydrology and Water Quality. The project has the potential to impact flooding or stormwater drainage systems during a 100-year storm event.
- Transportation. The project may cause a significant effect to vehicle miles traveled (VMT), which would cause an inconsistency with CEQA Guidelines section 15064.3.
- Wildfire. The project site was involved in the 2019 Kincade fire and is susceptible to wildfires. Future development on the project site may be susceptible to wildfire impacts.

All other CEQA environmental topics are anticipated to have less than significant impacts and will be analyzed in an Initial Study which will be an appendix to the SEIR. The Initial Study is available online at: https://townofwindsor.com/1318/Estates-at-Ross-Ranch. Consistent with the requirements of CEQA Guidelines Section 15162, the SEIR will analyze the environmental impacts of (1) substantial changes in the proposed project, (2) substantial changes that have occurred with respect to the circumstances under which the project will be undertaken, and (3) new information of substantial importance, which was not known and could not have been known at the time the previous EIR was certified.

The SEIR will also examine the range of alternatives to the project to determine whether alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, or whether alternatives which are considerably different from those

The SEIR will also examine the range of alternatives to the project to determine whether alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, or whether alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment.

NOP Comment Period: In accordance with the time limits identified in state law, please respond to this NOP with your comments on the scope and content of the SEIR at the earliest possible date, but **not later than 6:00 p.m. on January 6, 2022**. Please include the name of the contact person for your agency and submit written comments to:

Kimberly Jordan, Planner III
Planning Division
Town of Windsor
P.O. Box 100
Windsor, CA 95492
Kjordan@townofwindsor.com
(707) 838-5331

Attachments

1. Project Site Figure and Subdivision Exhibit
2. NOP Mailing List

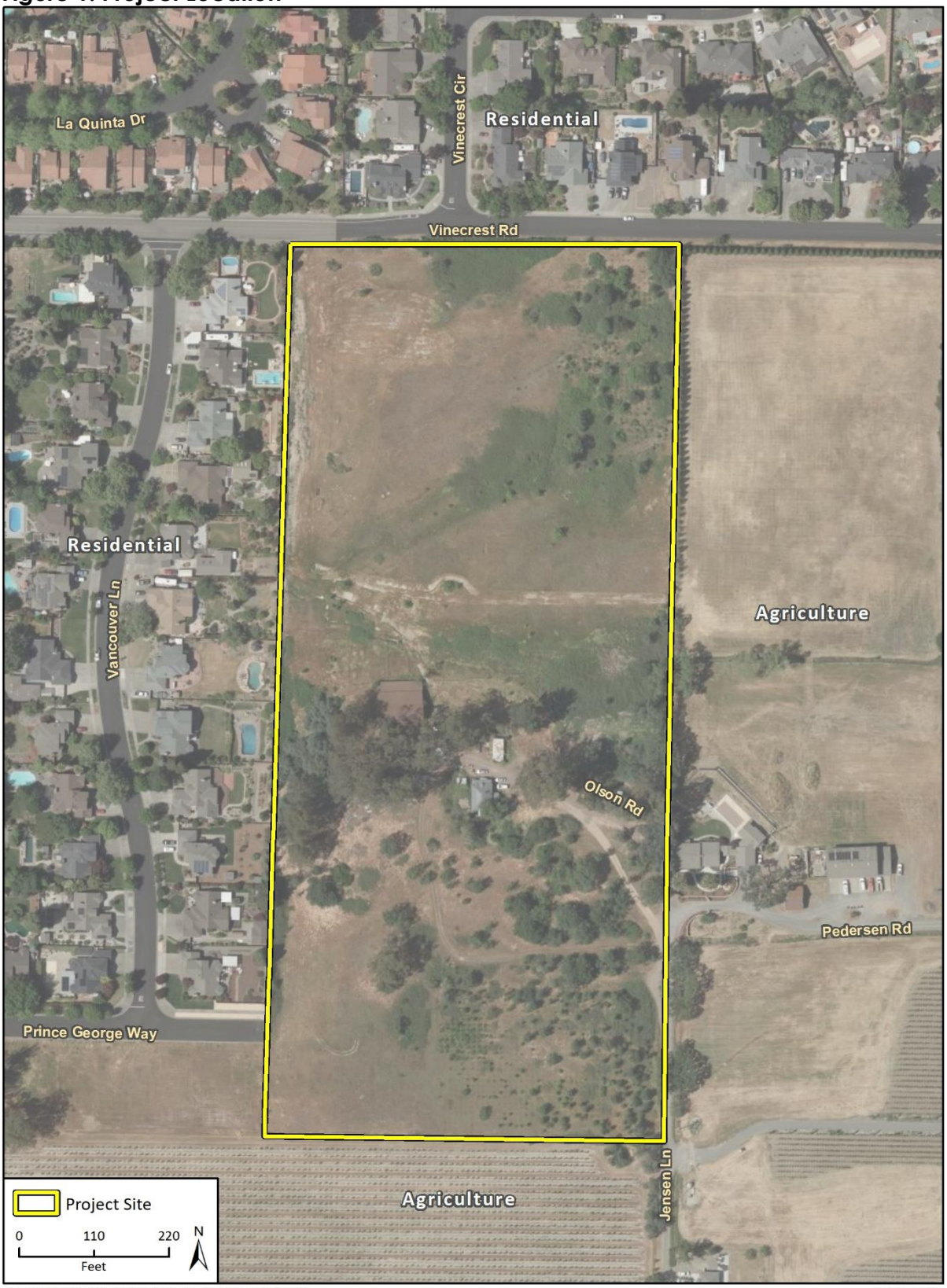
Date: 11.17.2021

Signature: Kimberly Jordan

Title: Planner III

Telephone: (707) 838-5331

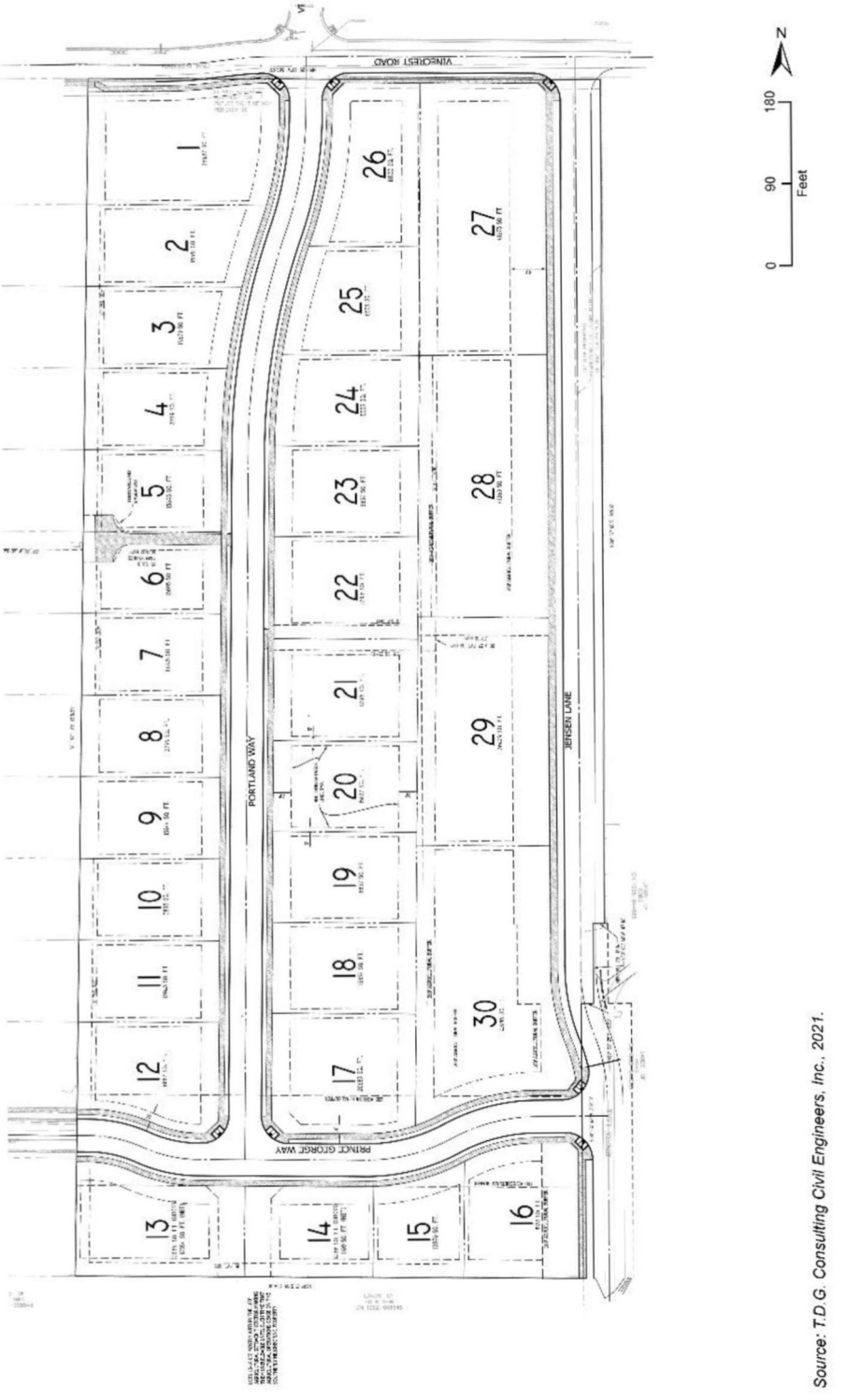
Figure 1: Project Location



Imagery provided by Microsoft Bing and its licensors © 2021.

Fig 2 Project Site

Figure 2: Subdivision Exhibit



Source: T.D.G. Consulting Civil Engineers, Inc., 2021.

NOP Mailing List

County Agencies
Sonoma County Environmental Health
PRMD/Planning
Transit Authority Sonoma County Transit
Sonoma County Transportation Authority
Sonoma Water (name change only)

Local Districts & Utilities
Sonoma County Fire District
North So Co Air Pollution Control District
Windsor Unified School District
Sonoma County Resource and Recovery (SCRR)
AT&T
P.G. & E
Comcast Cable Company

Other Agencies
Army Corps of Engineers
Native Plant Society
Northwest Information Center
Sonoma/Marin Area Transit (SMART)
Marin/Sonoma Vector Control & Mosquito Abatement District
Shiloh Cemetery District
Sotoyome-Santa Rosa Resource Conservation District

Others
Town Property Owners and Occupants within 300-feet of the project parcel
Project Interested Parties Email List

State Agencies via State Clearinghouse:
Air Resources Board
California Emergency Management Agency
California Highway Patrol
Caltrans District # 4
Caltrans Division of Aeronautics
Caltrans Planning Resources Agency
Conservation, Department
Corrections, Department of
Education, Department of
Energy Commission
Fish & Wildlife Region # 3
Food & Agriculture, Department of
Forestry and Fire Protection, Department of
General Services, Department of
Health Services, Department of
Housing & Community Development
Native American Heritage Commission
Office of Historic Preservation
Office of Public School Construction
Parks & Recreation, Department of
Pesticide Regulation, Department of
Public Utilities Commission
Regional WQCB #1
Resources Recycling and Recovery, Dept. of
State Lands Commission
SWRCB: Clean Water Grants
SWRCB: Water Quality
SWRCB: Water Rights
Toxic Substances Control, Department of
Water Resources, Department of

NATIVE AMERICAN HERITAGE COMMISSION

RECEIVED

DEC 02 2021

TOWN OF WINDSOR

November 24, 2021

Kimberly Jordan
Town of Windsor
9291 Old Redwood Highway
Town of Windsor, CA 95492

Re: 2016112065, Estates at Ross Ranch Development Project, Sonoma County

Dear Ms. Jordan:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Isaac Bojorquez
Ohlone-Costanoan

COMMISSIONER
Sara Dutschke
Miwok

COMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki, Nomlaki

COMMISSIONER
Wayne Nelson
Luiseño

COMMISSIONER
Stanley Rodriguez
Kumeyaay

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Environmental Planner

cc: State Clearinghouse

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Bay Delta Region
2825 Cordelia Road, Suite 100
Fairfield, CA 94534
(707) 428-2002
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

January 6, 2022

Kimberly Jordan
Town of Windsor
9291 Old Redwood Highway
Windsor, CA 95492
kjordan@townofwindsor.com

Subject: Estates at Ross Ranch Development Project, Notice of Preparation of a Draft Supplemental Environmental Impact Report and Initial Study, SCH No. 2016112065, Sonoma County

Dear Ms. Jordan:

The California Department of Fish and Wildlife (CDFW) reviewed the Notice of Preparation (NOP) of a draft Supplemental Environmental Impact Report (SEIR) and Initial Study provided for the Estates at Ross Ranch Development Project (Project) located in the Town of Windsor, Sonoma County.

CDFW is a Trustee Agency with responsibility under the California Environmental Quality Act (CEQA) for commenting on projects that could impact fish, plant and wildlife resources (Pub. Resources Code, § 21000 et seq.; Cal. Code Regs., tit. 14, § 15386). CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as a California Endangered Species Act (CESA) or Native Plant Protection Act Permit, Lake and Streambed Alteration (LSA) Agreement, and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources. Pursuant to our jurisdiction, CDFW has the following comments and recommendations regarding the Project.

PROJECT DESCRIPTION AND LOCATION

The Project is located in the northeastern portion of the Town of Windsor at 1295 Jensen Lane. The approximate center coordinate for the Project is latitude 38.5532, and longitude -122.78988. The Project would occur on Assessor's Parcel Number 162-020-004. The Project would involve the subdivision and development of an approximately 17.17-acre parcel into 30 single family lots.

The CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.) require that the draft SEIR incorporate a full project description, including reasonably foreseeable future phases of the Project, and that contains sufficient information to evaluate and review the Project's environmental impact (CEQA Guidelines, §§ 15124 & 15378). Please include a complete description of the following project components in the Project description:

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- Footprints of permanent Project features and temporarily impacted areas, such as staging areas and access routes;
- Encroachments into riparian habitats, wetlands or other sensitive areas;
- Construction schedule, activities, equipment and crew sizes; and
- Operational features of the Project, including level of anticipated human presence (describe seasonal or daily peaks in activity, if relevant), artificial lighting/light reflection, noise and, traffic generation, and other features, both during construction and after completion of the Project.

REGULATORY REQUIREMENTS

California Endangered Species Act

Please be advised that a CESA Permit must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. **The Project may result in impacts to the CESA listed as endangered Sebastopol meadowfoam (*Limnanthes vinculans*), Burke's goldfields (*Lasthenia burkei*), many-flowered navarretia (*Navarretia leucocephala* ssp. *plienantha*) and Sonoma sunshine (*Blennosperma bakeri*), as further described below.**

CEQA requires a Mandatory Finding of Significance if a project is likely to if a project is likely to substantially restrict the range or reduce the population of a threatened or endangered species (Pub. Resources Code, §§ 21001, subd. (c), 21083; CEQA Guidelines, §§ 15380, 15064, & 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code section 2080 et seq.

Lake and Streambed Alteration

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for Project activities affecting lakes or streams and associated riparian habitat. Notification is required for any activity that will substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank including associated riparian or wetland resources; or deposit or dispose of material where it may pass into a river, lake or stream. **The Project may result in impacts to a stream, as further**

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described below. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are subject to notification requirements. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document for the Project. CDFW may not execute the final LSA Agreement until it has complied with CEQA as the responsible agency.

ENVIRONMENTAL SETTING

Sufficient information regarding the environmental setting is necessary to understand the Project's, and its alternatives' (if applicable), significant impacts on the environment (CEQA Guidelines, §§ 15125 & 15360). According to the Initial Study, the Project site consists primarily of non-native grasslands, with wetlands present throughout the northern and southwest corners of the site. Aerial imagery and the California Aquatic Resources Inventory database indicate the presence of a drainage that may constitute a stream on the Project site potentially connected to wetlands. CDFW recommends that the CEQA document prepared for the Project provide baseline habitat assessments for special-status plant, fish and wildlife species located and potentially located within the Project area and surrounding lands, including *but not limited to* all rare, threatened, or endangered species (CEQA Guidelines, § 15380). The draft SEIR should describe aquatic habitats, such as wetlands, vernal pools, or waters of the U.S. or State, and any sensitive natural communities (see: https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities) or riparian habitat occurring on or adjacent to the Project site. Fully protected, threatened or endangered, candidate, and other special status species that are known to occur, or have the potential to occur in or near the Project site, include, *but are not limited to*, those listed in the table below.

Species	California Endangered Species Act	Federal Endangered Species Act	Other Special-Status	Nearest Observation to Project Site[1]
Western burrowing owl *Athene cunicularia*			SSC[2]	2.5 miles SW; 2017
White-tailed kite *Elanus leucurus*			FP[3]	5.6 miles W; 1998
Townsend's big-eared bat *Corynorhinus townsendii*			SSC	1.7 miles W; 2017
Burke's goldfield *Lasthenia burkei*	E[4]	E		1.7 miles NW; 2019
Many-flowered navarretia *Navarretia leucocephala* ssp. *plienantha*	E	E		2.2 miles SW; 1998

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Sebastopol meadowfoam *Limnanthes vinculans*	E	E		2.4 miles SW; 2014
Sonoma sunshine *Blennosperma bakeri*	E	E		2.4 miles SW; 1998
Other special-status plants			CRPR[5]	1.5 miles SW; 1990
Nesting birds			F&GC[6]; MBTA[7]	

[1] Data obtained from the California Natural Diversity Database
[2] FP: California Fully Protected species
[3] SSC: California Species of Special Concern
[4] E: Endangered
[5] CRPR: California Rare Plant Rank species
[6] F&GC: Protected under Fish and Game Code section 3503
[7] MBTA: Protected under Migratory Bird Treaty Act of 1918

Habitat descriptions, species profiles, and the potential for species occurrence should include information from multiple sources such as: aerial imagery, historical and recent survey data, field reconnaissance, scientific literature and reports, the U.S. Fish and Wildlife Service's (USFWS) Information, Planning, and Consultation System, and findings from "positive occurrence" databases such as California Natural Diversity Database (CNDDB). Based on the data and information from the habitat assessment, the CEQA document can then adequately assess which special-status species are likely to occur in the Project vicinity.

CDFW recommends that during project planning surveys be conducted for special-status species with potential to occur, following recommended survey protocols if available. Survey and monitoring protocols and guidelines are available at: https://www.wildlife.ca.gov/Conservation/Survey-Protocols.

Botanical surveys for special-status plant species, including California Rare Plant Rank species listed by the California Native Plant Society (CNPS) (found at: http://www.cnps.org/cnps/rareplants/inventory/), must be conducted during the appropriate identification period for all special-status plant species potentially occurring within and where offsite indirect impacts may occur, adjacent to, the Project area and require the identification of reference populations. Please refer to CDFW protocols for surveying and evaluating impacts to special-status plants available at: https://www.wildlife.ca.gov/Conservation/Plants.

IMPACT ANALYSIS AND MITIGATION MEASURES

The draft SEIR should discuss all direct and indirect impacts (temporary and permanent), including reasonably foreseeable impacts, that may occur with Project

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implementation (CEQA Guidelines, § 15126, 15126.2, & 15358). This includes evaluating and describing impacts such as:

- Loss or modification of breeding, nesting, dispersal and foraging habitat, including vegetation removal, alternation of soils and hydrology, and removal of habitat structural features (e.g., snags, roosts, overhanging banks);

- Permanent and temporary habitat disturbances associated with ground disturbance, noise, lighting, reflection, air pollution, traffic or human presence;

- Obstruction of movement corridors, fish passage, or access to water sources and other core habitat features; and

- Permanent or temporary changes to natural community composition.

The CEQA document also should identify reasonably foreseeable future projects in the Project vicinity, disclose any cumulative impacts associated with these projects, determine the significance of each cumulative impact, and assess the significance of the Project's contribution to the impact (CEQA Guidelines, §15355). Although a project's impacts may be insignificant individually, its contributions to a cumulative impact may be considerable; a contribution to a significant cumulative impact – e.g., reduction of available habitat for a listed species – should be considered cumulatively considerable without mitigation to minimize or avoid the impact.

Based on the comprehensive analysis of the direct, indirect, and cumulative impacts of the Project, the CEQA Guidelines direct the lead agency to consider and describe all feasible mitigation measures to avoid potentially significant impacts in the draft SEIR, and/or mitigate significant impacts of the Project on the environment (CEQA Guidelines, §§ 15021, 15063, 15071, 15126.2, 15126.4 & 15370). This includes a discussion of take avoidance and minimization measures for special-status species, which are recommended to be developed in early consultation with CDFW, USFWS, and the National Marine Fisheries Service. These measures can then be incorporated as enforceable Project conditions to reduce potential impacts to biological resources to less than significant levels.

Fully protected species such as white-tailed kite may not be taken or possessed at any time (Fish & G. Code, §§ 3511, 4700, 5050, & 5515). Therefore, the draft SEIR should include measures to ensure complete take avoidance of fully protected species.

Based on the information in the Initial Study and CDFW's knowledge of the Project vicinity, the Project may result in significant impacts to the biological resources identified above. Therefore, CDFW recommends including the following mitigation measures in

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the draft SEIR to reduce impacts to fish and wildlife resources to less-than-significant if appropriate based on the complete analysis within the SEIR.

1. California Endangered Species Act Protected and Other Special-Status Plants

   a. *Prior to the initiation of Project activities, a qualified botanist shall conduct at least two years of botanical surveys at the Project site during appropriate conditions where suitable wetland habitat for California Endangered Species Act (CESA) listed species occurs, in conformance with California Department of Fish and Wildlife's (CDFW's) 2018 Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities (see: https://wildlife.ca.gov/Conservation/Survey-Protocols#377281280-plants) and the Santa Rosa Plain Conservation Strategy Appendix D, unless otherwise approved in writing by CDFW. Impacts may include direct and indirect impacts (e.g., hydrological modifications), therefore surveys shall encompass any suitable habitat adjacent to the Project site that may be impacted. Survey results must receive CDFW written acceptance to be considered valid.*

   b. *If botanical surveys detect CESA listed species, CDFW does not accept survey results, or CDFW provides approval in writing that presence of CESA listed species may be assumed, then prior to the initiation of Project activities directly or indirectly impacting wetland habitat suitable to support CESA listed species, including Sebastopol meadowfoam (*Limnanthes vinculans*), Burke's goldfields (*Lasthenia burkei*), many-flowered navarretia (*Navarretia leucocephala *ssp.* plienantha*) and Sonoma sunshine (*Blennosperma bakeri*), the Project shall obtain an Incidental Take Permit (ITP) from CDFW. The Project shall comply with all requirements of the ITP. Regardless of whether an ITP is obtained, the Project shall provide habitat mitigation consistent with the Santa Rosa Plain Conservation Strategy (see: https://www.fws.gov/sacramento/es/Recovery-Planning/Santa-Rosa/santa-rosa-strategy.php). In addition to compliance with CESA, the Project shall consult with the U.S. Fish and Wildlife Service (USFWS) for impacts to federally listed plants, including the above plant species, or their habitat pursuant to the Federal Endangered Species Act and receive authorization for impacts if required by USFWS. Although often consistent, please be advised that CESA ITP habitat compensation requirements may differ from those included in the Santa Rosa Plain Conservation Strategy or required by USFWS.*

   c. *If other special status plants may be impacted, such as California Rare Plant Rank species, the Project shall submit a special status plant mitigation plan to CDFW for written approval. The plan shall include offsite habitat compensation at a 3:1 mitigation to impact ratio, a long-term management plan, and funding*

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for habitat protection and management in perpetuity, unless otherwise approved in writing by CDFW. Once approved by CDFW, the Project shall implement the special status plant mitigation plan prior to the onset of ground disturbing Project activities, or within 18 months of the onset of ground disturbing Project activities if a financial security in an amount approved by CDFW is provided to the lead agency. If CDFW does not have the staffing resources to review and approve the above items, a qualified botanist approved by CDFW may review and approve them.

2. Lake and Streambed Alteration

   a. *The Project proponent shall submit a Lake and Streambed Alteration (LSA) Notification to CDFW, obtain an LSA Agreement prior to Project construction, and comply with the Agreement if it is determined that any onsite drainage including any connected wetlands is subject to Fish and Game Code section 1600 et seq.*

   b. *Permanent impacts to drainages subject to Fish and Game Code section 1600 et seq. shall be mitigated by either on-site or offsite restoration within the same stream or watershed at a minimum 3:1 mitigation to impact ratio for the linear distance and square feet permanently impacted. Temporary impacts shall be restored onsite at a 1:1 ratio. A restoration plan shall be prepared and implemented within the same year that Project construction is completed. The plan shall be prepared by a qualified biologist and shall include a minimum 80 percent survival and cover for success criteria, maintenance, and monitoring of plantings for five years. If success criteria are not met, replacement planting, maintenance, and monitoring shall be required for an additional five years. If the Project must remove trees from the riparian corridor of any streams, tree plantings shall be replanted on-site or at an off-site location approved by CDFW at the following ratios:*

      i. *1:1 for non-native trees*

      ii. *3:1 for native trees (excluding oaks)*

      iii. *4:1 for oak trees between 5 and 10 inches DBH*

      iv. *5:1 for oak trees between 10 and 15 inches DBH; and*

      v. *10:1 for oak trees greater than 15 inches DBH*

   Oaks shall be sourced using locally procured trees of the same species; and they shall be maintained and monitored for a minimum of five years. Planted oak trees shall achieve an 80 percent survival rate after five years and annual

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monitoring reports shall be provided to CDFW. If tree plantings have not achieved at least 80 percent survival after 5 years, new trees shall be planted and monitored for an additional 5 years to achieve 80 percent survival. Planted trees shall be able to survive the last two years of the minimum 5-year monitoring period without supplemental irrigation. CDFW recommends that cages be placed around planted trees if deer browse is a concern, and that weeding occur within and around caged trees until the trees become well-established. Once the trees become a sufficient size to withstand deer browse, the cages shall be removed.

3. Western Burrowing Owl

    a. *To protect burrowing owl in their winter habitat, if Project activities shall occur between September 1 and January 31, a qualified biologist shall conduct a habitat assessment and surveys, if warranted based on the habitat assessment, pursuant to the Department of Fish and Game (currently Department of Fish and Wildlife) Staff Report on Burrowing Owl Mitigation (2012) survey methodology prior to the commencement of Project activities. The assessment and surveys shall cover the Project area and adjacent habitat as outlined in the CDFW Staff Report on Burrowing Owl Mitigation. If burrowing owl is detected, a qualified biologist shall establish suitable buffers to ensure the owl is not disturbed by the Project pursuant to the buffer distances outlined in the CDFW Staff Report on Burrowing Owl Mitigation. To prevent encroachment, the established buffers shall be clearly marked by high visibility material. The established buffers shall remain in effect until the burrow is no longer occupied as confirmed by the qualified biologist, unless a burrowing owl exclusion and mitigation plan, including but not limited to habitat compensation through a conservation easement at a minimum 2:1 mitigation to impact ratio including foraging habitat around the occupied wintering habitat (e.g., burrow), a long term management plan, funding for long term management in perpetuity, and identification of overwintering burrowing owl habitat (i.e., suitable burrows) within reasonable dispersal distance of the Project area, is submitted to CDFW and receives approval in writing from CDFW. Once approved by CDFW, the Project shall implement the burrowing owl exclusion and mitigation plan and complete habitat compensation prior to the onset of ground disturbing Project activities.*

4. Roosting Bats

    a. *Prior to any tree removal, a qualified biologist shall conduct a habitat assessment for bats. The habitat assessment shall be conducted a minimum of 30 to 90 days prior to tree removal and shall include a visual inspection of potential roosting features. (e.g., cavities, crevices in wood and bark, exfoliating*

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bark for colonial species, suitable canopy for foliage roosting species). If suitable habitat trees are found, they shall be flagged or otherwise clearly marked, CDFW shall be notified immediately, and tree trimming or removal shall not proceed without approval in writing from CDFW. Trees may be removed only if: a) presence of bats is presumed, or documented during the surveys described below, in trees with suitable habitat, and removal using the two-step removal process detailed below occurs only during seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15, or b) after a qualified biologist, under prior written approval of the proposed survey methods by CDFW, conducts night emergency surveys or complete visual examination of roost features that establish absence of roosting bats. Two-step tree removal shall be conducted over two consecutive days, as follows: 1) the first day (in the afternoon), under the direct supervision and instruction by a qualified biologist with experience conducting two-step tree removal, limbs and branches shall be removed by a tree cutter using chainsaws only. Limbs with cavities, crevices or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed.

b. *If suitable bat habitat structures (bridges, culverts, barns and other structures, etc.) identified by a qualified biologist exist within the Project area, then a qualified biologist shall survey for bats 30 to 90 days prior to the beginning of Project-related activities, unless otherwise approved in writing by CDFW. Survey results shall be submitted to CDFW prior to commencing ground-disturbing or structure-disturbing activities. If roosting bats are detected in structures planned for removal, an associated bat exclusion plan shall be submitted to CDFW for approval and implemented. The plan shall recognize that both maternity and winter roosting seasons are vulnerable times for bats and require exclusion outside of these times, generally between March 1 and April 15 or September 1 and October 15 when temperatures are sufficiently warm. Habitat removal activities shall cease if bats are found roosting within the Project area. Bats shall not be disturbed without specific notice to and written approval from CDFW. Exclusion plan implementation results shall be submitted to CDFW for written acceptance prior to ground-disturbing activities.*

c. *Removal of bat roosting structures shall not start until the qualified biologist confirms that bats have left the site pursuant to the bat exclusion plan. Bat habitat shall be removed during the seasonal periods of bat activity from approximately March 1 through April 15 and September 1 through October 15. If any injured or killed bats are observed while removing habitat, all removal activities shall cease immediately, and Permittee shall contact CDFW within 24 hours. In this event, habitat removal activities shall not resume until CDFW has provided written permission.*

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5. Nesting Birds

   A qualified biologist shall conduct nesting bird surveys no more than seven days prior to the initiation of Project activities. Surveys should be repeated if there is a lapse in Project activities of seven days or more. No-disturbance nest buffers should be determined by a qualified biologist based on species, nest stage, and site conditions. Nests shall be monitored daily during Project-related activities by a qualified biologist to determine the sufficiency of the buffer and whether it should be expanded to protect the nest based on disruptions to an individual bird's natural nesting behaviors, unless otherwise approved by CDFW.

Any other resource agency permits or approvals should be required in an additional mitigation measure, such as Clean Water Act permitting from the Army Corps of Engineers and Water Quality Control Board, or a Biological Opinion from the USFWS. Requiring such permits as a mitigation measure ensures that the Project obtains the required permits protecting the environment and reducing impacts.

GENERAL SUGGESTIONS

CDFW suggests including the following general construction measures for the protection of wildlife species:

a. *Any fencing, signposts, or vertical poles installed temporarily or permanently throughout the course of the Project shall have the top capped and/or the top three post holes covered or filled with screws or bolts to prevent the entrapment of wildlife.*

b. *Any open trenches, pits, or holes with a depth larger than one-foot shall be covered at the conclusion of work each day with a hard, non-heat conductive material (i.e., plywood). No netting, canvas, or material capable of trapping or ensnaring wildlife shall be used to cover open trenches. If use of a hard cover is not feasible, multiple wildlife escape ramps shall be installed, constructed of wood or installed as an earthen slope in each open trench, hole, or pit that is capable of allowing large (i.e., deer) and small (i.e., snakes) from escaping on their own accord. Prior to the initiation of construction each day and prior to the covering of the trench at the conclusion of work each day, a qualified biologist or on-site personnel shall inspect the open trench, pit, or hole for wildlife. If wildlife is discovered, it shall be allowed to leave on its own accord.*

c. *Integrated pest management solutions that emphasize non-chemical pest management shall be used over chemical pesticides to the extent feasible. Rodenticides and insecticides shall not be used on the Project site.*

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d. *No erosion control materials containing plastic monofilament netting (erosion control matting) or similar material containing netting shall be used within the Project area due to documented evidence of amphibians and reptiles becoming entangled or trapped in such material. The Project proponent shall use natural-fiber substitutes (e.g., coconut coir matting).*

The above recommended mitigation measures and general suggestions would likely be required under the LSA Agreement for the Project, as applicable, if issued by CDFW.

ENVIRONMENTAL DATA

CEQA requires that information developed in EIRs and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDB. The CNNDB online field survey form and other methods for submitting data can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Submitting-Data. The types of information reported to CNDDB can be found at the following link: https://wildlife.ca.gov/Data/CNDDB/Plants-and-Animals.

FILING FEES

CDFW anticipates that the Project will have an impact on fish and/or wildlife, and assessment of filing fees is necessary (Fish & G. Code, § 711.4; Pub. Resources Code, § 21089). Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW.

If you have any questions, please contact Ms. Jennifer Rippert, Senior Environmental Scientist (Specialist), at (707) 799-4210 or Jennifer.Rippert@wildlife.ca.gov, or Ms. Melanie Day, Senior Environmental Scientist (Supervisory), at (707) 210-4415 or Melanie.Day@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Stephanie Fong
CF047D7E8D234E1...

Stephanie Fong
Acting Regional Manager
Bay Delta Region

cc: State Clearinghouse #2016112065

Vincent Griego, U.S. Fish and Wildlife Service, Vincent_Griego@fws.gov

From: Kathy Besio Borg <kbesio@sonic.net>
Sent: Monday, December 27, 2021 7:27 PM
To: Kimberly Jordan <kjordan@townofwindsor.com>
Cc: john@borgplumbing.com
Subject: Ross Ranch Property

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

December 27, 2021

Kimberly Jordan, Planner III

Planning Division

Town of Windsor

PO Box 100

Windsor, CA 95492

RE: Estates at Ross Ranch Project/Pink Viking Returns, LLC – 1295 Jensen Lane

Dear Ms. Jordan:

We own both lots that border the east side of the Ross Ranch Project.

After reviewing the proposed plan for this project; we have several concerns regarding the proposed gate blocking Jensen Lane just south of the Prince George Way extension. It is our understanding that this gate would be accessible for emergency vehicles only.

Our first concern is that this would prohibit our access between our two driveways. It would require us to drive more than 2 miles through a residential neighborhood to access our other driveway that is only approximately 200 yards away. There is constantly equipment, which includes tractor trailers, being moved in and out to service the vineyard. If a gate is located at the currently proposed location; this equipment would have to be routed through residential neighborhoods.

We suggest if there is a requirement to block Jensen Lane that the gate be located just north of our 1296 residential entrance. This would allow us access between the two driveways and continue to allow large equipment for agricultural use to be routed through Jensen Lane.

1190 Jensen Lane is owned by our family members and the currently proposed gate location would also block our direct access to them.

We are also curious about the overhead power lines that border our property and the proposed project. We are assuming the utilities would be installed underground and would like to inquire what the plan is to re-attach our service. Our power currently comes from the Vinecrest Road area.

We thank you for reviewing our concerns and look forward to your response.

Sincerely,

John and Kathy Borg

1296 Jensen Lane

Windsor, CA 95492

(707) 481-2148

john@borgplumbing.com

kbesio@sonic.net

December 13, 2021

Attn: Kim Jordan

Town of Windsor
P.O. Box 100
Windsor, CA 95492

Subject: SEIR for Estates at Ross Ranch Project

In regard to the potential physical and environmental effects of the proposed project, please review potential traffic impacts and mitigations along Vinecrest Road. Specifically, for increased traffic activity at Vinecrest Road and Vinecrest Circle, please evaluate the potential for use of a roundabout in lieu of two or four way traffic stops signs.

As in other growing municipalities, the use of roundabouts has increased due to their benefits of reduced traffic accidents. Studies conducted nationally and in California show that roundabouts reduce traffic accidents (i.e., https://safety.fhwa.dot.gov/intersection/roundabouts/ and https://www.iihs.org/topics/roundabouts) and can be used in the instance of four-way stop intersections.

In the Town of Windsor, roundabouts have had a growing impact on residential use both in Vintage Greens and at major intersections along old Redwood Highway near the Oliver's Market, and at Windsor River Road in Windsor Road. Traffic along Vinecrest Road is already impacted by local residents and people who use the Foothill Park entrance on Vinecrest Circle. By utilizing a roundabout instead of stop signs at Vinecrest Road and Vinecrest Circle, current and future traffic impacts would be reduced resulting in safer transit in all directions.

We look forward to the results of the SEIR for Estates at Ross Ranch Project and we beseech the consultant authors of the SEIR, and Town staff planners, to seriously consider implementing a roundabout for safer traffic and reduced environmental effects at the intersection of Vinecrest Road and Vinecrest Circle.

Respectfully submitted,



Mark Millan
9481 Vinecrest Road
Windsor, CA 95492

From: Lisa Steinman <Lisa.Steinman@sonoma-county.org>
Sent: Monday, December 20, 2021 2:29 PM
To: Amanda May <amay@townofwindsor.com>
Cc: Jennifer Lyle <Jennifer.Lyle@sonoma-county.org>; Leslye Choate <Leslye.Choate@sonoma-county.org>
Subject: RE: Estates at Ross Ranch, 1295 Jensen Lane - Notice of Preparation

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Hello Amanda,

Our team has reviewed this project and Environmental Health does not have any environmental concerns or comments on this subdivision project as currently proposed.

We do not see a food facility or a public pool/water feature proposed but the following would apply if those uses are to be included.

If a public pool/spa/therapy pool or public interactive water feature is proposed, a review and approval of the building plans is required prior to issuance of a public pool permit.

A retail food facility permit is required to store, prepare, package, serve or vend food. A review and approval of the building plans will be required prior to issuance of a retail food facility permit to operate. If this site maintains/constructs a kitchen use to prepare foods to serve the school children, the site falls under a retail food facility classification in the California Retail Food Code.

Regards and Happy Holidays,
Lisa

Lisa Steinman
Program Planning and Evaluation Analyst
sonomacounty
DEPARTMENT OF HEALTH SERVICES

County of Sonoma
Department of Health Services
625 Fifth Street
Santa Rosa, CA 95404
Lisa.Steinman@sonoma-county.org
(707) 565-6562

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Please consider the environment before printing this e-mail, or opt to print on both sides of the paper.

From: Amanda May <amay@townofwindsor.com>
Sent: Tuesday, November 23, 2021 7:57 AM
To: Amanda May <amay@townofwindsor.com>
Subject: Estates at Ross Ranch, 1295 Jensen Lane - Notice of Preparation

EXTERNAL

The Town of Windsor is preparing a Supplemental Environmental Impact Report (SEIR) for the Estates at Ross Ranch Project located at 1295 Jensen Lane in Windsor. The Notice of Preparation (NOP) for the Environmental Impact Report is attached. The review and comment period on the scope of the EIR and Initial Environmental Study begins November 23, 2021 and will close on January 6, 2022. Please send written comments to the project's planner:

Kimberly Jordan, Planner III
Town of Windsor
Planning Division
Kjordan@townofwindsor.com
(707) 838-5331

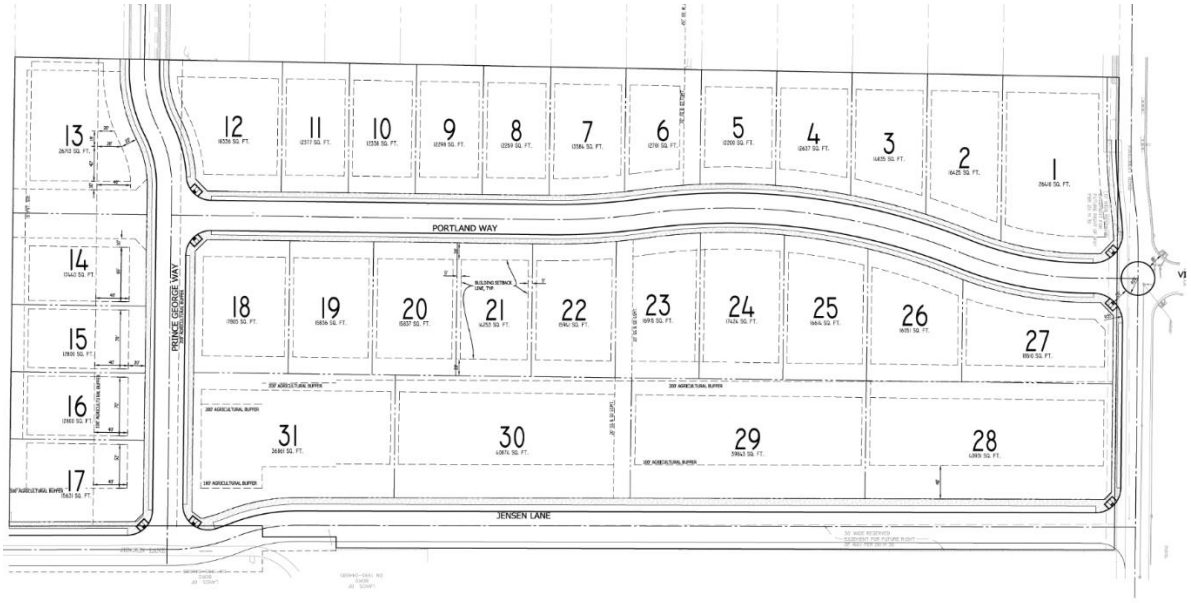
The Town of Windsor will host a scoping meeting to solicit input on the content of the environmental analysis that will be included in the Draft Supplemental EIR.

Date and Time: December 13, 2021 from 6:00 p.m. to 7:00 p.m. in person or via Zoom
Civic Center Council Chambers (face coverings required)
9291 Old Redwood Highway, Building 400
Windsor, California 95492
Or via Zoom at: https://zoom.us/j/97956666072

Please visit the project's website for additional information: https://townofwindsor.com/1318/Estates-at-Ross-Ranch

Town of Windsor |9291 Old Redwood Highway Bldg. 400 |Windsor, CA 95492
707-838-1000 |707 838-7349 Fax |*Monday – Thursday 7am - 6pm*
www.townofwindsor.com

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Estates at Ross Ranch

Initial Study

prepared by

Town of Windsor
Community Development Department
9291 Old Redwood Highway
Windsor, California 95492
Contact: Kimberly Jordan, Planner III

prepared with the assistance of

Rincon Consultants, Inc.
4825 J Street, Suite 200
Sacramento, California 95819

September 2022

RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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September 2022

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Appendix C Hydrology Analysis Peer Review
Appendix D Roadway Construction Noise Model Results
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Initial Study

1. Project Title

Estates at Ross Ranch

2. Lead Agency Name and Address

Town of Windsor
9291 Old Redwood Highway
Windsor, California 95492

3. Contact Person and Phone Number

Kimberly Jordan, Planner III
Town of Windsor, Planning Division
(707) 838-1201

4. Project Location

The project area is located in the northeastern portion of the Town of Windsor at 1295 Jensen Lane. The project area is approximately 17-acres and comprises Assessor's Parcel Number 162-020-004 (project site). The project site is approximately 1.2 miles east of Highway 101 and 20 miles east of the Pacific Ocean. Figure 1 shows the location of the site in the region and Figure 2 depicts the project area boundaries. The project area eastern and southern boundaries comprise the Town limit lines.

5. Project Sponsor's Name and Address

Pink Viking Returns, LLC
400 College Avenue
Santa Rosa, California 95401

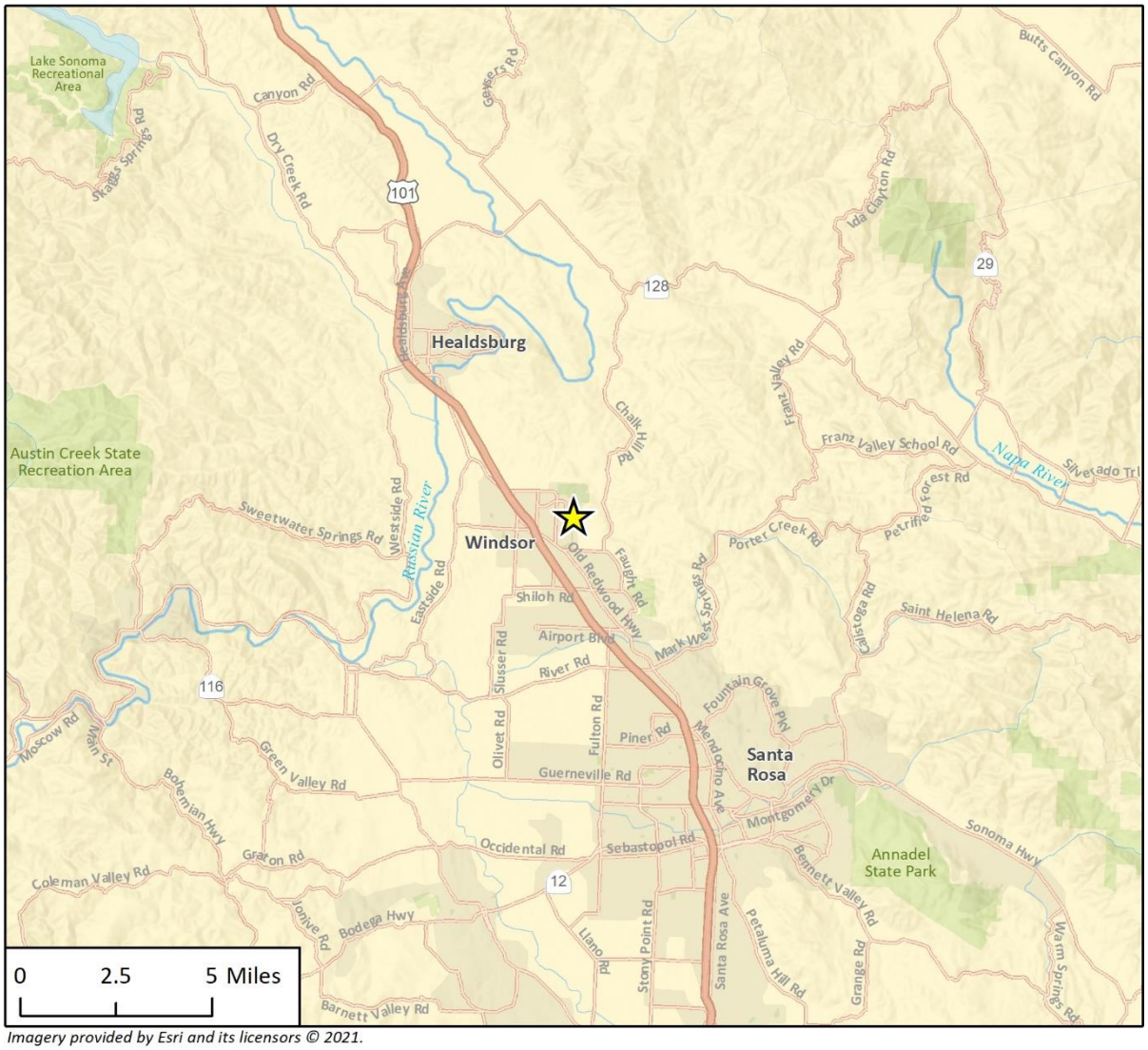
6. 2040 General Plan Designation

The project site is designated Estate Residential (ER) in the 2040 General Plan (Town of Windsor 2018). The project is located in the Eastern Edge 2040 General Plan Community Place area. The project site also has a Potential School site designation.

7. Zoning

The project site is zoned Estate Residential (ER).

Figure 1 Regional Location



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Project Location

N

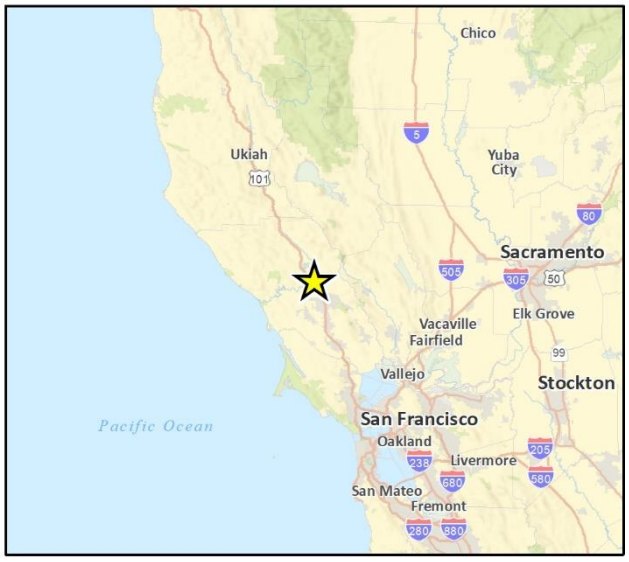
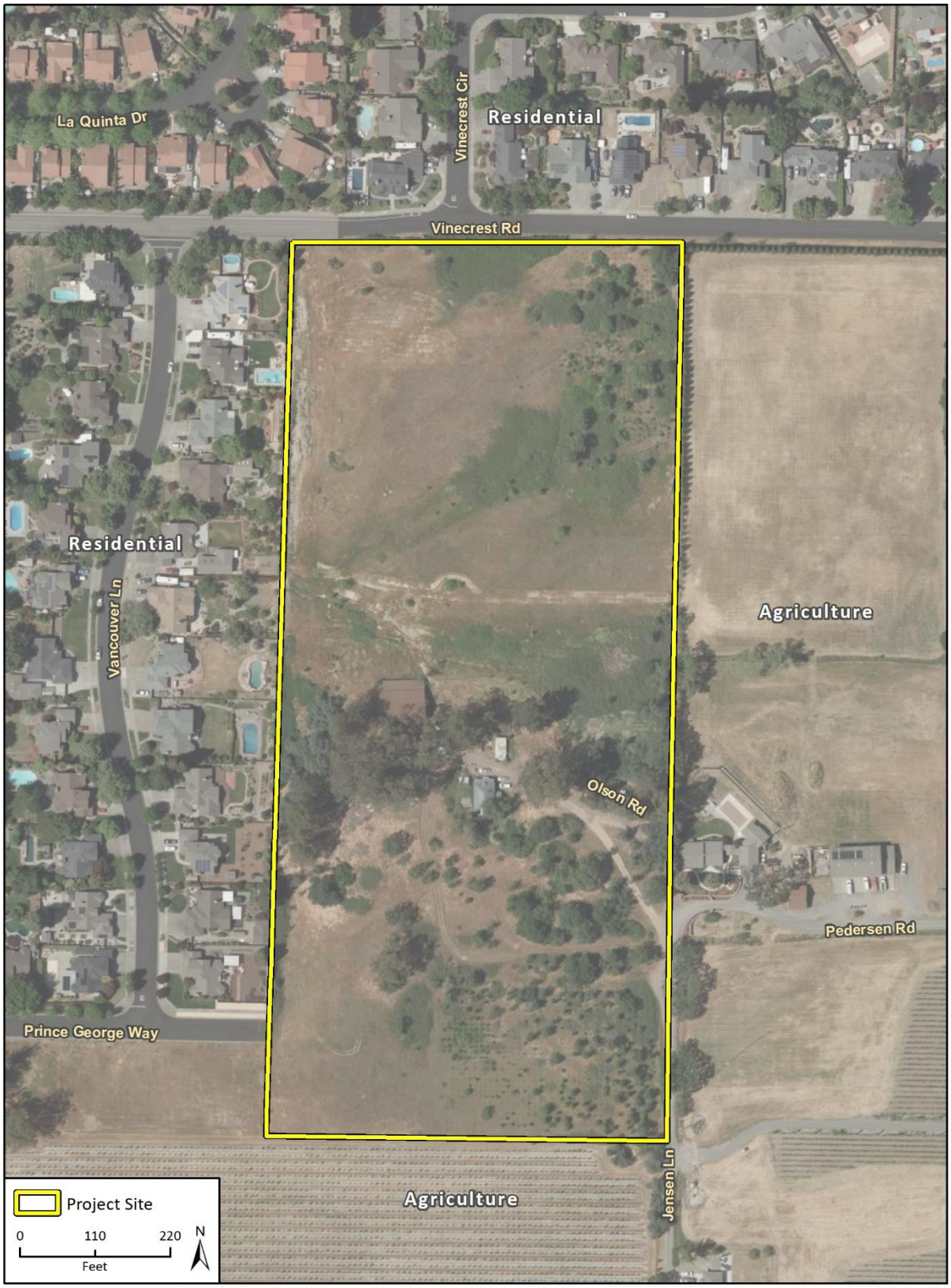


Figure 2 Project Site



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8. Description of Project

The project would subdivide the site into 31 single family lots. Subdivided lots would range in size from 12,200 to 40,931 square feet. The average lot size would be approximately 18,862 square feet. Location of individual lots is shown in Figure 3. Water and sewer for the site would be provided by the Town of Windsor and all utilities would be underground. All structures, septic tanks, and fences (with exception of the westerly fence along the Vintage Hills lots) on the project site would be removed as part of the project. Any existing wells would either be removed or retained for irrigation purposes. All residences would be required to have solar panels in adherence to the 2019 Building Energy Efficiency Standards Title 24.

The project would include a 100-foot agricultural buffer along the southern and eastern boundary of the project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer of 200-feet, but allows the width of the buffer to be reduced to a minimum of 100-feet in certain circumstances with Town Council approval. Lots 14, 15, 16, and 17 would include a building envelope that would provide the minimum required 100-foot agricultural buffer from the parcels to the south. The residences on each of these lots would be required to be constructed within this building envelope. Lots 28, 29, 30, and 31 located on the east side of the project have an increased front yard setback in order to provide the 100-foot agricultural buffer.

Site Access and Circulation

The project site would be accessible via Vinecrest Road to the north. The project would also include an extension from Prince George Way to the east, directly north of lots 13 through 17, until the road extension would intersect with the new section of Jensen Lane, which would be constructed along the project's eastern property line, as shown in Figure 3. Portland Way, a proposed roadway, would bisect the project site from north to south and connect to Vinecrest Road and Prince George Way. The intersection of Portland Way and Vinecrest Road would include a mini roundabout. Sidewalks would be constructed along proposed and extended roadways on the project site, including Portland Way, Jensen Lane, and Prince George Way.

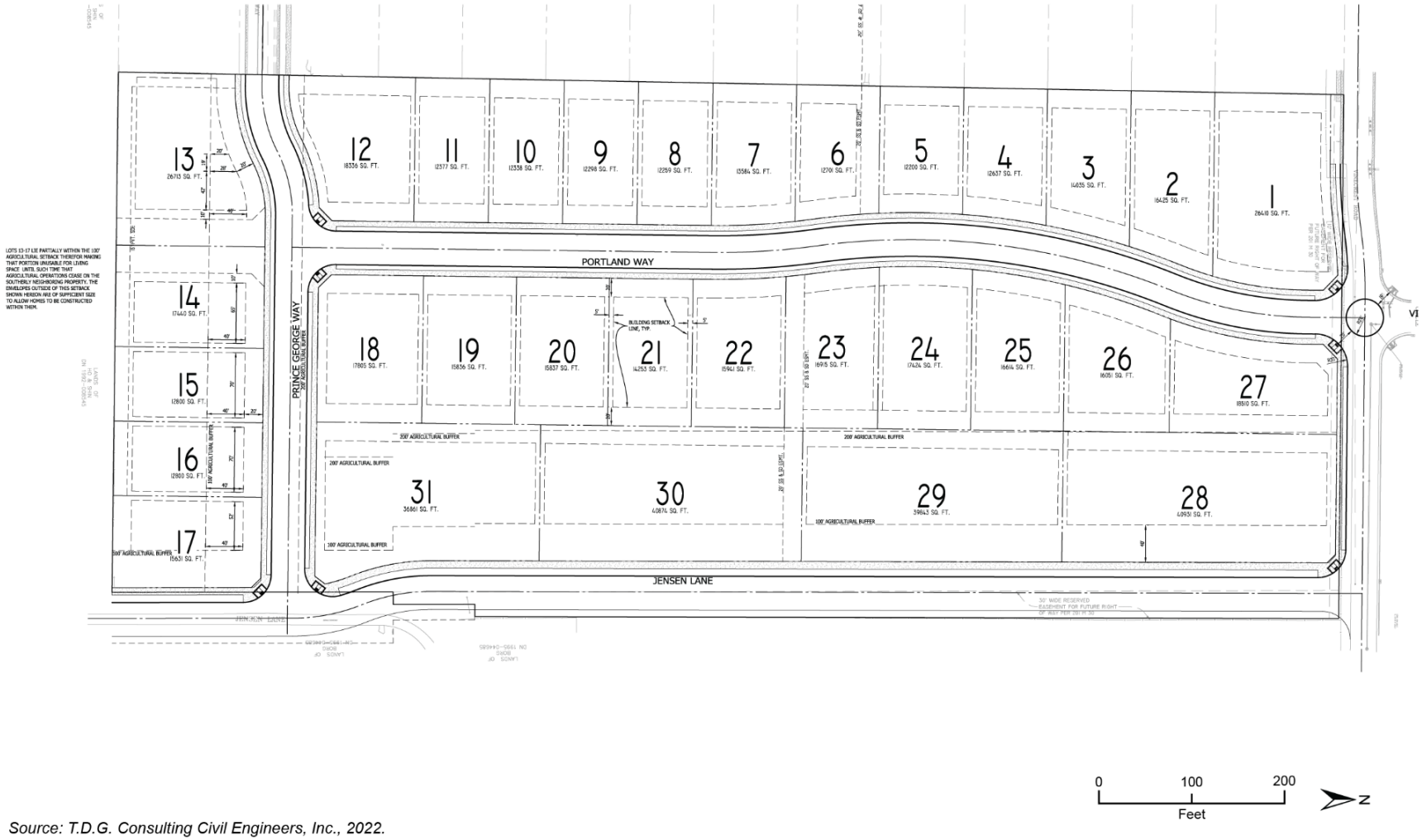
Drainage

Lot drainage would be conveyed to the public storm drain system and would be designed pursuant to Town of Windsor and Sonoma Water Standards. The project would also be designed per the current City of Santa Rosa Low Impact Development Design Manual. Project runoff would not be allowed onto adjacent properties. Bioretention basins would be constructed along interior roadways with a six-inch solid pipe to connect to a downstream bioretention basin. See Figure 4 for project drainage plan.

Landscaping

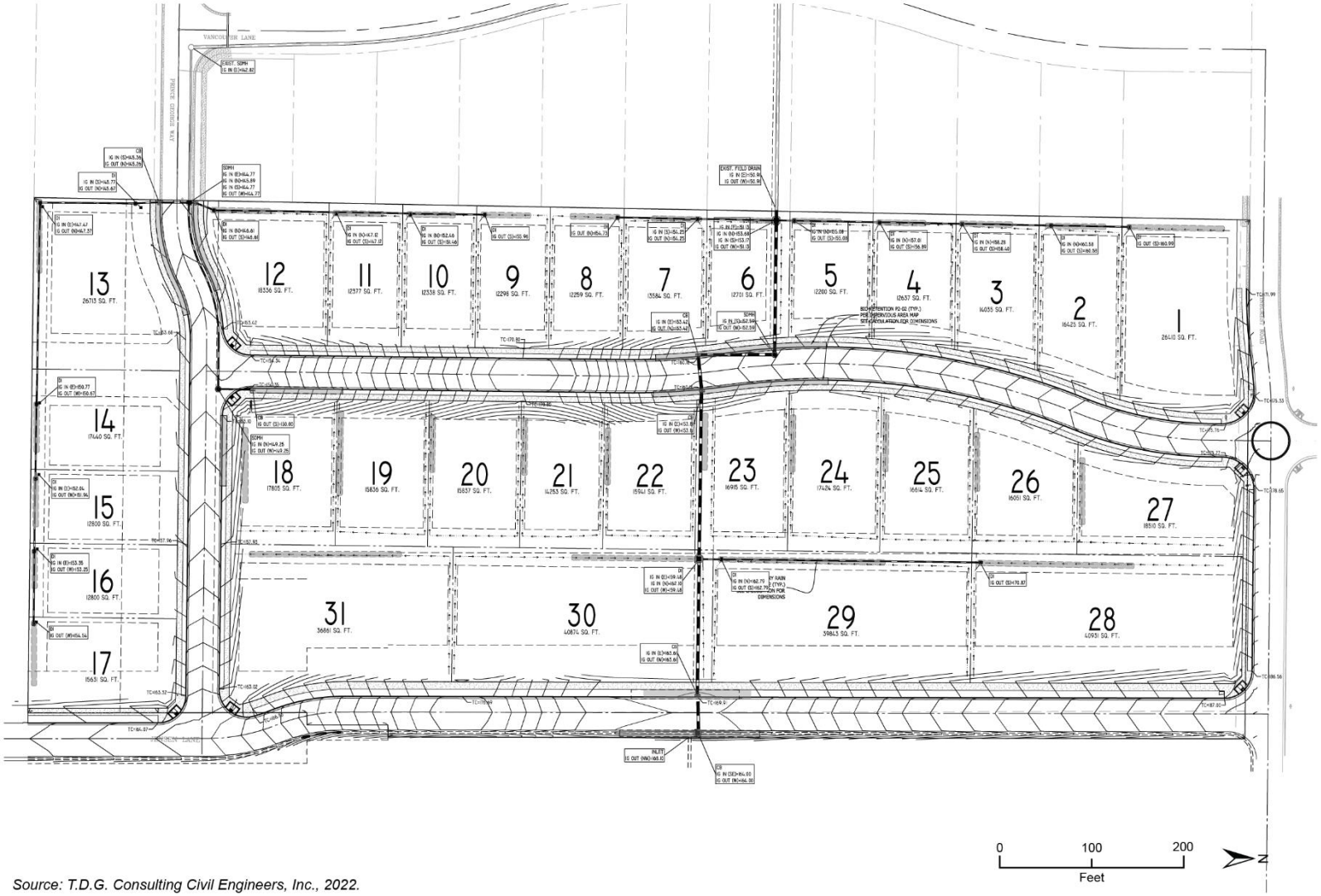
Tree removal and grading would be limited to roadways to construct street improvements and rear lot swales to prevent storm water flows onto neighboring properties. Tree preservation, or removal, and grading on individual lots would be performed as part of each lot's individual building permit. Street trees would be planted along proposed roadways throughout the project site.

Figure 3 Project Site Plans



Source: T.D.G. Consulting Civil Engineers, Inc., 2022.

Figure 4 Project Drainage Plan



Source: T.D.G. Consulting Civil Engineers, Inc., 2022.

9. Surrounding Land Uses and Setting

The project site is mostly vacant with an existing single-family residence located on the southern portion of the parcel. The site was previously cultivated as a vineyard, which has since been removed, and includes numerous eucalyptus, pine, acacia, valley oak, black oak, California bay laurel, and coast live oak trees that were planted near the residence. The site gradually slopes westerly, and the majority of the site is covered in non-native grassland that has been grazed and tilled. Wetlands are present throughout the northern and southwest corner of the site.

As shown in Figure 2, the project site is bordered by Vinecrest Road to the north. Jensen Lane is located adjacent and southeast of the site as an unimproved driveway and is not a public roadway as shown in Figure 5. Agricultural land surrounds the site to the south and east and single-family residences are located north and west.

10. Other Public Agencies Whose Approval is Required

The Town of Windsor is the lead agency with responsibility for approving the project. Approval from other public agencies is not required.

The project would require the following discretionary approvals from the Town of Windsor:

- Approval of a Tentative Subdivision Map
- Approval of a reduced agricultural buffer

11. Have California Native American Tribes Traditionally and Culturally Affiliated with the Project Area Requested Consultation Pursuant to Public Resources Code Section 21080.3.1?

The Town has not received requests from California Native American tribes for consultation on the project, pursuant to Public Resources Code (PRC) Section 21080.3.1

12. Relationship of Proposed Project to Previous EIR Analysis

The Town of Windsor adopted the current 2040 General Plan on April 4, 2018 as an update to the Town's 1996 General Plan. The 2040 General Plan includes goals and policies that convey the Town's long-term vision and guide local decision making to reach that vision. The 2040 General Plan EIR was certified in 2018 and assesses impacts from implementation of the 2040 General Plan. Both the 2040 General Plan and 2040 General Plan EIR are available on the Town's website located at: https://www.townofwindsor.com/843/Planning-Documents

The purpose of this Initial Study is to assess consistency between the project and 2040 General Plan and to compare the project effects to those analyzed in the 2040 General Plan EIR to determine if additional environmental review is required under CEQA in accordance with *CEQA Guidelines* Section 15183. This document applies project specific analysis as described under Section 8, Description of Project, above to determine if a Supplemental or Subsequent Environmental Impact Report (ERI) should be prepared for the project. The CEQA baseline for this analysis is the maximum allowable development on the project site allowed under the 2040 General Plan.

Figure 5 Jensen Lane Extension



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Fig 5 Jensen Lane_20220825
Fig 2 Project Location

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving at least one impact that is "Potentially Significant" or "Less than Significant with Mitigation Incorporated" as indicated by the checklist on the following pages.

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

Determination

Based on this initial evaluation:

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

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

■ I find that the proposed project MAY have a "potentially significant impact" or "less than significant with mitigation incorporated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. A SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature	Date
Printed Name	Title

Environmental Checklist

1 Aesthetics

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Except as provided in Public Resources Code Section 21099, would the project:					
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	■	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☐	■
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	■	☐

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	■	☐

Impacts to aesthetics were analyzed on pages 49 through 64 of the 2040 General Plan EIR. Aesthetic impacts related to scenic vistas, scenic resources, and visual character were determined to be less than significant, while impacts related to light and glare were determined to be less than significant with incorporation of mitigation to update Land Use Policy LU-1.13.[1]

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

Windsor is located between the Mayacamas mountain range in the east and the Coastal Range ridgeline to the north, which forms a scenic backdrop for the Town. The ridgeline to the east slopes to a peak at a 700-foot elevation and the northern ridgeline rises approximately 60 feet above the plain floor. The Town considers these mountain ranges to be a scenic vista. Jensen Lane is also considered a scenic corridor in the 2040 General Plan, specifically the entirety of the north-south segment of the roadway. The project proposes to subdivide the site for 31 single family lots. Although, the design of proposed individual residences is not known at this time, the project would be required to comply with 2040 General Plan Policies LU-1.7 and LU-1.8 requiring compatible design for new residential development including compatibility with scale, mass, and height of the surrounding residences. Existing residences located west and north of the project site range from one to two stories and reach a height of approximately 35 feet. The proposed single-family residences would have a similar height to the surrounding residences and thus would not be tall enough to significantly obstruct views of the surrounding mountain ranges.

Additionally, the project would comply with 2040 General Plan Policies ER-9.2 and ER-9.3 that would ensure project design features do not detract from public views, including those along Jensen Lane, and preserve significant public views of the surrounding lands. The project would not have a substantial effect on the views of surrounding mountain ranges, thus, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

[1] All 2040 General Plan policies referenced in the Initial Study are included with full policy language in Appendix E.

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

Although the Town of Windsor recognizes several scenic corridors, including Jensen Lane, there are no State-designated scenic highways within the Town of Windsor (California Department of Transportation [Caltrans] 2018). The nearest eligible scenic highway to the project site is State Route 12, located approximately 12 miles to the southeast in Santa Rosa. There are no scenic highways within the scope of the project, therefore the project would have no impact to scenic highways. The project would not have a substantial effect on the surrounding scenic corridors that includes mountain ranges and agricultural lands, thus, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

As described in the 2040 General Plan EIR, all new development occurring pursuant to the 2040 General Plan is subject to existing design, density, and height standards applicable to particular land use and zoning designations. The project is located in a non-urbanized area and would comply with 2040 General Plan policies ER-9.2 and ER-9.3, as described above, to ensure that the project does not degrade public views. Additionally, as mentioned above, the project would comply with 2040 General Plan Policies LU-1.7 and LU-1.8 requiring compatible design for new residential development including compatibility with scale, mass, and height of the surrounding residences. The proposed residences would thus not exceed a maximum height of approximately 35 feet and would be no more than two stories tall, which is consistent with the surrounding single family development. Thus, the proposed single-family residences would not be of a height that would substantially obstruct views of the surrounding mountain ranges. The project would convert the project site from open land to residences and thus would change the character of the site. However, the project would have a compatible design to the surrounding residences located west and north of the site. Additionally, the 2040 General Plan has anticipated the development of open land east of Jensen Lane, where the project is located, as well as the conversion of these areas to urban land uses. The project site does not contain any unique features and is not subject to any peculiar circumstances that would result in new impacts related to the existing visual character or scenic quality relative to what has been analyzed in the 2040 General Plan EIR. Compliance with established standards and applicable 2040 General Plan policies would ensure that new development complements and enhances the Town's existing visual character, while protecting public views. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

d. Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Due to the undeveloped nature of the project site, existing sources of light and glare do not currently exist on site. However, several existing sources of light currently exist in the project vicinity, including headlights from vehicles travelling on nearby roadways and exterior lighting associated with nearby residential uses. Development of the project site with residential land uses would include sources of light associated with interior light spilling through windows, vehicle headlights entering and exiting the project site, exterior lighting, and light reflected off windows. These lighting sources would be similar to existing adjacent development.

The 2040 General Plan anticipated new sources of light and glare could be installed for new development on vacant lots, such as the project site. New light sources analyzed under the 2040 General Plan included streetlights, light fixtures in parking lots, exterior building illumination, interior lighting passing through building fenestration, reflective building and vehicles surfaces, and the headlights of motor vehicles. Thus, new sources of light and glare from the project would be consistent with the type of lighting anticipated for the project site per the Town's 2040 General Plan land use and zoning designations for the site. In addition, the project would comply with the Town's Zoning Ordinance requirements to minimize adverse effects from light spillover and glare to nearby properties. Development facilitated by the project would introduce new sources of light and glare in Windsor, resulting in increased ambient nighttime lighting. Adherence to 2040 General Plan policies related to lighting and existing Zoning Ordinance requirements, specifically Section 27.20.030(D), would reduce adverse effects from light spillover to nearby properties and glare. However, despite compliance with the Town Zoning Ordinance regulating light and glare, the project would still generate more light and glare than on the mostly undeveloped site. Impacts would be less than significant with implementation of Mitigation Measure AES-1 to reduce light and glare.

Mitigation Measures

AES-1 Light and Glare

Project design shall include LED, downcast, shielded lighting and lighting that would be directed towards building walls in order to limit overspill and glare from the project, without compromising the safety and security of the community. The Town shall review and approve the lighting design prepared by the applicant.

Significance after Mitigation

With implementation of Mitigation Measure AES-1, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

2 Agriculture and Forestry Resources

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■	☐
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☐	■

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■	☐

Impacts to agricultural resources were analyzed on page 65 through 78 of the 2040 2040 General Plan EIR. Impacts related to conversion of farmland to non-agricultural land were determined to be significant and unavoidable, while impacts related to conflicts with lands currently under agricultural production and zoning were determined to be less than significant.

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

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

The 2040 General Plan EIR concluded that buildout of the Town's 2040 General Plan would result in significant and unavoidable impacts related to the conversion of Farmland. According to the California Department of Conservations (DOC) Important Farmland Map, the project site is designated on Farmland of Local Importance (DOC 2021). The 2040 General Plan states that "Development in accordance with the land use designations of the 2040 General Plan would reduce existing agriculture production in the 2040 General Plan Area, specifically in areas north of Arata Lane and north and south of Jensen Lane" (Town of Windsor 2018). Although there is currently no agricultural production on the project site because the site is designated as Farmland of Local Importance, the project would result in conversion of farmland. Therefore, similar to the findings in the 2040 General Plan EIR for the project site, because the site has a Farmland designation and would be converted to non-agricultural use, impacts would be significant and unavoidable. Policies included in the 2040 General Plan would not create new agricultural lands to mitigate for

agricultural land lost as a result of development under the 2040 General Plan. With implementation of 2040 General Plan policies to encourage the ongoing use of farmland, existing farmland on the project site would still be converted to non-agricultural uses, as analyzed as part of the 2040 General Plan EIR and impacts would remain significant and unavoidable. However, given that the project would be consistent with the site's 2040 General Plan land use designation, potential impacts to conversion of agriculture from buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR and would thus result in the same impacts as previously analyzed. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

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

There are no Williamson Act contract lands located in the Town and the project site is not located under a Williamson Act contract (County of Sonoma 2021). No impact to Williamson Act contract lands would occur.

The project site is zoned Estate Residential (ER) pursuant to the Town Zoning Code and adjacent to active agricultural land to the east and south, located in the unincorporated County. Chapter 27.24, Agricultural Preservation, of the Town of Windsor Zoning Ordinance requires an agricultural buffer of 200-feet at the time of subdivision or development for any parcel adjacent to agricultural lands. The project would include a 100-foot buffer to the south and east, which is less than the required buffer size. However, according to Section 27.24.020(B) of the Town of Windsor Zoning Ordinance, the Town Council may adjust the width of the buffer where deemed appropriate, provided the buffer would not be reduced to less than 100 feet. Lots 28, 29, 30, and 31 would include an increased front setback that, with the extension of Jensen Lane located at the front of the lots, would provide the minimum required 100-foot agricultural buffer. Lots 14, 15, 16, and 17 would include a building envelope that would provide the minimum required 100-foot agricultural buffer from the parcels to the south. The residences on each of these lots would be required to be constructed within this building envelope.

The 2040 General Plan anticipated that new development would result in conversion of agricultural lands compared to the existing conditions and that future development would focus on underdeveloped areas, such as the project site. Additionally, the 2040 General Plan permits low density land uses to be adjacent to agricultural lands, including estate residential. Furthermore, policy ER-2.2 noted that the size of agricultural buffers would be determined by parcel specific review for new development adjacent to agricultural property.

Based on the above, there would be no new or substantially more severe impacts than what was analyzed in the 2018 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

c. 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))?

As discussed in the 2040 General Plan EIR there are no areas in the Town that meet the definition of a forestry resource, as defined by California Public Resources Code Section 12220(g). The project site does not have a forest land designation. Therefore, the project would not conflict with existing zoning or cause rezoning of forest land, timberland, or timberland zoned Timberland Production. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

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

As described under *item c*, the project site does not contain forest land or timberland. The project site is primarily vacant with an existing single-family residence located in the southern portion of the parcel. This site was previously cultivated with vineyards and is covered in non-native grass and various tree species. The 2040 General Plan concluded that there are no areas within the Town of Windsor that would meet the definition of a forestry resource (Town of Windsor 2018). Therefore, the project would have no impact to forest land. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

3 Air Quality

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	■	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	■	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	■	☐
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	■	☐

Impacts to air quality were analyzed on pages 79 through 99 of the 2040 General Plan EIR. Impacts related to the temporary generation of air pollutants during construction were found to be significant but mitigable. Impacts related to violation of an air quality standard, net increase of a criteria pollutant, exposure of sensitive receptors to pollutant concentrations, conflict with implementation of an air quality plan, and creation of objectionable odors were found to be less than significant.

Overview of Air Pollution

The federal and State Clean Air Acts (CAA) mandate the control and reduction of certain air pollutants. Under these laws, the U.S. Environmental Protection Agency (U.S. EPA) and the

California Air Resources Board (CARB) have established the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) for "criteria pollutants" and other pollutants. Some pollutants are emitted directly from a source (e.g., vehicle tailpipe, an exhaust stack of a factory, etc.) into the atmosphere, including carbon monoxide, volatile organic compounds (VOC)/reactive organic gases (ROG),[2] nitrogen oxides (NO_X), particulate matter with diameters of ten microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide, and lead. Other pollutants are created indirectly through chemical reactions in the atmosphere, such as ozone, which is created by atmospheric chemical and photochemical reactions primarily between ROG and NO_X. Secondary pollutants include oxidants, ozone, and sulfate and nitrate particulates (smog).

Air pollutant emissions are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories:

- Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat.
- Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and can also be divided into two major subcategories:

- On-road sources that may be legally operated on roadways and highways.
- Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

Air Quality Standards and Attainment

The project site is located is located in the San Francisco Bay Area Air Basin (SFBAAB), which is under the jurisdiction of the Bay Area Air Quality Management District's (BAAQMD). As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure that the NAAQS and CAAQS are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the SFBAAB is classified as being in "attainment" or "nonattainment." BAAQMD is in non-attainment for the state and federal ozone standards, the state and federal $PM_{2.5}$ standards and the state PM_{10} standards and is required to prepare a plan for improvement (BAAQMD 2017a).

Air Quality Management

Because the SFBAAB currently exceeds the federal ozone and $PM_{2.5}$ standards and the state ozone, PM_{10}, and $PM_{2.5}$ standards, the BAAQMD is required to implement strategies to reduce pollutant levels to achieve attainment of the NAAQS and CAAQS. The 2017 Plan provides a regional strategy to protect public health and the climate. Consistent with the greenhouse gas (GHG) reduction targets adopted by the state, the 2017 Plan lays the groundwork for a long-term effort to reduce

[2] CARB defines VOC and ROG similarly as, "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate," with the exception that VOC are compounds that participate in atmospheric photochemical reactions. For the purposes of this analysis, ROG and VOC are considered comparable in terms of mass emissions, and the term ROG is used in this IS.

Bay Area GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors (ROG and NO_X) and reduce transport of ozone and its precursors to neighboring air basins. In addition, the 2017 Plan builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and toxic air contaminants (TAC) (BAAQMD 2017a).

Air Pollutant Emission Thresholds

The BAAQMD has adopted guidelines for quantifying and determining the significance of air quality emissions in its *California Environmental Quality Act Air Quality Guidelines* (BAAQMD 2017b). BAAQMD has developed screening criteria where projects would have less than significant impacts from criteria air pollutant emissions if they are below a certain development size (BAAQMD 2017). For single-family developments, the construction screening criteria is 114 dwelling units and operational screening criteria is 325 dwelling units. For a project to meet the screening criteria for construction, it cannot include any of the following activities during construction:

- Demolition;
- Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously);
- Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development);
- Extensive site preparation (i.e., greater than default assumptions used by the Urban Land Use Emissions Model [URBEMIS] for grading, cut/fill, or earth movement); or
- Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity.

The construction details of the project are not known at this time. However, the project site would require the demolition of existing structures on the site and would thus not meet the BAAQMD screening threshold criteria for construction. Table 1 presents the significance thresholds for construction-related criteria air pollutant and precursor emissions used for the purposes of this analysis. These represent the levels at which a project's individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the SFBAAB's existing air quality conditions. For the purposes of this analysis, the project would result in a significant impact if construction emissions would exceed any of the thresholds shown in Table 1.

Table 1 BAAQMD Air Quality Thresholds of Significance

Pollutant/Precursor	Construction: Average Daily Emissions (lbs/day)
ROG	54
NO_X	54
PM_{10}	82 (exhaust)
$PM_{2.5}$	54 (exhaust)

The BAAQMD does not have quantitative thresholds for fugitive dust emissions during construction. Instead, the BAAQMD recommends Best Management Practices (BMPs) be implemented to reduce fugitive dust emissions. In the absence of a qualified Community Risk Reduction Plan, BAAQMD has established the following *Thresholds of Significance* for local community risks and hazards associated with TACs and $PM_{2.5}$ for assessing individual source impacts at a local level. Impacts would be significant if:

- The project would result in an increased cancer risk of > 10 in one million
- The project would result in an increased non-cancer (i.e., Chronic or Acute) risk of > 1.0 Hazard Index
- The project would result in an ambient $PM_{2.5}$ concentration increase of > 0.3 $\mu g/m^3$ annual average

A project would be considered to have a cumulatively considerable impact if the aggregate total of current and proposed TAC sources within a 1,000 feet radius of the project fence-line in addition to the project would exceed the *Cumulative Thresholds of Significance*. Impacts would be significant if:

- The project would result in an increased cancer risk of > 100 in one million
- The project would result in an increased non-cancer (i.e., Chronic or Acute) risk of > 10 Hazard Index
- The project would result in an ambient $PM_{2.5}$ concentration increase of > 0.8 $\mu g/m^3$ annual average

Excess cancer risks are defined as those occurring in excess of or above and beyond those risks that would normally be associated with a location or activity if toxic pollutants were not present. Non-carcinogenic health effects are expressed as a hazard index, which is the ratio of expected exposure levels to an acceptable reference exposure level.

BAAQMD defines sensitive receptors as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and the chronically ill. These facilities include residences, school playgrounds, child-care centers, retirement homes, and convalescent homes.

Methodology

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether a project could result in potentially significant air quality impacts. If all the screening criteria are met by a project, the lead agency or applicant does not need to perform a detailed air quality assessment of the project's air pollutant emissions, and air quality impacts would be considered less than significant. However, the project does not meet the screening criteria for construction emissions. Air pollutant emissions generated by project construction were estimated using the California Emissions Estimator Model (CalEEMod), version 2020.4.0. CalEEMod uses project-specific information, including the project's land uses, square footages for different uses (e.g., residential and general office), and location, to model a project's construction and operational emissions. The analysis reflects the construction of the project as described in the project description.

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

The California Clean Air Act requires that air districts create a Clean Air Plan that describes how the jurisdiction will meet air quality standards. The most recently adopted air quality plan is the BAAQMD 2017 Plan. The 2017 Plan updates the most recent Bay Area plan, the 2010 Clean Air Plan, pursuant to air quality planning requirements defined in the California Health and Safety Code. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—ROG and NO_X—and reduce transport of ozone and its precursors to neighboring air basins. The 2017 Plan builds upon and enhances the BAAQMD's efforts to reduce emissions of fine particulate matter and TACs. The 2017 Plan does not include control measures that apply directly to individual development projects. Instead, the control strategy includes control measures related to stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants.

The 2017 CAP focuses on two paramount goals:

- Protect air quality and health at the regional and local scale by attaining all national and state air quality standards and eliminating disparities among Bay Area communities in cancer health risk from TACs
- Protect the climate by reducing Bay Area GHG emissions to 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050

Under BAAQMD's methodology, a determination of consistency with the 2017 Plan should demonstrate that a project:

- Supports the primary goals of the air quality plan
- Includes applicable control measures from the air quality plan
- Does not disrupt or hinder implementation of any air quality plan control measures

As described in the 2040 General Plan EIR goals and policies of the Land Use and Community Design Element, Environmental Resources Element, and the Transportation and Mobility Element are aimed at reducing the air quality impacts associated with population growth in the Town. Goals and policies promote alternative transportation and reduced energy use. The project would provide pedestrian facilities throughout the site along proposed roadways and would include solar panels to reduce energy use. As shown in Table 12 of the 2040 General Plan EIR, projects (including the proposed project) under the 2040 General Plan would be consistent with the 2017 Plan control measures. Additionally, the proposed project would be required to be consistent with BAAQMD rules and regulations, including dust and diesel particulate matter reduction measures and would not otherwise cause the disruption, delay, or otherwise hinder the implementation of any air quality plan control measure. The project is consistent with the 2040 General Plan. Therefore, the project would be consistent with the 2017 Plan and would not conflict with or obstruct the implementation of an applicable air quality plan, consistent with findings in the 2040 General Plan EIR. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction Emissions

Project construction would generate temporary air pollutant emissions associated with fugitive dust (PM_{10} and $PM_{2.5}$) and exhaust emissions from heavy construction equipment and construction vehicles in addition to ROG emissions that would be released during the drying phase of architectural coating. Table 2 summarizes the estimated construction emissions of pollutants during project construction that were calculated using CalEEMod *(*Appendix A). As shown therein, construction-related emissions would not exceed BAAQMD thresholds. Therefore, project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.

Table 2 Construction Period Emissions

Construction Year	ROG	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions (lbs/day)				
Maximum Daily Emissions	35	39	2	2
BAAQMD Thresholds	54	54	82	54
Threshold Exceeded?	**No**	**No**	**No**	**No**

lbs/day = pounds per day; ROG = reactive organic gases, NO_X = nitrogen oxides, PM_{10} = particulate matter 10 microns in diameter or less, $PM_{2.5}$ = particulate matter 2.5 microns or less in diameter

Emissions reported are higher of Winter and Summer emissions.

Notes: All emissions modeling was completed using CalEEMod. CalEEMod results are show in Appendix A

The BAAQMD does not have quantitative thresholds for fugitive dust emissions during construction. Instead, the BAAQMD recommends BMPs be implemented to reduce fugitive dust emissions. Consistent with the 2040 General Plan EIR, the project would implement Mitigation Measure AQ-1 to reduce fugitive dust emissions as required by BAAQMD.

Operational Emissions

The 2040 General Plan EIR assesses air quality impacts on a programmatic level and recognizes that site-specific impacts would be assessed during project review. To determine if further review under CEQA is necessary, the project was compared to the BAAQMD air pollutant screening criteria. The project site would be subdivided into 31 single-family lots, thus the project falls below the screening criteria of 325 units for operational criteria pollutants (BAAQMD 2017). Projects that do not exceed the BAAQMD screening criteria are considered to result in less than significant cumulative impacts to air quality from criteria air pollutants. As the project would not exceed BAAQMD operational screening criteria, it would have a less than significant effect on air quality. Therefore, the project would not result in any new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

Mitigation Measures

Consistent with the 2040 General Plan EIR, the following mitigation measure is required to reduce impacts to less than significant levels:

AQ-1 Construction Emissions Measures

The Town shall require that development projects incorporate the Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures to reduce construction emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$). The Town shall require the following to be adhered to during project construction to reduce air quality impacts. During construction activities:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, with priority given to the use of recycled water for this activity when feasible.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emission evaluator.
8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.
9. The Town shall also require that development projects incorporate feasible measures that reduce operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$).

Significance After Mitigation

With implementation of Mitigation Measure AQ-1 the project would not result in a cumulatively considerable net increase of any criteria pollutant, therefore, there would be not be any new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Carbon Monoxide Hotspots

The project would include subdivision of the parcel into 31 single-family residential lots. Based on daily trip generation rate of 9.43 used in the Traffic Impact Study (W-Trans 2022), 31 single family residences would generate 292 daily trips (Institute of Transportation Engineers 2017). Jensen Lane, Portland Way, Vinecrest Road, and Prince George Way are considered minor streets that have far below 10,000 vehicles per day. The addition of 292 daily trips to area roadways would not exceed the screening thresholds listed above. Therefore, the impact of localized CO emissions would not be significant.

Toxic Air Contaminants

Construction

Construction-related activities would result in temporary project-generated emissions of diesel particulate matter (DPM) exhaust emissions from off-road, heavy-duty diesel equipment for site preparation, grading, building construction, and other construction activities. DPM was identified as a TAC by CARB in 1998 (CARB 2017). Although construction activity is short-lived, it may increase TAC concentrations in the short term at nearby sensitive receptors. DPM is the primary contaminant of concern for the project and would be the TAC emitted in the largest quantity, thus health risks were assessed as they relate to DPM exposure. The nearest sensitive receptors to the project site are single family residences located along the west boundary of the project site. Single family residences proposed by the project would be constructed individually as lots are purchased and homes are designed. Therefore, due to the short duration of construction for each residence, sensitive receptors would not be exposed to significant amounts of TACs from project construction. Additionally, Table 2 provides estimated construction emissions, which are below BAAQMD thresholds.

Operational Impacts

Sources of TACs include, but are not limited to, land uses such as freeways and high-volume roadways, truck distribution centers, ports, rail yards, refineries, chrome plating facilities, dry cleaners using perchloroethylene, and gasoline dispensing facilities. The project does not include construction of new gas stations, dry cleaners, highways, high volume roadways, or other sources that could be considered a new permitted or non-permitted source of TAC or $PM_{2.5}$ in proximity to receivers. In addition, the project would not introduce a new stationary source of emissions and would not result in particulate matter greater than BAAQMD thresholds (see analysis under criteria a and b). Additionally, proposed residents would not be located within 1,000 feet of an existing stationary source or high-volume roadway. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust and during idling. However, these odors would be intermittent and temporary and would cease upon completion, and odors disperse with distance. Overall, project construction would not generate other emissions, such as those leading to odors, affecting a substantial number of people.

Table 3-3 in the BAAQMD 2017 *CEQA Air Quality Guidelines* provides screening distances for land uses that have the potential to generate substantial odor complaints. The uses in the table include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2017b). Single-family residential development is not included in this list, and operation of the project would not generate other emissions, such as those leading to odors, that would affect a substantial number of people. No operational impacts would occur. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

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4 Biological Resources

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct					

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
removal, filling, hydrological interruption, or other means?	☐	■	☐	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	■	☐	☐	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	■	☐	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■	☐

Impacts to biological resources were analyzed on pages 101 through 118 of the 2040 General Plan EIR. Impacts related to direct and indirect impacts to special-status species, riparian habitats, or sensitive natural communities were found to be less than significant with Land Use Policy LU-1.13 to reduce impacts from lighting and Mitigation Measure BIO-1 to protect nesting birds. Impacts related to migratory fish or wildlife species were found to be less than significant with incorporation of mitigation to update Environmental Resources Element Policy ER-1.2. Impacts related to federally protected wetlands, conflicts with tree preservation policies, and conflicts with habitat preservation or natural community conservation plans were found to be less than significant.

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

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

c. Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

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

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

The project site contains several biological features, including wetlands, protected trees, and habitats that may support sensitive species. Therefore, implementation of the project may result in a significant impact to biological resources. The project would have a potentially significant impact on biological resources, therefore Items a through e will be analyzed further in the Supplemental EIR.

SUBSTANTIAL CHANGE IN CIRCUMSTANCES THAT MAY REQUIRE MAJOR EIR REVISIONS

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Windsor is located within the planning area for the Santa Rosa Plain Conservation Strategy, which is overseen by the United States Fish and Wildlife Service. The Conservation Strategy creates a long-term conservation program sufficient to mitigate potential adverse effects on listed species, such as the California Tiger Salamander, due to future development on the Santa Rosa Plain. The project site is located at the northeastern portion of the Santa Rosa Plain Conservation Strategy Study Area. However, the site is not a part of an existing or pending mitigation or preservation site and would not likely affect the California Tiger Salamander. Additionally, the site does not interfere with any conservation and preservation areas within the study area (California Department of Fish and Game 2005). The project site is not located in any other adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

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5 Cultural Resources

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	■	☐	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	■	☐	☐	☐

Impacts to cultural resources were analyzed on pages 119 through 139 of the 2040 General Plan EIR and impacts to archaeological and historic resources were determined to be less than significant with mitigation to prepare cultural resources studies for projects with substantial ground disturbance (Mitigation Measure CR-1). Similarly, impacts to human remains were determined to be less than significant with mitigation providing guidance for handling unanticipated discovery of human remains (Mitigation Measure CR-4).

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Historical resources are features that are associated with the lives of historically important persons and/or historically-significant events, that embody the distinctive characteristics of a type, period, region or method of construction, or that have yielded, or may be likely to yield, information important to the pre-history or history of the local area, California, or the nation. Examples of typical historical resources include, but are not limited to, buildings, farmsteads, rail lines, bridges, and trash scatters containing objects such as colored glass and ceramics. The farmstead located on the project site consists of a circa 1900 craftsman bungalow building that may be considered a historical

and/or archaeological resource under CEQA. Additionally, obsidian flakes have been found on the project site. Therefore, the project would have a potentially significant impact on historic and archaeological resources, and this issue will be analyzed further in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

The project site contains obsidian flakes and prehistoric archaeological sites often contain human remains. Project buildout would involve ground disturbance and would thus have the potential to disturb human remains. Impacts to human remains were found to be potentially significant, therefore, the project may have a potentially significant impact on human remains, and this issue will be analyzed further in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

6 Energy

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	■	☐

California is one of the lowest per capita energy users in the United States, ranked 49th in the nation, due to its energy efficiency programs and mild climate (U.S. Energy Information Administration [EIA] 2014). Electricity and natural gas are primarily consumed by the built environment for lighting, appliances, heating and cooling systems, fireplaces, and other uses such as industrial processes in addition to being consumed by alternative fuel vehicles. Most of California's electricity is generated in state with approximately 28 percent imported from the Northwest and Southwest in 2019. However, the state relies on out-of-state natural gas imports for nearly 90 percent of its supply (California Energy Commission [CEC] 2021a and 2021b). In addition, approximately 32 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass (CEC 2021a). In 2018, Senate Bill 100 accelerated the state's Renewable Portfolio Standards Program, codified in the Public Utilities Act, by requiring electricity providers to increase procurement from eligible renewable energy and zero-carbon resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Electricity and natural gas service in the Town of Windsor is provided by Pacific Gas & Electric (PG&E). PG&E provides natural gas and electric service to approximately 16 million people throughout a 70,000-square mile service area in northern and central California (PG&E 2017). In 2019, PG&E provided 33,087 million GWh of electricity to its residential users and 71,767 million GWh of electricity to all other user types (CEC 2019a). In 2019, PG&E provided 1,914

million therms of natural gas to its residential users and 3,058 million therms of natural gas to all other user types (CEC 2019b).

Development facilitated by the project would involve the use of energy during construction and operation. Energy use during construction would be primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting. Temporary grid power may also be provided to construction trailers or electric construction equipment. Long-term operation of development projects would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. In addition, the increase in vehicle trips associated with project operation would increase fuel consumption.

Table 3 shows the estimated electricity and natural gas demand compared to statewide demand for buildout under the 2040 General Plan, for which the project was included.

Table 3 2040 General Plan Energy Use Relative to Statewide Energy Use

Form of Energy	Units	Annual 2040 General Plan-Related Energy Use[1]	Annual Statewide Energy Use	Project Percent of Statewide Energy Use
Electricity	Megawatt hours	39,6761	295,405,0002[2]	0.0001%
Natural Gas	Billions of cubic feet	0.151	2,3133[3]	0.00006%

[1] 2040 General Plan

[2] California Energy Commission 2017a

[3] California Energy Commission 2017b

a. Would the project result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project would involve the use of energy during construction and operation, including fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators for lighting; temporary grid power; permanent grid connections for electricity and natural gas; and fuel consumption from increased vehicle trips associated with potential development. The 2040 General Plan EIR forecasted electricity, natural gas, and fuel consumption estimates for buildout of the Town under the 2040 General Plan. The project is consistent with the 2040 General Plan buildout, therefore, electricity, natural gas, and fuel consumption estimates from the 2040 General Plan EIR apply to the project.

The main forms of available energy supply are electricity, natural gas, and oil. Electricity and natural gas are currently provided to the project site by PG&E. In 2014, the Town of Windsor partnered with Sonoma Clean Power (SCP), a Community Choice Aggregation, which allows the purchase of electricity from renewable sources through PG&E infrastructure. Therefore, the project applicant would have convenient access to renewably sourced electricity to meet project energy demand.

Construction

All construction equipment and operation thereof would be regulated per the CARB In-Use Off-Road Diesel Vehicle Regulation, which imposes limits on idling, requires all vehicles to be reported to CARB, restricts the addition of older vehicles into fleets, and requires fleets to reduce emissions by retiring, replacing, or repowering older engines, or installing exhaust retrofits. Compliance with the Regulation would improve fuel efficiency of construction vehicles.

CARB's 2017 Climate Change Scoping Plan Update (2017 Scoping Plan) builds upon previous efforts to reduce GHG emissions and is designed to continue to shift the California economy away from dependence on fossil fuels. Appendix B of the 2017 Scoping Plan includes examples of local actions to reduce energy consumption, such as enforcing idling time restrictions for construction vehicles, utilizing existing grid power for electric energy rather than operating temporary gasoline/diesel-powered generators, and increasing use of electric and renewable fuel-powered construction equipment.

Based on the above, the temporary increase in energy use during construction of the project would not result in a significant increase in peak or base demands or require additional capacity from local or regional energy supplies. The project would be required to comply with all applicable regulations related to energy conservation and fuel efficiency, which would help to reduce the temporary increase in demand. Furthermore, the project would be consistent with the site's existing 2040 2040 General Plan land use designation; thus, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

Operation

Energy use associated with operation of the project would be typical of residential uses, requiring electricity for interior and exterior building lighting, and operation of fixtures and appliances. Maintenance activities during operations, such as landscape maintenance, would involve the use of electric or gas-powered equipment. In addition to on-site energy use, the proposed project would result in transportation energy use associated with vehicle trips generated by future residents.

The project would be subject to all relevant provisions of the most recent update of the California Building Standards Code (CBSC), including the Building Energy Efficiency Standards, which would ensure that proposed structures would consume energy efficiently. Additionally, the project would require the installation of solar panels in adherence to tier one of the 2019 Building Energy Efficiency Standards Title 24 (i.e., CalGreen). Furthermore, residents would have access to electricity generated from renewable sources through SCP. Even if residents choose to opt out of SCP, electricity supplied by PG&E is required to comply with the State's Renewable Portfolio Standard (RPS), which requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 60 percent by 2030. Thus, even if residents opt out of SCP and use PG&E electricity exclusively, a portion of the energy consumed during project operations would originate from renewable sources.

Based on the above, compliance with the State's latest Energy Efficiency Standards, including the addition of solar panels, would ensure that the project would implement all necessary energy efficiency regulations. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

Conclusion

Increasingly efficient building fixtures and vehicle engines, as well as implementation of policies included in the 2040 General Plan are expected to offset the energy demand facilitated by buildout of the 2040 General Plan, included in the proposed project. In addition, development facilitated by the 2040 General Plan would be subject to energy conservation requirements in the 2019 California Green Building Standards Code and the 2019 Building Energy Efficiency Standards. Adherence to the efficiency requirements in the CBSC would ensure that buildout of the 2040 General Plan would not result in wasteful and inefficient use of nonrenewable resources due to building operation.

Given that the project would be consistent with the site's 2040 General Plan land use designation, buildout of the project site and associated energy demands have been anticipated by the Town and analyzed in the 2040 General Plan EIR. In addition, the project would comply with applicable 2040 General Plan policies, as well as other State energy standards, which would ensure that construction and operation of the project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a State or local plan for renewable energy or energy efficiency. Based on the information above, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

7 Geology and Soils

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
1. 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?	☐	☐	☐	■	☐
2. Strong seismic ground shaking?	☐	☐	☐	■	☐
3. Seismic-related ground failure, including liquefaction?	☐	☐	☐	■	☐
4. Landslides?	☐	☐	☐	■	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	■	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of					

		Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
	the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	■	☐
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☐	■	☐
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☐	■
f.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	■	☐

The 2040 General Plan EIR discusses geology and soils impacts on pages 141 through 155 and concludes that in the event of a major earthquake in the region, surface fault rupture and seismic ground shaking impacts would potentially injure people and could result in collapse or structural damage to existing and proposed structures. Fault-rupture and ground shaking could potentially expose people and property to seismic-related hazards, including localized liquefaction and related ground failure. However, impacts were determined to be less than significant, with incorporation of 2040 General Plan policies.

Impacts to paleontological resources were analyzed on pages 119 through 139 of the 2040 General Plan EIR. Paleontological resource impacts were determined to be less than significant with mitigation.

A soils investigation report was prepared for the project by Reese & Associates Consulting Geotechnical Engineers in November 2018 (Appendix B). The report summarized the current soil conditions on the project site, explored subsurface conditions, measured depth of groundwater, and recommended specific project-design features that would need to be incorporated to reduce risk from geological hazards. The contents of this investigation inform the following discussions.

a.1. Would the project directly or indirectly cause 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?

a.2. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a.3. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

The closest faults to the project site are the Rogers Creek Fault located 1.5 miles to the southeast, the Maacama fault located five miles to the northeast, and the San Andreas Fault located 20 miles to the southwest (Appendix B). The project site does not indicate the presence of active faults and is not located within a current designated Alquist-Priolo Earthquake fault zone (DOC 2021b). However, there is a possibility for future faulting due to the nature of the Northern California region, although unlikely because historically faulting follows the trace of recently active faults. All development within the Town is required to comply with the CBSC, which provides minimum standards to ensure that proposed structures are designed using sound engineering practices and appropriate engineering standards for the seismic area in which a project site is located. Projects designed in accordance with the CBSC would be able to: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage, but with some non-structural damage; and 3) resist major earthquakes without collapse, but with some structural, as well as non-structural, damage. Although conformance with the CBSC does not guarantee that substantial structural damage would not occur in the event of a maximum magnitude earthquake, conformance with the CBSC can reasonably be assumed to ensure that the proposed structures would be survivable, allowing occupants to safely evacuate in the event of a major earthquake. Additionally, as discussed in the 2040 General Plan EIR, the project would adhere to Policies ER-1.3, PHS-2.2, PHS-2.3, PHS-2.4, and PHS-2.7 which would require future development on the lots to complete a detailed review of design and construction plans and incorporate structural safety features as necessary for residences that would be located on steep slopes or in areas subject to seismic hazards such as extreme ground shaking or liquefaction. Given that the project would be consistent with the site's 2040 General Plan land use designation, potential seismic risks associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR.

The Town of Windsor does not include any identified liquefaction hazard zones, with the exception of areas near stream channels or creeks. The project site is not characterized within a liquefaction zone. Pursuant to the 2040 General Plan EIR, Windsor is characterized by generally flat topography and is not subject to substantial risk from landslides. In addition, the project site does not contain any steep or unstable slopes. Compliance with the CBSC as well as applicable 2040 General Plan policies, including Policies ER-1.3, PHS-2.2, PHS-2.3, PHS-2.4, and PHS-2.7, would reduce seismic and

seismic related hazards associated with new development. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

a.4. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

There are no mapped Earthquake Zones of Required Investigation, which are areas of identified seismic hazard, associated with landslides within or near Windsor (CGS 2021). However, Windsor is generally flat and is not subject to substantial risk from landslides. The greatest potential for a landslide within the Town is in the northeast where the topography becomes steeper along the edge of the foothills to the east (United States Geological Survey 1997). Similarly, the project site is not located near steep hills and not subject to risk from landslides. Thus, there is a less than significant impact to the risk of loss, injury, or death involving landslides. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project result in substantial soil erosion or the loss of topsoil?

According to the soil investigation conducted on the project site, topsoil consists of majority sandy silt and extends from two to four feet below the surface (Appendix B). According to the 2040 General Plan EIR, soils with smaller grain size and lower cohesion, such as sandy silt, have moderate erosion potential. Development of the proposed project would involve construction activities such as stockpiling, grading, excavation, paving, and other earth-disturbing activities that could result in erosion or the loss of topsoil.

Construction activities that disturb one or more acres of land surface are subject to the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) adopted by the State Water Resources Control Board (SWRCB). Compliance with the permit requires each qualifying development project to file a Notice of Intent with the SWRCB. Permit conditions require development of a storm water pollution prevention plan (SWPPP), which must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-storm water management controls. Inspection of construction sites before and after storms is also required to identify storm water discharge from the construction activity and to identify and implement erosion controls, where necessary. Compliance with the Construction General Permit is reinforced through the Code of the Town of Windsor, which requires the development of an erosion and sediment control plan that is equivalent to the required SWPPP. As part of this plan Construction Best Management Practices (BMP) would be implemented for soil stability and erosion control. Soil stabilization techniques may include preservation of existing vegetation, silt fencing, fiber rolls, sandbag barriers, gravel bag berms and stabilized construction site driveways. In addition, the project would comply with 2040 General Plan Policies PFS-4.3 and PFS-4.5, that would ensure proper soil management and minimize potential for erosion. Adherence to BMPs, the NPDES, and applicable 2040 General Plan policies

would ensure the project is designed to support erosion control. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

The Town of Windsor does not include any identified liquefaction hazard zones, with the exception of areas near stream channels or creeks. The project site is not characterized within a high liquefaction zone (Town of Windsor 2018). The soil investigation prepared for the project site reported that no groundwater was detected during the investigation, thus, the probability of subsidence is low. However, it should be noted that groundwater conditions and seepage levels may vary seasonally. The project site is not located near any open faces that would be considered susceptible to lateral spreading. Therefore, the potential for liquefaction and lateral spreading to pose a risk to the proposed development is relatively low. The 2040 General Plan EIR concluded that with compliance with applicable 2040 General Plan policies, including Policies ER-1.3, PHS-2.2, PHS-2.3, and PHS-2.4, as well as the CBSC, lateral spreading and subsidence/settlement hazards would be less than significant. Given that the project would be consistent with the site's 2040 General Plan land use designation, potential liquefaction and lateral spreading risks associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR. Therefore, impacts related to being located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially resulting in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse were adequately addressed in the 2040 General Plan EIR. The project is not located in an area with a high possibility of subsidence, nor is it located in area that would be susceptible to lateral spreading or liquefaction. Thus, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

The soil investigation reported that the project site contains a discontinuous sandy clay layer that is one to two feet thick (Appendix B). Sandy clay has a moderate to high expansion potential. Soil becomes significantly less expansive at about three to five feet, with the exception of the southwestern part of the project site. In the southwestern part of the project, soil was expansive up to six feet. Therefore, residential units constructed on the project site would be at risk from shrinking and swelling of the expansive clays.

The 2040 General Plan concluded that with compliance with applicable 2040 General Plan policies, including Policies PHS-2.4 and PHS-2.7, impacts related to expansive soils would be reduced to a less than significant level. Additionally, the proposed project would comply with the CBC requirements to address soil-related hazards. In cases where soil remediation is not feasible, the CBC requires structural reinforcement of foundations to resist the forces of expansive soils. Compliance with the requirements of the California Building Code would reduce impacts related to expansive soils (Town

of Windsor 2018). Furthermore, in accordance with 2040 General Plan Policy PHS-2.7 the project would be required to implement all recommendations from the soil investigation conducted on the site. Specifically, a post-tensioned slab-on-grade with properly compacted fill at locations of proposed residences and retaining walls to support backfill. Compliance with the 2040 General Plan policies, CBC, and implementation of project specific soil investigation recommendations would reduce impacts related to soil expansion. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The project site contains a septic tank that serves the existing single family residence, which would be removed as part of the project. The project site is located in an area with existing single-family residences and would connect to existing Town sewer services. Septic would not be allowed for proposed residences. Thus, the construction or operation of septic tanks or other alternative wastewater disposal systems is not included as part of the project. Therefore, no impacts from septic systems or alternative wastewater disposal systems would occur. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

The 2040 General Plan determined that ground-disturbing activities in geologic units with high paleontological sensitivity have the potential to damage or destroy paleontological resources that may be present. Per Figure 10, Paleontological Sensitivity of Geologic Units within the 2040 General Plan Area, of the 2040 General Plan EIR, the project site is located in an area identified as having Low to High Paleontological Sensitivity. As such, the project would be required to implement Mitigation Measure CR-3, *Paleontological Resource Studies*, included below as Mitigation Measure GEO-1.

Mitigation Measures

GEO-1 Paleontological Resource Studies

The Town shall require a paleontological assessment, and avoidance and/or mitigation for potential impacts to paleontological resources. The Town shall require the following specific requirements:

1. **Retain a Qualified Paleontologist**. Prior to initial ground disturbance within highly sensitive geologic units, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the Society of Vertebrate Paleontology standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the Society of Vertebrate Paleontology standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced

with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year.

2. **Paleontological Mitigation and Monitoring Program**. Prior to construction activity a qualified paleontologist should prepare a Paleontological Mitigation and Monitoring Program to be implemented during ground disturbance activity. This program should outline the procedures for construction staff Worker Environmental Awareness Program (WEAP) training, paleontological monitoring extent and duration, salvage and preparation of fossils, the final mitigation and monitoring report, and paleontological staff qualifications.
3. **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the project paleontologist or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend. In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources.
4. **Paleontological Monitoring**. Ground disturbing construction activities (including grading, trenching, foundation work and other excavations) at the surface in areas mapped as high paleontological sensitivity and exceeding 5 feet in depth in areas overlying potentially high paleontological sensitivity units should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance. The Paleontological Mitigation and Monitoring Program shall be supervised by the project paleontologist. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources. The duration and timing of the monitoring will be determined by the project paleontologist. If the project paleontologist determines that full-time monitoring is no longer warranted, he or she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Monitoring would be reinstated if any new or unforeseen deeper ground disturbances are required and reduction or suspension would need to be reconsidered by the Supervising Paleontologist. Ground disturbing activity that does not occur in areas mapped as high sensitivity or that do not exceed 5 feet in depth in areas overlying potentially high sensitivity units would not require paleontological monitoring.
5. **Salvage of Fossils**. If significant fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely manner. Work may continue outside of a buffer zone around the fossil, usually 50-100 feet (specific distance may be determined by the project paleontologist).
6. **Preparation and Curation of Recovered Fossils**. Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the

University of California Museum of Paleontology), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist.

7. **Final Paleontological Mitigation Report**. Upon completion of ground disturbing activity (and curation of fossils if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.

Significance after Mitigation

With implementation of Mitigation Measure GEO-1, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

8 Greenhouse Gas Emissions

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	■	☐
b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	■	☐

Impacts to greenhouse gas (GHG) emissions were analyzed on pages 157 through 172 of the General Plan EIR. The project would not change the projected growth and emissions included in the Town's GHG reduction plan, as included as part of the 2040 General Plan. Additionally, the project would be consistent with the 2040 General Plan policies intended to reduce GHG emissions. Furthermore, the project would be consistent with applicable plans, policies, or regulations stated in the 2040 General Plan EIR. Impacts related direct or indirect GHG emissions and conflicts with applicable plans, policies, or regulations were found to be less than significant.

Overview of Climate Change and Greenhouse Gases

Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. Climate change is the result of numerous, cumulative sources of greenhouse gas (GHG) emissions contributing to the "greenhouse effect," a natural occurrence which takes place in Earth's atmosphere and helps regulate the temperature of the planet. The majority of radiation from the sun hits Earth's surface and warms it. The surface, in turn, radiates heat back towards the atmosphere in the form of infrared radiation. Gases and clouds in the atmosphere trap and prevent some of this heat from escaping into space and re-radiate it in all directions.

GHG emissions occur both naturally and as a result of human activities, such as fossil fuel burning, decomposition of landfill wastes, raising livestock, deforestation, and some agricultural practices. GHGs produced by human activities include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Different types of GHGs have

varying global warming potentials (GWP). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emitted, referred to as "carbon dioxide equivalent" (CO_2e), which is the amount of GHG emitted multiplied by its GWP. Carbon dioxide has a 100-year GWP of one. By contrast, methane has a GWP of 28, meaning its global warming effect is 28 times greater than CO_2 on a molecule per molecule basis (Intergovernmental Panel on Climate Change 2014).[3]

Anthropogenic activities since the beginning of the industrial revolution (approximately 250 years ago) are adding to the natural greenhouse effect by increasing the concentration of GHGs in the atmosphere that trap heat. Since the late 1700s, estimated concentrations of CO_2, methane, and nitrous oxide in the atmosphere have increased by over 43 percent, 156 percent, and 17 percent, respectively, primarily due to human activity (United States Environmental Protection Agency 2020). Emissions resulting from human activities are thereby contributing to an average increase in Earth's temperature. Potential climate change impacts in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (State of California 2018).

Regulatory Framework

In response to climate change, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 required the reduction of statewide GHG emissions to 1990 emissions levels (essentially a 15 percent reduction below 2005 emission levels) by 2020 and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions. On September 8, 2016, the Governor signed Senate Bill 32 into law, extending AB 32 by requiring the State to further reduce GHG emissions to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, the California Air Resources Board (CARB) adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program and the Low Carbon Fuel Standard, and implementation of recently adopted policies and legislation, such as SB 1383 (aimed at reducing short-lived climate pollutants including methane, hydrofluorocarbon gases, and anthropogenic black carbon) and SB 100 (discussed further below). The 2017 Scoping Plan also puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends local governments adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) of CO_2e by 2030 and two MT of CO_2e by 2050 (CARB 2017).

Other relevant state laws and regulations include:

- **SB 375**: The Sustainable Communities and Climate Protection Act of 2008 (SB 375), signed in August 2008, enhances the state's ability to reach AB 32 goals by directing the CARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles by 2020 and 2035. Metropolitan Planning Organizations are required to adopt a Sustainable Communities Strategy (SCS), which allocates land uses in the Metropolitan Planning Organization's Regional

[3] The Intergovernmental Panel on Climate Change's (2014) *Fifth Assessment Report* determined that methane has a GWP of 28. However, the 2017 Climate Change Scoping Plan published by the California Air Resources Board uses a GWP of 25 for methane, consistent with the Intergovernmental Panel on Climate Change's (2007) *Fourth Assessment Report*. Therefore, this analysis utilizes a GWP of 25.

Transportation Plan (RTP). On March 22, 2018, CARB adopted updated regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Metropolitan Transportation Commission (MTC)/Association of Bay Area Governments (ABAG) was assigned targets of a 10 percent reduction in per capita GHG emissions from passenger vehicles from 2005 levels by 2020 and a 19 percent reduction in per capita GHG emissions from passenger vehicles from 2005 levels by 2035. MTC/ABAG adopted Plan Bay Area 2040 in July 2017, which meets the requirements of SB 375. An update to the RTP/SCS is currently underway (Plan Bay Area 2050) with the draft EIR expected to be released during Summer 2021.

- **SB 100**: Adopted on September 10, 2018, SB 100 supports the reduction of GHG emissions from the electricity sector by accelerating the state's Renewables Portfolio Standard Program. SB 100 requires electricity providers to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.
- **California Building Standards Code (California Code of Regulations Title 24)**: The California Building Standards Code consists of a compilation of several distinct standards and codes related to building construction including plumbing, electrical, interior acoustics, energy efficiency, and handicap accessibility for persons with physical and sensory disabilities. The current iteration is the 2019 Title 24 standards. Part 6 is the Building Energy Efficiency Standards, which establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy demand. Part 12 is the California Green Building Standards Code (CALGreen), which includes mandatory minimum environmental performance standards for all ground-up new construction of residential and non-residential structures.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and operational activities have the potential to generate GHG emissions. The project would generate GHG emissions during temporary (short-term) construction activities such as site preparation, construction equipment engines, on-site heavy-duty construction vehicles, vehicles hauling materials to and from the project site, asphalt paving, and motor vehicles used by the construction workers. Long-term, operational GHG emissions would result from project-generated vehicular traffic, operation of any landscaping equipment, off-site generation of electrical power over the life of the project, the energy required to convey water to and wastewater from the project site, the emissions associated with the hauling and disposal of solid waste from the project site, and any fugitive refrigerants from air conditioning or refrigerators.

The Town of Windsor 2040 General Plan EIR established GHG thresholds for any new development projects that were not already assessed under the Town's 2040 General Plan buildout analysis and EIR. Because the project does not change any 2040 General Plan land use designations, and because the project would implement 2040 General Plan policies to reduce GHG emissions, the project would not result in an increase to the estimated growth and emissions levels that were already analyzed as part of the 2040 General Plan EIR. In accordance with *CEQA Guidelines* Section 15183.5, if the project is consistent with the GHG Reduction Plan contained in the 2040 General Plan, GHG impacts are considered to be less than significant.

The project would be consistent with 2040 General Plan policies to reduce GHG emissions, including Policies LU-1.6 and ER-5.7 that state:

LU-1.6 Design for Livable Environments. The Town shall maintain design standards and create form-based codes or form-based design standards for specific areas that promote walkable and livable environments.

ER-5.7 Reduced Emissions for Town Operations. The Town shall promote reduced idling, trip reduction, routing for efficiency, carpooling, walking/biking and electric vehicle use for its transportation needs for Town operations.

The project would not change any 2040 General Plan land use designations, nor the estimated growth and emissions included in the Town's certified GHG Reduction Plan which is contained within the 2040 General Plan. Additionally, the project is below BAAQMD's screening thresholds for operational GHG emissions of 56 single family units, as 31 units are proposed. Because the project is consistent with the land use designation of the 2040 General Plan, as well as 2040 General Plan policies that target the reduction of GHGs, the project's impacts to GHG were included in the buildout analysis of the 2040 General Plan EIR, which concluded that GHG impacts were less than significant. Therefore, impacts to GHG emissions would the same, less than significant, for this project. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

This impact is addressed by assessing the project's consistency with the Town of Windsor 2040 General Plan (Town of Windsor 2018), the Town of Windsor Greenhouse Gas Emissions Reduction Action Plan Update, and CARB's adopted 2017 Scoping Plan Update (CARB 2017).

The project would include sidewalks and pedestrian infrastructure constructed along proposed roadways on the project site. There are also existing bike lanes along Vinecrest Road, and two transit stops approximately one mile northwest and southwest of the project site. In addition, the project would be required to comply with the most recent building standards included in Title 24, such as water saving devices, that would reduce GHG emissions. The project would not conflict with any policies contained in the 2040 General Plan to reduce GHG emissions, including Policies LU-1.6 and ER-5.7 that state:

LU-1.6 Design for Livable Environments. The Town shall maintain design standards and create form-based codes or form-based design standards for specific areas that promote walkable and livable environments.

ER-5.7 Reduced Emissions for Town Operations. The Town shall promote reduced idling, trip reduction, routing for efficiency, carpooling, walking/biking and electric vehicle use for its transportation needs for Town operations.

As described under *item (a)*, the project is consistent with the land use designation of the 2040 General Plan, which contains GHG reduction targets that align with AB 32 and SB 32, as well as CARB's 2017 Scoping Plan, and calls for communities in California to reduce emission levels to 1990 levels by 2020 and 40 percent below 1990 levels by 2030.

The project would comply with the California Green Building Standards Code, including requirements to increase recycling, reduce waste, reduce water use, solar panels, increase bicycle use, and other measures that will reduce GHG emissions. Motor vehicle emissions associated with the project would be reduced through compliance with mandatory State regulations on fuel efficiency and fuel carbon content. Emissions related to project electricity consumption would be

reduced as the electric utility, Sonoma Clean Power, is required to comply with the Renewable Portfolio Standard, which requires utilities to procure an incrementally increasing portion of electricity from renewable energy sources with the goal of achieving totally carbon-free energy by the year 2045.

Therefore, the project would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. Impacts to GHG emissions would the same, less than significant, for this project. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

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9 Hazards and Hazardous Materials

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	■	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	■	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	☐	☐	■
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☐	■

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	■	■	☐	☐	☐
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	■	☐	☐

The 2040 General Plan EIR discusses hazardous materials impacts on pages 173 through 194 and finds that impacts related to hazardous materials use in the Town and impacts regarding potential for exposure of people or the environment to hazardous materials or hazardous waste associated with future development would be less than significant.

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

As noted in the 2040 General Plan EIR, the overall quantity of hazardous materials and waste generated in the Town could incrementally increase as a result of 2040 General Plan buildout. However, compliance with existing applicable regulations and 2040 General Plan policies, including Policies PHS-5.1, PHS-5.4, and PHS-5.9, would ensure that risks from routine use, transport, handling, storage, disposal, and release of hazardous materials would be minimized. The 2040 General Plan EIR concluded that, given compliance with applicable 2040 General Plan policies, as well as State and federal regulations related to hazardous waste, impacts would be less than significant.

Construction activities associated with the project would involve the use of heavy equipment, which would contain fuels and oils, and various other products such as concrete. Small quantities of potentially toxic substances (e.g., petroleum and other chemicals used to operate and maintain construction equipment) would be used at the project site and transported to and from the site during construction. However, the project contractor would be required to comply with all California Health and Safety Codes and 2040 General Plan policies regulating the handling, storage, and transportation of hazardous and toxic materials. Thus, construction of the project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment.

Residential uses are not typically associated with the routine transport, use, disposal, or generation of substantial amounts of hazardous materials. Maintenance and operation of the project may use common household cleaning products, fertilizers, and herbicides on-site, any of which could contain potentially hazardous chemicals; however, such products would be expected to be used in accordance with label instructions. Due to the regulations governing use of such products and the amount anticipated to be used on the site, routine use of such products would not represent a substantial risk to public health or the environment.

Given that the project would be consistent with the site's 2040 General Plan land use designation, limited hazardous material use associated with buildout of the project site has been anticipated by the Town and analyzed in the 2040 General Plan EIR. In addition, the project would be subject to compliance with the 2040 General Plan policies listed above. Therefore, impacts related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials would be considered less than significant. No new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The closest school to the project site is Mattie Washburn Elementary School, located at 75 Pleasant Avenue, approximately 1.7 miles south of the site. There are no existing or proposed schools located within 0.25 miles from the project site. Additionally, the 2040 General Plan EIR concluded that impacts related to release of hazardous materials within 0.25 mile of existing or proposed schools would be less than significant because all businesses that handle or have on-site storage of hazardous materials would be required to comply with the provisions of the California Fire Code adopted by the Town (Town of Windsor Municipal Code Section 1-6-1-202) and any additional elements as required in the California Health and Safety Code Article 1 Chapter 6.95 for Business Emergency Plan. Furthermore, residential land uses are not considered to be hazardous waste

generators and would not pose a threat to nearby schools. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

d. Would the project be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The following databases compiled were checked, pursuant to Government Code Section 65962.5, on July 14, 2021 for known hazardous materials contamination in the project area.

- **California Department of Toxic Substances Control (DTSC)**
  - EnviroStor Hazardous Waste and Substances Site List per Government Code Section 65962.5(a) (DTSC 2021)
- **State Water Resources Control Board (SWRCB)**
  - GeoTracker List of Leaking Underground Storage Tank (LUST) Sites per Government Code Section 65962.5(c)(1) (SWRCB 2021)
- **California Environmental Protection Agency**
  - List of solid waste disposal sites identified by Water Board per Government Code Section 65962.5(c)(2) (CalEPA 2021a)
  - List of "active" Cease and Desist Orders and Clean-up and Abatement Orders per Government Code Section 65962.5(c)(3) (CalEPA 2021b)

The nearest hazardous waste and substances site to the project site is approximately 3.6 miles southeast (DTSC 2021). The closest LUST site is located on Hembree Lane, approximately half a mile southwest from the site (SWRCB 2021). The project site did not appear on the list of active CDO and CAOs (CalEPA 2021b), or on the list of solid waste disposal sites (CalEPA 2021a). The project site is not included on a list compiled pursuant to Section 65962.5 of the Government Code; thus, no impact would occur. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The nearest airport is the Charles M. Schulz Sonoma County Airport, located 5.4 miles southwest of the project site. Pursuant to Exhibit C4, Safety Zones, of the Sonoma County Airport Comprehensive Airport Land Use Plan, the project site is located outside of all identified Safety Zones and the Primary Referral Area Boundary (Sonoma County Airport Land Use Commission 2016). The project site is not located within an airport land use plan area, or within two miles of a public or private airport and would not result in hazards associated with airport operations. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

NO IMPACT

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The project is not located along the primary evacuation routes located within Windsor, Highway 101 and Old Redwood Highway (Town of Windsor 2017a). However, the Town of Windsor is surrounded by wildland or agriculture, which makes the Town potentially vulnerable to wildland fire. In 2019, the Kincade Fire reached Windsor, which led to the evacuation of the entire Town and burned a portion of the project site. Because the project site is susceptible wildfires and evacuation may be necessary in the project vicinity, a more thorough analysis of emergency evacuation and wildfire will be required. Impacts from wildfire and evacuation would be potentially significant and further analysis will be required and this item will be discussed in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

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10 Hydrology and Water Quality

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	■	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	■	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☐	■	☐
(i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☐	■	☐

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☐	☐	■	☐
(iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☐	■	☐
(iv) Impede or redirect flood flows?	☐	☐	☐	■	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☐	■
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■	☐

The 2040 General Plan EIR discusses hydrology and water quality impacts on pages 195 through 219 and concludes that potential impacts to groundwater supplies, drainage patterns, flooding and inundation, would be less than significant with incorporation of 2040 General Plan goals and policies, and state and local regulations.

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The project would involve grading over the 17.17-acre site, which would disturb more than 1.0 acre of land. Therefore, the project would be required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2012-0006-DWQ) adopted by the SWRCB. The Town of Windsor Municipal Code also requires an erosion and sediment control plan for construction sites that is equivalent to the required SWPPP. Under the conditions of the General Construction Permit, the applicant would be required to develop and implement a SWPPP for construction activities. The SWPPP must include BMPs specific to project construction and is subject to inspections by a Qualified Stormwater Professional. BMPs aim to control degradation of surface water by preventing soil erosion or pollution discharge from the project area.

If groundwater dewatering[4] would be required during construction, the project would be required to comply with Waste Discharge Requirements for Low Threat Discharges to Surface Waters in the North Coast Region (Order No. R1-2009-0045; General NPDES Permit No. CA0024902), which requires the treatment of contaminated groundwater prior to discharge or disposal of contaminated groundwater at an appropriate disposal facility or wastewater treatment plant.

The project would also be required to adhere to the Town of Windsor Municipal Code requirements for new development, including BMPs, such as erosion control, revegetation detailed in the Town's Phase II NPDES Stormwater Management Plan. The Town of Windsor Municipal Code storm water discharge requirements are designed to achieve compliance with the NCRWQCB's NPDES permit and Waste Discharge Requirements for MS4 Discharges (Order No. R1-2015-0030; NPDES No. CA0025054). Finally, the project would adhere to 2040 General Plan policies including Policies PFS-4.1, PFS-4.4, ER-3.4, and ER-3.5 to minimize storm water runoff and Policies ER-3.4, ER-3.5, ER-6.6, and PHS-5.5 to prevent or remediate illicit discharges of pollutants to the municipal storm water conveyance system. These requirements would ensure that construction and operational stormwater runoff does not degrade surface or groundwater quality in the vicinity of the site. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

[4] Dewatering is the removal of water from solid material or soil by wet classification, centrifugation, filtration, or similar solid-liquid separation processes, such as removal of residual liquid from a filter cake by a filter press as part of various industrial processes.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The 2040 General Plan EIR concluded that, while development facilitated by the 2040 General Plan could interfere with groundwater recharge and require dewatering during construction, implementation of 2040 General Plan policies, including Policies PFS-2.5, PFS-2.6, PFS-2.8, PFS-2.9, and Policy PHS-7.10, would ensure that future development would not deplete groundwater supplies substantially. Groundwater was not observed in past geological investigations of the project site; thus, the project would not directly interfere with the groundwater table (Appendix B). Additionally, the project would be served by the Windsor Water District, to which groundwater only accounts for less than one percent of the Towns water supply (Town of Windsor 2016). The project would add impervious surfaces to the mostly vacant site, such as new paved surfaces (roadways) and concrete surfaces (sidewalks), which would impact groundwater recharge. However, the project proposes the addition of rain gardens, permeable concrete gutters, and bioretention basins in order to capture runoff from the site and permit groundwater recharge. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c.(i) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site?

c.(iv) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows?

There are no creeks, streams, or rivers adjacent to the project site. While the project would alter the existing drainage pattern of the site by increasing impervious surfaces, it would include on-site drainage channels. Individual lots would include rain gardens over storm drain outlet pipes that would divert water into storm drains on the project site. Bioretention basins would be constructed along interior roadways with a six-inch solid pipe to connect to a downstream bioretention basin. Drainage from the project site would be routed into two existing drainage connections, one at the western property line and another at Prince George Way. The project would also be required to comply with the NPDES General Construction Permit and prepare a SWPPP in order to reduce impacts to drainage patterns. Additionally, the project would comply with the Town of Windsor Municipal Code requiring an erosion and sediment control plan, and all applicable 2040 General Plan policies, including Policies PFS-4.5, ER-3.2, and PHS-2.2. Adherence to the NPDES General Construction Permit, Town of Windsor Municipal Code, the preparation of a SWPPP, 2040 General Plan policies, and the addition of on-site drainage channels would reduce impacts to less than significant. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c.(ii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

c.(iii) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

There are no creeks, streams, or rivers within or adjacent to the project site. The project would include development of a catch basin within the project tributary boundaries in order to intercept and mange surface water flow leaving the site. The Hydrology Analysis prepared by TDG Consulting Civil Engineers, Inc., dated July 7, 2020, concluded that catch basins would be designed to contain stormwater flows associated with a 10-year storm event and 100-year storm event (Appendix C*).* However, as mapped on Figure 15, *Flood Hazard Areas*, of the 2040 General Plan EIR, the project site is not located within a 100 or 500 year flood plain. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted..

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

d. In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

The project area is not located in a flood zone, as discussed above under impacts c.(ii) and c.(iii) above, tsunami inundation area, nor is there a water body near the project area capable of seiche. Therefore, there would be no impact and no further analysis in the EIR is required.

NO IMPACT

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Santa Rosa Plain Groundwater Sustainability Agency (GSA) is a public agency formed to sustainably manage groundwater in the Santa Rosa Plain groundwater basin. The GSA is preparing a draft Groundwater Sustainability Plan, which has not yet been adopted.

Water quality in the Town is governed by the North Coast Regional Water Quality Control Board (NCRWQCB), which sets water quality standards in the Water Quality Control Plan for the North Coast Region (Basin Plan). As discussed in *item (a),* the project would be required to comply with NPDES requirements, and the Code of the Town of Windsor which requires an erosion and sediment control plan for construction sites that is equivalent to the required SWPPP. As discussed under criteria (*a*) and (*b*) above, the project would not use groundwater, violate water quality standards, or degrade water quality during construction or operation. Additionally, adherence to state and local policies would further maintain water quality. Given that the project would be consistent with the site's 2040 General Plan land use designation, conflicts with a water quality control plan associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR. Therefore, the proposed project would not interfere with water quality control plans or sustainable groundwater management plans. Thus, there would be no new or

substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

11 Land Use and Planning

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Physically divide an established community?	☐	☐	☐	■	☐
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	■	☐

The 2040 General Plan EIR addresses land use and planning on pages 221 through 241. The 2040 General Plan EIR analysis finds that potential impacts from dividing existing communities and consistency with existing plans, policies, and regulations would be less than significant.

a. Would the project physically divide an established community?

The eastern property line of the project is coterminous with Town limits and the Town's Urban Growth Boundary. The south property line coterminous with Town limits. The project would include an extension from Prince George Way to the east, directly north of lots 13 through 17, until the road extension would intersect with the new section of Jensen Lane, which would be constructed along the project's eastern property line. Portland Way, a proposed roadway, would bisect the project site from north to south and connect to Vinecrest Road and Prince George Way. Sidewalks would be constructed along proposed and extended roadways on the project site, including Portland Way, Jensen Lane, Vinecrest Road, and Prince George Way, which would be accessible to the surrounding community Additionally, project implementation would continue the existing residential development pattern in the neighborhood and is consistent with the Town's 2040 General Plan land use designation of the site. Therefore, the project would not divide the currently established community and there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

The project is consistent with the Town's 2040 General Plan land use designation and land use policies, as discussed throughout this Initial Study. The project would not conflict with any federal or state policies or regulations. However, as discussed in Section 2, *Agricultural Resources*, agricultural land is located adjacent to the site to the east and south. The project would include a 100-foot agricultural buffer along the southern and eastern boundary of the project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer of 200-feet, but allows the width of the buffer to be reduced to a minimum of 100-feet in certain circumstances with Town Council approval. The 2040 General Plan permits low density land uses to be adjacent to agricultural lands, including estate residential. Furthermore, Policy ER-2.2 noted that the size of agricultural buffers would be determined by parcel specific review for new development adjacent to agricultural property. Given that the project would be consistent with the site's 2040 General Plan land use designation, potential risks with agriculture adjacent to residential development associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR. As mentioned above, Chapter 27.24, Agricultural Preservation, of the Town of Windsor Zoning Ordinance requires an agricultural buffer of 200-feet at the time of subdivision or development for any parcel adjacent to agricultural lands. However, according to Section 27.24.020(B) of the Town of Windsor Zoning Ordinance, the Town Council may adjust the width of the buffer where deemed appropriate, provided the buffer would not be reduced to less than 100 feet. Lots 28, 29, 30 and 31 would have an increased front yard setback that would provide the minimum required 100-foot agricultural buffer from the parcels to the east. Lots 14, 15, 16, and 17 would include a building envelope that would provide the minimum required 100-foot agricultural buffer from the parcels to the south. The residences on each of these lots would be required to be constructed within this building envelope. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

12 Mineral Resources

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	■
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐	■

Impacts related to mineral resources were analyzed on page 345 of the 2040 General Plan EIR and they were determined to have no impact.

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

The project site is not zoned or designated for mining uses and no active mining operations are in the project area or vicinity. The project would not result in the loss of availability of a known mineral resource that would be of value to the residents of the state and the region, nor would it result in loss of a locally important mineral resource recovery site. The project does not involve developing currently undeveloped land with the potential to contain valuable mineral resources. Therefore, there would be no impact and no further analysis is required.

NO IMPACT

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13 Noise

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project result in:					
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	■	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	■

The 2040 General Plan EIR analyzes noise on pages 243 through 262 and finds operational noise impacts to be less than significant and impacts from construction noise and vibration would be less than significant with implementation of mitigation.

Overview of Noise and Vibration

Noise

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment (California Department of Transportation [Caltrans] 2013).

HUMAN PERCEPTION OF SOUND

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; dividing the energy in half would result in a 3 dB decrease (Caltrans 2013).

Human perception of noise has no simple correlation with sound energy: the perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources do not "sound twice as loud" as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA, increase or decrease (i.e., twice the sound energy); that a change of 5 dBA is readily perceptible (8 times the sound energy); and that an increase (or decrease) of 10 dBA sounds twice (half) as loud (10.5 times the sound energy) (Caltrans 2013).

SOUND PROPAGATION AND SHIELDING

Sound changes in both level and frequency spectrum as it travels from the source to the receiver. The most obvious change is the decrease in the noise level as the distance from the source increases. The manner by which noise reduces with distance depends on factors such as the type of sources (e.g., point or line), the path the sound will travel, site conditions, and obstructions.

Sound levels are described as either a "sound power level" or a "sound pressure level," which are two distinct characteristics of sound. Both share the same unit of measurement, the dB. However, sound power (expressed as L_{pw}) is the energy converted into sound by the source. As sound energy travels through the air, it creates a sound wave that exerts pressure on receivers, such as an eardrum or microphone, which is the sound pressure level. Sound measurement instruments only measure sound pressure, and noise level limits are typically expressed as sound pressure levels.

Noise levels from a point source (e.g., construction, industrial machinery, air conditioning units) typically attenuate, or drop off, at a rate of 6 dBA per doubling of distance. Noise from a line source (e.g., roadway, pipeline, railroad) typically attenuates at about 3 dBA per doubling of distance (Caltrans 2013). Noise levels may also be reduced by intervening structures; the amount of attenuation provided by this "shielding" depends on the size of the object and the frequencies of

the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, any large structure blocking the line of sight will provide at least a 5-dBA reduction in source noise levels at the receiver (Federal Highway Administration [FHWA] 2011). Structures can substantially reduce exposure to noise as well. The FHWA's guidance indicates that modern building construction generally provides an exterior-to-interior noise level reduction of 10 dBA with open windows and an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows (FHWA 2011).

DESCRIPTORS

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important factors of project noise impact. Most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors have been developed. The noise descriptors used for this study are the equivalent noise level (L_{eq}), Day-Night Average Level (DNL; may also be symbolized as L_{dn}), and the community noise equivalent level (CNEL; may also be symbolized as L_{den}). The L_{90} is the sound level exceeded 90 percent of the time. The L_{max} is the maximum noise level reached during a single noise event.

L_{eq} is one of the most frequently used noise metrics; it considers both duration and sound power level. The L_{eq} is defined as the single steady-state A-weighted sound level equal to the average sound energy over a time period. When no time period is specified, a 1-hour period is assumed. The L_{max} is the highest noise level within the sampling period, and the L_{min} is the lowest noise level within the measuring period. Normal conversational levels are in the 60 to 65-dBA L_{eq} range; ambient noise levels greater than 65 dBA L_{eq} can interrupt conversations (Federal Transit Administration [FTA] 2018).

Noise that occurs at night tends to be more disturbing than that occurring during the day. Community noise is usually measured using Day-Night Average Level (L_{DN}), which is the 24-hour average noise level with a +10 dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). Community noise can also be measured using Community Noise Equivalent Level (CNEL or L_{DEN}), which is the 24-hour average noise level with a +5 dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. (Caltrans 2013).[5] The relationship between the peak-hour L_{eq} value and the L_{DN}/CNEL depends on the distribution of noise during the day, evening, and night; however noise levels described by L_{DN} and CNEL usually differ by 1 dBA or less. Quiet suburban areas typically have CNEL noise levels in the range of 40 to 50 CNEL, while areas near arterial streets are in the 50 to 60+ CNEL range (FTA 2018).

Groundborne Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as groundborne noise), and may cause windows, items on shelves, and pictures on walls to rattle. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

[5] Because DNL and CNEL are typically used to assess human exposure to noise, the use of A-weighted sound pressure level (dBA) is implicit. Therefore, when expressing noise levels in terms of DNL or CNEL, the dBA unit is not included.

Typically, ground-borne vibration generated by manmade activities attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used as it corresponds to the stresses that are experienced by buildings (Caltrans 2020).

High levels of groundborne vibration may cause damage to nearby building or structures; at lower levels, groundborne vibration may cause minor cosmetic (i.e., non-structural damage) such as cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction, demolition, drilling, or excavation. The American Association of State Highway and Transportation Officials (AASHTO) has determined vibration levels with potential to damage nearby buildings and structures; these levels are identified in Table 4.

Table 4 AASHTO Maximum Vibration Levels for Preventing Damage

Type of Situation	Limiting Velocity (in/sec)
Historic sites or other critical locations	0.1
Residential buildings, plastered walls	0.2–0.3
Residential buildings in good repair with gypsum board walls	0.4–0.5
Engineered structures, without plaster	1.0–1.5

Source: Caltrans 2020

Numerous studies have been conducted to characterize the human response to vibration. The vibration annoyance potential criteria recommended for use by Caltrans, which are based on the general human response to different levels of groundborne vibration velocity levels, are described in Table 5.

Table 5 Vibration Annoyance Potential Criteria

	Vibration Level (in/sec PPV)	
Human Response	Transient Sources	Continuous/Frequent Intermittent Sources[1]
Severe	2.0	0.4
Strongly perceptible	0.9	0.10
Distinctly perceptible	0.25	0.04
Barely perceptible	0.04	0.01

in/sec = inches per second; PPV = peak particle velocity

[1] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Source: Caltrans 2020

Regulatory Setting

Federal Noise Policies

There are no federal noise requirements or regulations that apply directly to the implementation of the 2040 General Plan. However, there are federal regulations that influence the audible landscape, especially for projects where federal funding is involved. For example, the FHWA requires abatement of highway traffic noise for highway projects through rules in the Code of Federal

Regulations (23 CFR Part 772), the FTA, and Federal Railroad Administration (FRA). Each agency recommends thorough noise and vibration assessments through comprehensive guidelines for any highway, mass transit, or high-speed railroad projects that would pass by residential areas.

In addition, the Federal Aviation Administration (FAA) has prepared guidelines for acceptable noise exposure in its Federal Aviation Regulations Part 150 Noise Compatibility Planning program for airports. The program is aimed at balancing an airport's operational needs and its impact on the surrounding community. Its purpose is to reduce noise impacts on existing incompatible land use and to prevent the introduction of new incompatible land uses in the areas impacted by aircraft noise. It establishes standard noise methodologies and noise metrics, identifies land uses normally compatible with various levels of airport noise, and provides for voluntary development and submission of noise exposure maps and noise compatibility programs by airport operators. See discussion below regarding the Sonoma County Comprehensive Airport Land Use Plan.

State Noise and Vibration Policies

Title 24 of the California Code of Regulations codifies Sound Transmission Control requirements establishing uniform minimum noise insulation performance standards for new hotels, motels, dormitories, apartment houses, and dwellings other than single-family dwellings. Specifically, Section 1207.4 in Title 24 states that interior noise levels attributable to exterior noise sources shall not exceed 45 dBA CNEL in any habitable room of a new building.

While there are no State standards for vibration, Caltrans establishes vibration risk for structures. For continuous, frequent, and intermittent vibration, Caltrans considers the architectural damage risk level to be somewhere between 0.08 and 0.5 inches per second (in/sec) peak particle velocity (PPV) depending on the type of building that is affected.

LOCAL NOISE POLICIES

Sonoma County Comprehensive Airport Land Use Plan

The Sonoma County Airport Land Use Commission (ALUC) governs the Sonoma County Airport through the Comprehensive Airport Land Use Plan (CALUP), as adopted in January 2001 and amended in March 2016. Sonoma County Airport is located over 870 feet southwest of the WindsorTown Limits and Urban Growth Boundary. The CALUP is intended to protect and promote the safetyand welfare of residents near the public use airports in the county, as well as airport users, while promoting the continued operation of the six airports covered by the plan. Section 65302.3 of the Government Code requires general plan and applicable specific plans to be consistent with amended CALUPs.

Town of Windsor Zoning Ordinance and Town of Windsor 2040 General Plan

Chapter 27.20 of the Zoning Ordinance sets maximum allowable exterior and interior noise levels atreceiving land uses subject noise generated by activities on nearby properties. The noise standards are the same as included in Table PHS-4 of the Town of Windsor 2040 General Plan. These allowable noise levels, shown in Table 6, vary by land use and time of day.

Table 6 Maximum Noise Levels by Receiving Land Use

Zone	Time Interval	Exterior Maximum Allowable Noise Level (dBA)	Interior Maximum Allowable Noise Level (dBA)
Single- or multi-family residential	7 a.m. to 10 p.m.	55	35
	10 p.m. to 7 a.m.	50	45
Commercial	7 a.m. to 10 p.m.	65	50
	10 p.m. to 7 a.m.	55	
Industrial or Manufacturing	Any time	70	55
Public Parks, public open space, and Civic Centers	7 a.m. to 10 p.m.	55	NA
	10 p.m. to 7 a.m.	50	

[1] Each of the noise limits specified above shall be reduced by 5 dBA for impulse or simple tone noises, or for noise consisting of speech or music. If the ambient noise level exceeds the resulting standard, the ambient noise level shall be the standard.

[2] It shall be unlawful for any person within a residentially zoned area of the town to operate any noise amplified device (e.g., bull horns, microphones, musical instruments, speakers, etc.), that exceeds a noise level of 45 dBA measured at the property line or cause loud excessive noise which disturbs the peace of the neighborhood.

Source: Town of Windsor, 2007; Town of Windsor Zoning Ordinance, Chapter 27.20, Table 3-1.

In addition, Section 7-1-1018 of the Code of the Town of Windsor restricts the timing of construction activities authorized by a Town permit to the hours of 7 a.m. to 7 p.m. Monday through Friday and 8 a.m. to 7 p.m. on Saturday. No construction shall be permitted on Sundays unless authorized by the Building Official and in no case shall construction be allowed on Sundays before 9:00 a.m. or after 5:00 p.m.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Noise

Construction activity would generate temporary noise in the project site vicinity, exposing surrounding sensitive receivers to increased noise levels. Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM) (FHWA 2006). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical propagation formulas. Using RCNM, construction noise levels were estimated at noise sensitive receivers near the project site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment

Project construction noise would be generated by heavy-duty diesel construction equipment used for demolition, site preparation, grading, building construction, and paving activities. Each phase of construction has a specific equipment mix and associated noise characteristics, depending on the equipment used during that phase. Construction noise would typically be higher during the more equipment-intensive phases of initial construction (i.e., demolition, site preparation and grading work) and would be lower during the later construction phases (i.e., building construction and paving). Typical heavy construction equipment during project grading could include dozers, loaders, and dump trucks. It is assumed that diesel engines would power all construction equipment. Construction equipment would not all operate at the same time or location. In addition, construction equipment would not be in constant use during each workday.

Noise impacts from construction equipment are typically assessed from the center of the equipment activity area (e.g., construction site, demolition area, grading area, etc.) over the time period of a construction day. The grading equipment would be transporting soil from leveling and grading off-site. The grading activities would generate the greatest noise levels of the identified activities with operation of a dozer and front-end loader for a noise level of approximately 80 dBA L_{eq} and 82 dBA L_{max} at 50 feet. This noise level was calculated assuming simultaneous use of a dozer and a front-end loader. RCNM calculations are included in Appendix D.

Section 7-1-190 of the Town of Windsor Municipal Code restricts the timing of construction activities authorized by a Town permit to the hours of 7 a.m. to 7 p.m. Monday through Friday, 8 a.m. to 7 p.m. on Saturday, and prohibited on Sunday unless approved by the Town. However, the Town has not adopted any numerical thresholds related to construction noise. For purposes of analyzing impacts from this project, the FTA *Transit Noise and Vibration Impact Assessment Manual* (FTA 2018) criteria were used. The FTA provides reasonable criteria for assessing construction noise impacts based on the potential for adverse community reaction. For commercial and residential uses, the daytime noise threshold is 85 dBA L_{eq} and 80 dBA $L_{eq,}$ respectively, for an 8-hour period (FTA 2018). Therefore, construction noise would not exceed the daytime construction noise threshold for residential land uses of 80 dBA L_{eq}. Additionally, the project would comply with Mitigation Measure N-1, provide below, from the 2040 General Plan EIR, which all projects involving construction to implement techniques to reduce noise during construction.

On-site Operational Noise

The project would generate operational noise that would be typical of residential uses, including heating, ventilation, and air conditioning (HVAC) equipment, parking activities, and solid waste collection and recycling operations. Noise associated with solid waste collection and recycling operation is exempt from the Town's noise standards pursuant to Section 27.20.030(F)(6) of the Town's Zoning Ordinance.

Noise associated with parking activities would include vehicle circulation, engines, car alarms, door slams, and human voices. The maximum sound of a passing car at 15 miles per hour (mph) typically ranges from 52 to 62 dBA L_{max} at 50 feet (City of Novato 2018). The noise generated during an engine start is similar. Door slams create lower noise levels. Nearby sensitive receivers, single family residences, would be as close as 150 feet to noise associated with parking activities. At 150 feet noise level would range from 43 to 53 dBA L_{max}. Noise from parking activity would be intermittent and would not result in an exceedance of the Town's noise standards. Therefore, noise levels from parking activities would not create a significant impact at nearby sensitive receivers.

The project would include the addition of new HVAC equipment, either on rooftops or at ground level. HVAC equipment is a continuous noise source, and noise levels can reach up to 70 dBA L_{eq} at a distance of 15 feet from the source (Illingworth & Rodkin 2009). HVAC equipment would be located as close as 75 feet from adjacent property lines when considering building setbacks. Noise levels generated by HVAC equipment would be approximately 56 dBA L_{eq} at 76 feet. This analysis conservatively did not account for shielding that may occur on HVAC units. Although HVAC noise levels may exceed the Town's daytime and nighttime noise standards for residential land uses the project would be required to adhere to the Town's Noise Ordinance contained in Chapter 27.20 of the Zoning Ordinance. The building permit plans for development of the single family residences would be required to include the location of HVAC units, manufacturer's specifications, and demonstrate compliance with the Town's Noise Ordinance standards. Therefore, there would be no

new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

Off-Site Operational Noise

The project would generate vehicle trips, thereby increasing traffic noise on area roadways. The project is estimated to generate approximately 292 new daily trips. There are 119 PM peak hour trips on Vinecrest Road, north of the project site, and PM peak hour trips represent the busiest time of the day on roadways (W-Trans 2022). Therefore, there are approximately 1,190 average daily trips on Vinecrest Road.[6] An increase in 292 daily trips would represent an approximately 25 percent increase in daily trips on Vinecrest Road. A doubling of traffic volume increases noise level by 3 dBA, the level of human perception for an increase in noise (Caltrans 2013). Therefore, the project would not result in a perceptible increase in traffic noise along Vinecrest Road. Noise associated with additional vehicles on area roadways, such as Vinecrest Road and Jensen Lane, would similarly add incremental increases in off-site noise from speeding and tire squeals. Automobiles traveling at 15 miles per hour emits noise of approximately 52 to 62 dBA at 50 feet and sounds from other driving activities, such as tire squeals can be as loud ad 60 dBA at 100 feet (City of Novato 2018; Gordon Bricken and Associates 1996). Noise from the approximately 292 new daily trips from vehicle speeding, stopping at intersections, and tire squeals would be intermittent and would not significantly contribute to overall ambient noise levels in the project vicinity. Additionally, the mini roundabout at Vinecrest Road and Portland Way would reduce vehicle speeds and noise associated with higher speeds. Therefore, the project would not result in a significant increase in traffic noise compared to what was previously analyzed in the 2040 General Plan EIR.

Mitigation Measure

Consistent with the 2040 General Plan EIR, the following mitigation measure is required:

N-1 Construction Noise Control Measures

The following noise control measures shall be included as standard conditions of approval for projects involving construction:

1. Properly muffle and maintain all construction equipment powered by internal combustion engines.
2. Prohibit unnecessary idling of combustion engines.
3. Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing
   nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded.
4. Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order.
5. Residences adjacent to project sites shall be notified in advance by writing of the proposed construction schedule before construction activities commence.
6. The project applicant shall designate a “noise disturbance coordinator” responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall

[6] Average daily trip calculations are based on the industry standard that average daily trips are approximately 10 times peak hour trips.

require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.

Significance After Mitigation

Impacts from construction and operational noise would be less than significant with implementation of Mitigation Measure N-1. Based on the information above, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction

Project construction would not involve activities typically associated with excessive groundborne vibration such as pile driving or blasting. The equipment utilized during project construction that would generate the highest levels of vibration would include rollers, loaded trucks, and bulldozers. The Town of Windsor has not adopted standards to assess vibration impacts during construction and operation. However, Caltrans has developed limits for the assessment of vibrations from transportation and construction sources. The Caltrans vibration limits are reflective of standard practice for analyzing vibration impacts on structures from continuous and intermittent sources. The thresholds of significance used in this analysis to evaluate vibration impacts are based on these impact criteria, as summarized in Table 10.

Project construction may require operation of vibratory equipment such as vibratory rollers, loaded trucks, and bulldozers within 25 feet of the nearest neighboring residences. As shown in Table 7, vibration levels from individual pieces of construction equipment would not exceed the threshold at which damage can occur to residential structures, 0.20 PPV, or the threshold at which transient vibration sources would be distinctly perceptible to 0.25 PPV. Construction vibration levels at all in the immediate vicinity, including residences to the west and north, would be less than the levels shown in Table 7 because vibration levels would attenuate with distance. Furthermore, in accordance with Section 7-1-190 of the Town of Windsor Municipal Code, project construction would be required to occur during daytime hours and would not disturb neighboring residents during sensitive hours of sleep. Finally the project would be required to adhere to Mitigation Measure N-2 Construction Vibration Control Measures, listed below, from the 2040 General Plan EIR.

Table 7 Vibration Levels at Sensitive Receivers

Equipment	PPV at 25 ft. (in/sec)
Large Bulldozer	0.089
Loaded Trucks	0.076
Small Bulldozer	0.003

Source: FTA 2018

Operation

As a residential development, the project would not generate significant stationary sources of vibration, such as manufacturing or heavy equipment operations. No operational vibration impact would occur.

Mitigation Measure

Consistent with the 2040 General Plan EIR, the following mitigation measure is required to reduce impacts to less than significant levels:

N-2 Construction Vibration Control Measures

The following measures to minimize exposure to construction vibration shall be included as standard conditions of approval for applicable projects involving construction:

1. Avoid the use of vibratory rollers within 50 feet of fragile buildings, which are buildings that are susceptible to damage from vibration.
2. Schedule construction activities with the highest potential to produce vibration to hours with the least potential to affect nearby institutional, educational, and office uses that the Federal Transit Administration identifies as sensitive to daytime vibration (FTA 2006).
3. Notify neighbors of scheduled construction activities that would generate vibration.

Significance After Mitigation

Impacts to groundborne vibration or groundborne noise levels would be less than significant with adherence to mitigation measure N-2 which is contained in the 2040 General Plan EIR. Based on the information above and with adherence to this mitigation measure, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The nearest airport is the Charles M. Schulz Sonoma County Airport, located 5.4 miles southwest of the project site. Pursuant to Exhibit C4, Safety Zones, of the Sonoma County Airport Comprehensive Airport Land Use Plan, the project site is located outside of all identified Safety Zones and the Primary Referral Area Boundary (Sonoma County Airport Land Use Commission 2016). The project site is not located within an airport land use plan area, or within two miles of a public or private airport. The project would not result in hazards associated with airport operations and therefore, there would be no impact and no further analysis is required.

NO IMPACT

14 Population and Housing

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	■	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐	■

The 2040 General Plan EIR discusses population and housing impacts on pages 263 through 272. The 2040 General Plan EIR accounts for a population of 38,028 people in 2040 at full buildout of the 2040 General Plan. Impacts from unplanned population growth and displacement of existing housing were determined to be less than significant.

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The 2040 General Plan EIR indicated an average annual growth rate in the Town of 1.5 percent, consistent with the Town's Growth Control Ordinance. The project would result in 31 single family units on a primarily vacant site with an existing single-family home. According to the Department of Finance (DOF) the average single-family residence in the Town of Windsor has three (3) persons per household. Therefore, the proposed project would introduce approximately 93 new residents (DOF 2021). The 2040 General Plan growth calculations account for the project as they provide for new housing units to be developed in accordance with the growth expected under the 2040 General Plan's land use plan. The 2040 General Plan anticipates population growth to increase to 38,028 by 2040, which exceeds the anticipated population of 32,805 in 2040 from Plan Bay Area (Association

of Bay Area Governments 2020). Windsor's current population is approximately 25,942 persons, and the project would introduce 93 new residents, approximately a 0.3 percent increase in population (California Department of Finance 2021). The population increase generated by the project, therefore, falls within the growth projected by both Plan Bay Area and the 2040 General Plan. Accordingly, the project would not induce substantial population growth directly or indirectly because the project is part of planned growth in the region. Additionally, given that the project would be consistent with the site's 2040 General Plan land use designation, potential impacts from population growth associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project site is mostly vacant with one single-family residence that would be demolished as part of the project. The project would provide 31 new single-family residences, increasing the number of residential units at the site by 30. Therefore, the project would not displace a substantial number of existing people or housing. Rather it would provide additional housing opportunities in Windsor and would be in accordance with the 2040 General Plan policies, including LU-1.7 which states that "the Town shall encourage new residential development within existing neighborhoods to include building designs that provide diversity while maintaining compatibility with the scale, massing, and heights of the existing homes. Criteria for determining compatible development are defined in design standards for the Town or in form-based codes for specific areas." Therefore, there would be no impact and no further analysis is required.

NO IMPACT

15 Public Services

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a. 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 public services:					
1. Fire protection?	☐	☐	☐	■	☐
2. Police protection?	☐	☐	☐	■	☐
3. Schools?	☐	☐	☐	■	☐
4. Parks?	☐	☐	☐	■	☐
5. Other public facilities?	☐	☐	☐	■	☐

Impacts to public services were analyzed on pages 273 through 284 of the 2040 General Plan EIR. Impacts related to police, fire protection, schools, libraries, and other public facilities were found to be less than significant. Impacts related to parks were analyzed on pages 345 and 346 of the 2040 General Plan EIR and the Plan was determined to have no impact.

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

a.2. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The Sonoma County Fire District (SCFD) works to administer fire protection in the Windsor region. The SCFD provides full-service delivery for fire protection, emergency medical response and hazardous spills. The SCFD employs a captain and an engineer on duty each day at each of the Towns two fire stations. Fire Station No. 1 is located at 8200 Old Redwood Highway, Fire Station No. 2 is located at 45 Lark Center Drive, and Fire Station No. 3 is located at 8600 Windsor Road.

The Police Department's policing and services programs are divided into four divisions: Police Administration and Support Services; Police Patrol and Traffic Enforcement; Police Investigations; and Community Services. There are 24 staff assigned to the Windsor Police Department consisting of 17 sworn deputies, three sergeants, one chief, and three civilians. The Windsor Police Department has 0.74 sworn officers per 1,000 residents (Town of Windsor 2018). This is somewhat lower than the League of California Cities recommended standard of 1.4 to 1.6 sworn officers per 1,000 residents. The project would decrease the current number of officers per 1,000 residents to 0.6 sworn officers per 1,000 residents. However, 2040 General Plan policy PFS-6.1 states that, "the Town shall strive to ensure that law enforcement operations are expanded as the Town's population increases by establishing benchmark standards for evaluating the quality of law enforcement services on an annual basis," proposing to meet staffing benchmark in order to ensure that law enforcement operations expand as the Town's population increases. However, the Sheriff Department augments the Windsor Police Department for investigative services and additional patrol as needed . Windsor also has an average response time of five minutes and 46 seconds, which is faster than the standard acceptable response rate of 6-8 minutes. According to Windsor Police Chief, Michael Raasch, development of project would not have an impact on police services (Raasch 2021).

The 2040 General Plan EIR evaluated fire and police protection demand impacts and found them to be less than significant with implementation of applicable 2040 General Plan goals and policies. Specifically, Goal PFS-1 of the 2040 General Plan Public Facilities and Services Element is intended to maintain the necessary level of service for the overall provision of public facilities and services in Windsor. The project is located in an area currently served by police and fire protection services and buildout of the site as proposed was assumed as part of the EIR analysis. The project would result in approximately 93 new residents, which added to the current population of 27,855 in Windsor, would result in a population of 27,948. This increase in population would not surpass the 2040 ABAG population projections of 32,805. Additionally, population would remain under the anticipated population growth of the 2040 General Plan (38,028 residents). 2040 General Plan Polices PFS-6.1, PFS-7.5, PFS-7.6, and PFS-7.8 would ensure that the Town maintains acceptable ratios and response times as the population grows. Additionally, the applicant would be required to pay development impact fees for fire and police services pursuant to the Town's Municipal Code. Therefore, the 2040 General Plan has accounted for the population growth associated with the

proposed project and the level of services needed to ensure no additional police or fire protection facilities are necessary. There would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

The Town is served by the Windsor Unified School District (WUSD) that oversees seven schools including two charter schools. There is also a private school located in the Town. The WUSD employs over 450 people, including over 230 teachers and has a student-teacher ratio of 21 students for every full-time teacher (Windsor Unified School District 2016). The closest schools to the project site are Mattie Washburn Elementary School, located at 75 Pleasant Avenue, 1.7 miles south of the project site, and Brooks Elementary School 2.6 miles northwest of the site. The project would add approximately 14 new students, based on a generation rate of 0.46 students per housing unit (Windsor Unified School District 2016).

While the project would increase student population, the 2040 General Plan EIR found impacts to be less than significant with implementation of 2040 General Plan policies. As described in Section 14, *Population and Housing*, the 2040 General Plan growth calculations account for the project as they provide for a number of new housing units to be developed in accordance with the growth expected under the 2040 General Plan's land use plan. Therefore, the project is part of planned growth in the region, including anticipated student population growth. Additionally, the project applicant would be required to pay development impact fees to the Windsor Unified School District that would be used by the local school district to mitigate impact associated with long-term operation and maintenance of school facilities. Pursuant to Section 65995(h) of the California Government Code, payment of these fees is "deemed to be full and complete mitigation of impacts of any legislative or adjudicative act, or both, involving but not limited to, the planning, use, or development of real property, or any change in government organization or reorganization." Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Project-related impacts to parks are discussed in Section 16, *Recreation.*

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

a.5. Would the project result in substantial adverse physical impacts associated with the provision of other new or physically altered public facilities, or the need for other new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

The project does not include and would not require new or physically altered governmental facilities. Population growth facilitated by the proposed residential lots included would generate additional demand for library services; however, the 2040 General Plan accounts for this population growth, which is consistent with population growth forecasts in the 2040 General Plan and Plan Bay Area 2040. 2040 General Plan Policy PFS-10.4 (New Library) directs the replacement of the existing Windsor Regional Library adjacent to existing public facilities, parks, schools, and/or the government center. According to the 2040 General Plan EIR, this policy would ensure that library services are available to the community as needed. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

16 Recreation

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	■	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☐	■

Impacts related to recreational facilities were analyzed on pages 345 and 346 of the 2040 General Plan EIR and were determined to have no impact.

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

According to the 2040 General Plan there are currently five community parks and 14 neighborhood parks totaling to 110 acres (Town of Windsor 2017b). The closest parks to the project site are Pleasant Oak Park 1.6 miles south of the project site, Pueblo Viejo Park 1.8 miles southwest of the project site, and Foothill Regional Park 2 miles north of the project site.

The project would result in approximately 93 new residents, which would increase the population of Windsor to 27,948, which is below 2040 population forecast from both Plan Bay Area 2040 and the 2040 General Plan. Therefore, the 2040 General Plan has accounted for this population growth and the level of park services needed. Additionally, the Town Council adopted the Parks and Recreation Master Plan which "identifies a planning blueprint to improve, protect, and expand the Town's network for parks, facilities and recreational services for the future, including sustainable goals for

appropriate maintenance and funding for existing and future development." The Master plan works to ensure that adequate parks, facilities, and recreation programs meet the needs of the Town's future residents, employees, and visitors. Additionally, the project would be required to pay five impacts fees pursuant to the Quimby Act, including park development, recreational activities, open space, trail development, and public facilities. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The project does not include recreational facilities. As discussed above, under impact a, the addition of 93 new residents would not require construction or expansion of recreational facilities. Therefore, there would be no impact and no further analysis is required.

NO IMPACT

17 Transportation

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	■	☐	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	■	☐	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	■	☐	☐
d. Result in inadequate emergency access?	☐	☐	■	☐	☐

Impacts to transportation were analyzed on pages 285 through 321 of the 2040 General Plan EIR. Impacts related to conflicts with applicable plans, ordinances, policies, or congestion management programs were found to be significant but mitigable. Impacts related to a change in air traffic patterns and the provision of adequate emergency access were found to be less than significant. Impacts from traffic-related hazards were determined to be significant and unavoidable as related to queuing at specific locations, despite implementation of mitigation. None of the intersections identified as having a significant queuing impact are near the project site. Mitigation in the 2040 General Plan EIR included Mitigation Measure T-1 Intersection Improvements, to reduce impacts associated with level of service (LOS). However, LOS is no longer considered an impact under CEQA. Although LOS is no longer considered in CEQA to determine if a project would have a transportation impact, LOS will be considered by Town staff as part of the General Plan consistency analysis for the project. Mitigation Measure T-2 was included in the 2040 General Plan EIR to reduce queuing

impacts. Mitigation Measures T-1 and T-2 are therefore not required for the project and can be viewed on pages 312 and 317 of the Final 2040 General Plan EIR, respectively.

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

More information is needed to conclude the impacts of the project to programs, plans, ordinances or policies addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. The Traffic Impact Study prepared by W-Trans in May 2022 would be used in order to determine whether project impacts on transportation would be significant (W-Trans 2022). Therefore, this issue will be analyzed further in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3 requires an analysis of a project's effect on vehicle miles traveled (VMT). The 2040 General Plan EIR was certified before the adoption of statewide VMT standards pursuant to Senate Bill 743, and before the *CEQA Guidelines* were amended to incorporate the issue of VMT in December 2018. This represents a change in the circumstances under which the 2040 General Plan EIR was prepared, requiring further analysis. Therefore, the project would have a potentially significant impact related to consistency with VMT standards, and this issue will be analyzed further in a Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

d. Would the project result in inadequate emergency access?

The project site would be accessible via Vinecrest Road to the north. The project would also include an extension from Prince George Way to the east, directly north of lots 13 through 17, until the road extension would intersect with the new section of Jensen Lane, which would be constructed along the project's eastern property line. Portland way, a proposed roadway, would bisect the project site from north to south and connect to Vinecrest Road and Prince George Way. Potentially new hazards due to geometric design features (e.g., pedestrian crossings of dangerous intersections) and effects on emergency access that may result from new roadways and the extension of existing roadways would be potentially significant and will be analyzed further in a Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

18 Tribal Cultural Resources

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code Section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	■	☐	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in					

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐	☐

Impacts to tribal cultural resources were analyzed on pages 339 through 343 of the 2040 General Plan EIR. Impacts related to tribal cultural resources were found to be significant but mitigable. Mitigation Measures CR-1, CR-2, and CR-4, included in the 2040 General Plan EIR, are reproduced in Section 5, *Cultural Resources.*

a. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code Section 21074 that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?*

b. *Would the project cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code 21074 that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1?*

On July 1, 2015, AB 52 was enacted. The law expands CEQA by defining a new resource category, tribal cultural resources. AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment" (PRC Section 21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a tribal cultural resource, when feasible (PRC Section 21084.3).

AB 52 also establishes a formal consultation process for California tribes regarding those resources. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects proposed within the jurisdiction of the lead agency.

Impacts to tribal resources were found to be potentially significant and will need further evaluation. These topics will need to be discussed in the Supplemental EIR.

SUBSTANTIAL CHANGE IN CIRCUMSTANCES THAT MAY REQUIRE MAJOR EIR REVISIONS

19 Utilities and Service Systems

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Would the project:					
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	■	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	■	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■	☐

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	■	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	■	☐

Impacts to utilities and service systems were analyzed on pages 323 through 337 of the 2040 General Plan EIR. Impacts related to water, wastewater treatment, solid waste, and stormwater drainage facilities were found to be less than significant.

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Wastewater

The Windsor Water District (WWD) owns, operates, and maintains the wastewater collection system that includes approximately 94 miles of public sewer lines, 1,728 manholes, 525 cleanouts, and approximately 6,100 private sewer laterals throughout the Town (Town of Windsor 2015). Existing pipelines range in diameter from 4-inches to 42-inches and include two siphons located at Los Amigos Road and Rio Russo Drive. The Town collects its wastewater and treats it to disinfected tertiary levels at its water reclamation plant, the Windsor Wastewater Treatment Reclamation and Disposal Facility (WWTRDF). The WWTRDF is designed with a capacity of 2.25 million gallons per day (MGD) average dry weather flow, and 7.2 MGD, peak weekly wet weather flow. The current Average Dry Weather Flow (ADWF) seen at the water reclamation facility is 1.4 MGD (Town of Windsor

2020). The Water Reclamation Division is responsible for the treatment, storage, and disposal of the Town's Wastewater.

As shown in Table 8, the project's estimated wastewater generation would be approximately 6,573 gallons per day (Town of Windsor 2015). The project would use approximately 0.8 percent of the available unused capacity. This increase would be within the WWTRDF's capacity for collection and treatment. The project would increase the population of Windsor by 93 persons. However, the project is consistent with the 2040 General Plan land use designation for the site, and the population growth facilitated by the proposed residential units would be consistent with the 2040 General Plan population growth forecast. With implementation of 2040 General Plan policies, sufficient wastewater treatment facilities would be available for the project wastewater generation. Therefore, wastewater capacity would be sufficient to serve the project and the project would not require the construction of wastewater infrastructure.

Table 8 Estimated Wastewater Generation

Land Use	Size	Generation Rate*	Total (gallons/year)	Total (gallons/day)
Residential (Single Family)	31 units	77,394 gallons/unit/year	2,399,214	6,573

Notes: sf = square feet

* Rates from 2015 UWMP

Water

The 2040 General Plan EIR states that the Town has enough water supply capacity to meet current demands, as well as demands during normal water years through 2040. According to the Town's 2020 Urban Water Management Plan, based on the 2040 population projection that includes the proposed project, the Town is expected to experience water supply shortfalls in single-dry year scenario conditions by 2030 if local groundwater wells are not developed as potable supply. The Urban Water Management Plan (UWMP) analysis estimated that if the Town were to develop local groundwater well supplies, the Town would experience water supply shortages in single-dry year conditions by 2035. It is projected that in a "multiple-dry -year scenario, the Town will experience water supply shortfalls by 2040. The drought risk assessment conducted for the 2020 UWMP found that without additional water supply, a multi-year drought in current conditions would create a water supply shortfall requiring the Town to implement mandatory water use restrictions to reduce water consumption. This was projected to occur in all years of a multi-year drought (Town of Windsor 2021).

Water for the project would be provided by the Windsor Water District (WWD) via existing utilities adjacent to the project site. The Town's potable water supply is provided from its wells in the Russian River Well Field into the water distribution system. Water is also purchased from the Sonoma County Water Agency's (SCWA) Santa Rosa aqueduct. Windsor's water supply system includes 4,725-acre feet (AF) from the Russian River Well Field, 900 AF from the SCWA aqueduct with a combined system supply of 5,625 AFY. In addition, Windsor has a storage capacity of over 5 million gallons.

The project's estimated water demand would be approximately 2,879,057 gallons per year (approximately 120 percent of wastewater generation), approximately 0.16 percent of Windsor's annual water supply. However, the project would adhere to the CCR Title 24, Part 11 (CALGreen) that requires a 20 percent reduction in residential indoor water use that would lower potential water demand. The project would also comply with Section 12-3-820 of the Town of Windsor

Municipal Code that requires water conservation methods including prohibiting washing hard or paved surfaces, causing excessive water flow when watering landscaping, and operating water features such as decorative fountains. Section 12-3-825 of the Town of Windsor Municipal Code further prohibits non-essential water use. Given that the project would be required to implement water conservation features and would be consistent with the site's 2040 General Plan land use designation, potential water supply associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR. The project site would be served by adequate water supplies by the WWD, and no new facilities will be needed.

Stormwater

The project would be designed and engineered with drainage features appropriate to accommodate the needs of the project and mimic the historical flow patterns of the site. Downspouts from roof gutters would be disconnected and discharged to rain gardens in order to reduce stormwater runoff on lots 1 to 17 and 28 to 30. Street sheet flow from lots 18 to 27 and 31 would be collected by the curb and gutter proposed on Portland Way and extension of Prince George Way. The project would adhere to landscape requirements pursuant to Town Ordinance 2015-73, which requires soil to promote infiltration. Roadside bio retention and bioretention beds will help reduce the volume of runoff by providing storm water storage, as well as mitigate pollutants. Additionally, the project proposes a level of treatment and volume capture of 100 percent. Thus, the volume of stormwater runoff would not exceed the capacity of the storm drain system serving the site. The proposed project would not require the construction of new off-site stormwater drainage facilities or expansion of existing facilities. Impacts would be less than significant.

Electricity, Natural Gas, and Telecommunications

The 2040 General Plan EIR states that electricity and natural gas service in the Town of Windsor is provided by PG&E. Long-term operation of development projects would require permanent grid connections for electricity and natural gas service to power internal and exterior building lighting, and heating and cooling systems. Electricity and natural gas consumption were estimated for buildout of the 2040 General Plan. The project is consistent with the 2040 General Plan land use designation for the site, and the population growth under the project would be consistent with the assumptions provided in the 2040 General Plan EIR. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Based on the project's estimated wastewater generation, water demand can be estimated using an industry standard assumption that water use is approximately 120 percent of wastewater generation. Therefore, the project's gross water demand would be approximately 7,888 gallons per day (approximately 0.02 acre-feet per day), or approximately 2,879,057 gallons per year (approximately 8.8-acre feet per year). The proposed project would use water for faucets, toilets, landscape irrigation and miscellaneous uses related to residences. As described under Item a above, the Town of Windsor owns and operates its own water distribution system and receives its water from the Russian River Well Field and the Sonoma County Water Agency's Santa Rosa Aqueduct The

drought risk assessment conducted for the 2020 UWMP found that without additional water supply, a multi-year drought in current conditions would create a water supply shortfall requiring the Town to implement mandatory water use restrictions to reduce water consumption. This was projected to occur in all years of a multi-year drought (Town of Windsor 2021). However, the project would adhere to the CCR Title 24, Part 11 (CALGreen) that requires a 20 percent reduction in residential indoor water use that would lower potential water demand. The project would also comply with Section 12-3-820 of the Town of Windsor Municipal Code that requires water conservation methods including prohibiting washing hard or paved surfaces, causing excessive water flow when watering landscaping, and operating water features such as decorative fountains. Section 12-3-825 of the Town of Windsor Municipal Code further prohibits non-essential water use

As described in Section 14, *Population and Housing*, the project would result in an incremental increase in population within the Town. Additionally, given that the project would be consistent with the site's 2040 General Plan land use designation, potential impacts to with water supplies associated with buildout of the project site have been anticipated by the Town and analyzed in the 2040 General Plan EIR and 2020 UWMP. Therefore, the proposed project is consistent with the anticipated development and growth in the 2040 General Plan and is covered by the analysis in the 2020 UWMP. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The Town, through Sonoma County Resource Recovery, provides solid waste, recycling, and composting services for residential, commercial, and industrial areas, with weekly curbside pickup. Hazardous waste collection and disposal are provided by the Sonoma County Waste Management Agency. All waste is disposed at the Healdsburg Transfer Station before processing. Based on the 2040 General Plan EIR, the Central Landfill's solid waste capacity is sufficient to meet the needs of projected growth under the 2040 General Plan. As the project would be consistent with the 2040 General Plan land use designation for the project site, the projected population growth for the project was adequately considered in the 2040 General Plan EIR. Additionally, the 2040 General Plan contains policies to reduce solid waste impacts, including Policies PFS-5.1, PFS-5.6, and PFS-5.8. Therefore, the he project would have no impacts beyond those analyzed in the 2040 General Plan EIR.

As the project would be consistent with the 2040 General Plan land use designation for the project site, the projected solid waste generation for the project was adequately considered in the 2040 General Plan EIR. Therefore, there would be no new or substantially more severe impacts than what was analyzed in the 2040 General Plan EIR, and further analysis is not warranted.

LESS THAN SIGNIFICANT IMPACT/NO CHANGES OR NEW INFORMATION REQUIRING PREPARATION OF AN EIR

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20 Wildfire

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	■	☐	☐	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	■	☐	☐	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	■	☐	☐	☐

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d. Expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	■	☐	☐	☐

The 2040 General Plan EIR discusses wildland fire impacts on pages 192 through 194 and finds that impacts related to wildland fires in the Town would be less than significant.

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

b. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslopes or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is not in a State Responsibility Area (SRA) or lands classified as Very High Fire Hazard Severity Zone. However, it is adjacent to SRA lands classified as Moderate Fire Hazard Severity Zone. While the project site is not located in a fire hazard zone, the 2019 Kincade Fire reached the edges of Town and resulted in spot fires on the site and the entire Town being evacuated. Therefore, further analysis will be required, and this item will be discussed in the Supplemental EIR.

SUBSTANTIAL CHANGE IN CIRCUMSTANCES THAT MAY REQUIRE MAJOR EIR REVISIONS

21 Mandatory Findings of Significance

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
Does the project:					
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	■	☐	☐
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the					

	Substantial Change in Project That May Require Major EIR Revisions	Substantial Change in Circum-stances That May Require Major EIR Revisions	New Information Showing Potentially New or Greater Significant Effects than Previous EIR	Less than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
effects of probable future projects)?	☐	☐	■	☐	☐
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐	☐

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As mentioned in Section 5, *Cultural Resources,* and Section 18, *Tribal Cultural Resources*, the project would have a potentially significant impact to examples of major periods of California history or prehistory. Additionally, as discussed in Section 4, *Biological Resources*, the project has the potential to impact sensitive biological resources on the project site, including sensitive habitat and species.) Impacts would be discussed further in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Cumulatively, the project combined with other past, present, and reasonably foreseeable future projects, as projected in the 2040 General Plan, would result in a physical change to the Town of Windsor. The project would have potentially significant cumulative impacts, and this issue will be analyzed further in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

In general, impacts to human beings are associated with air quality, GHG emissions, hazards and hazardous materials, wildfire, and noise impacts. As detailed in the analyses for air quality, GHG emissions, hazards and hazardous materials, and noise, the proposed project would not result, either directly or indirectly, in substantial adverse hazards related to air quality, hazardous materials, or noise. Compliance with applicable rules and regulations would reduce potential impacts on human beings. However, the project site is susceptible to wildfires, which can have an adverse effect to human beings through pollutant concentrations or direct impacts from wildfires. Therefore, further analysis will be required, and this item will be discussed in the Supplemental EIR.

NEW INFORMATION SHOWING POTENTIALLY NEW OR GREATER SIGNIFICANT EFFECTS THAN PREVIOUS EIR

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List of Preparers

Rincon Consultants, Inc. prepared this IS-MND under contract to the Town of Windsor. Persons involved in data gathering analysis, project management, and quality control are listed below.

RINCON CONSULTANTS, INC.

Matt Maddox, MESM AICP, Principal
Kari Zajac, MESM, Senior Environmental Planner
Melissa Fajardo, Associate Environmental Planner
Allysen Valencia, GIS Analyst
Luis Apolinar, Publishing Specialist

Appendix A

California Emissions Estimator Model Outputs

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Estates at Ross Ranch

Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	30.00	Dwelling Unit	17.17	54,000.00	90

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Populaiton from DOF and acreage is from project description

Demolition -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	9.74	17.17
tblLandUse	Population	86.00	90.00

2.0 Emissions Summary

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1731	1.6864	1.4701	2.7700e-003	0.2458	0.0799	0.3257	0.1078	0.0744	0.1822	0.0000	241.4049	241.4049	0.0656	6.0000e-004	243.2237
2023	0.5645	1.6708	1.9364	3.3000e-003	0.0128	0.0808	0.0936	3.4400e-003	0.0760	0.0794	0.0000	285.2896	285.2896	0.0660	1.1700e-003	287.2871
Maximum	**0.5645**	**1.6864**	**1.9364**	**3.3000e-003**	**0.2458**	**0.0808**	**0.3257**	**0.1078**	**0.0760**	**0.1822**	**0.0000**	**285.2896**	**285.2896**	**0.0660**	**1.1700e-003**	**287.2871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1731	1.6864	1.4701	2.7700e-003	0.2458	0.0799	0.3257	0.1078	0.0744	0.1822	0.0000	241.4047	241.4047	0.0656	6.0000e-004	243.2234
2023	0.5645	1.6708	1.9364	3.3000e-003	0.0128	0.0808	0.0936	3.4400e-003	0.0760	0.0794	0.0000	285.2892	285.2892	0.0660	1.1700e-003	287.2868
Maximum	**0.5645**	**1.6864**	**1.9364**	**3.3000e-003**	**0.2458**	**0.0808**	**0.3257**	**0.1078**	**0.0760**	**0.1822**	**0.0000**	**285.2892**	**285.2892**	**0.0660**	**1.1700e-003**	**287.2868**

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-10-2022**	**9-9-2022**	1.1549	1.1549
2	**9-10-2022**	**12-9-2022**	0.5704	0.5704
3	**12-10-2022**	**3-9-2023**	0.5301	0.5301
4	**3-10-2023**	**6-9-2023**	0.5303	0.5303
5	**6-10-2023**	**9-9-2023**	0.5302	0.5302
6	**9-10-2023**	**9-30-2023**	0.1210	0.1210
		Highest	1.1549	1.1549

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4324	6.4400e-003	0.4798	5.4000e-004		0.0383	0.0383		0.0383	0.0383	3.8133	1.3002	5.1135	7.5500e-003	2.2000e-004	5.3673
Energy	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850
Mobile	0.1166	0.1307	1.0808	2.2200e-003	0.2382	1.6500e-003	0.2399	0.0636	1.5400e-003	0.0652	0.0000	208.4735	208.4735	0.0139	0.0101	211.8319
Waste						0.0000	0.0000		0.0000	0.0000	7.6731	0.0000	7.6731	0.4535	0.0000	19.0097
Water						0.0000	0.0000		0.0000	0.0000	0.6201	0.0000	0.6201	0.0637	1.5000e-003	2.6606
Total	**0.5533**	**0.1740**	**1.5763**	**2.9900e-003**	**0.2382**	**0.0429**	**0.2811**	**0.0636**	**0.0428**	**0.1065**	**12.1065**	**252.4053**	**264.5118**	**0.5394**	**0.0126**	**281.7544**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.4324	6.4400e-003	0.4798	5.4000e-004		0.0383	0.0383		0.0383	0.0383	3.8133	1.3002	5.1135	7.5500e-003	2.2000e-004	5.3673
Energy	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850
Mobile	0.1166	0.1307	1.0808	2.2200e-003	0.2382	1.6500e-003	0.2399	0.0636	1.5400e-003	0.0652	0.0000	208.4735	208.4735	0.0139	0.0101	211.8319
Waste						0.0000	0.0000		0.0000	0.0000	7.6731	0.0000	7.6731	0.4535	0.0000	19.0097
Water						0.0000	0.0000		0.0000	0.0000	0.6201	0.0000	0.6201	0.0637	1.5000e-003	2.6606
Total	**0.5533**	**0.1740**	**1.5763**	**2.9900e-003**	**0.2382**	**0.0429**	**0.2811**	**0.0636**	**0.0428**	**0.1065**	**12.1065**	**252.4053**	**264.5118**	**0.5394**	**0.0126**	**281.7544**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/10/2022	7/7/2022	5	20	
2	Site Preparation	Site Preparation	7/8/2022	7/21/2022	5	10	
3	Grading	Grading	7/22/2022	9/1/2022	5	30	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Building Construction	Building Construction	9/2/2022	10/26/2023	5	300	
5	Paving	Paving	10/27/2023	11/23/2023	5	20	
6	Architectural Coating	Architectural Coating	11/24/2023	12/21/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 0

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	11.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-004	0.0000	5.8000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**5.8000e-004**	**0.0124**	**0.0130**	**9.0000e-005**	**0.0116**	**0.0116**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.3000e-004	9.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1567	0.1567	1.0000e-005	2.0000e-005	0.1642
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.0000e-004	3.5900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9533	0.9533	3.0000e-005	3.0000e-005	0.9622
Total	**4.2000e-004**	**7.3000e-004**	**3.6800e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.1100**	**1.1100**	**4.0000e-005**	**5.0000e-005**	**1.1265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-004	0.0000	5.8000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**5.8000e-004**	**0.0124**	**0.0130**	**9.0000e-005**	**0.0116**	**0.0116**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	4.3000e-004	9.0000e-005	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1567	0.1567	1.0000e-005	2.0000e-005	0.1642
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.0000e-004	3.5900e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9533	0.9533	3.0000e-005	3.0000e-005	0.9622
Total	**4.2000e-004**	**7.3000e-004**	**3.6800e-003**	**1.0000e-005**	**1.2300e-003**	**1.0000e-005**	**1.2400e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.1100**	**1.1100**	**4.0000e-005**	**5.0000e-005**	**1.1265**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	2.1500e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5720	0.5720	2.0000e-005	2.0000e-005	0.5773
Total	**2.5000e-004**	**1.8000e-004**	**2.1500e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5720**	**0.5720**	**2.0000e-005**	**2.0000e-005**	**0.5773**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	1.8000e-004	2.1500e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5720	0.5720	2.0000e-005	2.0000e-005	0.5773
Total	**2.5000e-004**	**1.8000e-004**	**2.1500e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5720**	**0.5720**	**2.0000e-005**	**2.0000e-005**	**0.5773**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8019	81.8019	0.0265	0.0000	82.4633
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1381**	**0.0245**	**0.1626**	**0.0548**	**0.0226**	**0.0774**	**0.0000**	**81.8019**	**81.8019**	**0.0265**	**0.0000**	**82.4633**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.9000e-004	7.1700e-003	2.0000e-005	2.3700e-003	1.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9065	1.9065	6.0000e-005	6.0000e-005	1.9244
Total	**8.2000e-004**	**5.9000e-004**	**7.1700e-003**	**2.0000e-005**	**2.3700e-003**	**1.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9065**	**1.9065**	**6.0000e-005**	**6.0000e-005**	**1.9244**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1381	0.0000	0.1381	0.0548	0.0000	0.0548	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0544	0.5827	0.4356	9.3000e-004		0.0245	0.0245		0.0226	0.0226	0.0000	81.8018	81.8018	0.0265	0.0000	82.4632
Total	**0.0544**	**0.5827**	**0.4356**	**9.3000e-004**	**0.1381**	**0.0245**	**0.1626**	**0.0548**	**0.0226**	**0.0774**	**0.0000**	**81.8018**	**81.8018**	**0.0265**	**0.0000**	**82.4632**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.9000e-004	7.1700e-003	2.0000e-005	2.3700e-003	1.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.9065	1.9065	6.0000e-005	6.0000e-005	1.9244
Total	**8.2000e-004**	**5.9000e-004**	**7.1700e-003**	**2.0000e-005**	**2.3700e-003**	**1.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**1.9065**	**1.9065**	**6.0000e-005**	**6.0000e-005**	**1.9244**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0734	0.6715	0.7036	1.1600e-003		0.0348	0.0348		0.0327	0.0327	0.0000	99.6419	99.6419	0.0239	0.0000	100.2386
Total	**0.0734**	**0.6715**	**0.7036**	**1.1600e-003**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**99.6419**	**99.6419**	**0.0239**	**0.0000**	**100.2386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8000e-004	7.2100e-003	2.1000e-003	3.0000e-005	8.5000e-004	7.0000e-005	9.2000e-004	2.4000e-004	7.0000e-005	3.2000e-004	0.0000	2.6568	2.6568	6.0000e-005	3.9000e-004	2.7756
Worker	1.3000e-003	9.4000e-004	0.0113	3.0000e-005	3.7400e-003	2.0000e-005	3.7600e-003	9.9000e-004	2.0000e-005	1.0100e-003	0.0000	3.0060	3.0060	9.0000e-005	9.0000e-005	3.0342
Total	**1.5800e-003**	**8.1500e-003**	**0.0134**	**6.0000e-005**	**4.5900e-003**	**9.0000e-005**	**4.6800e-003**	**1.2300e-003**	**9.0000e-005**	**1.3300e-003**	**0.0000**	**5.6628**	**5.6628**	**1.5000e-004**	**4.8000e-004**	**5.8098**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0734	0.6715	0.7036	1.1600e-003		0.0348	0.0348		0.0327	0.0327	0.0000	99.6417	99.6417	0.0239	0.0000	100.2385
Total	**0.0734**	**0.6715**	**0.7036**	**1.1600e-003**		**0.0348**	**0.0348**		**0.0327**	**0.0327**	**0.0000**	**99.6417**	**99.6417**	**0.0239**	**0.0000**	**100.2385**

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8000e-004	7.2100e-003	2.1000e-003	3.0000e-005	8.5000e-004	7.0000e-005	9.2000e-004	2.4000e-004	7.0000e-005	3.2000e-004	0.0000	2.6568	2.6568	6.0000e-005	3.9000e-004	2.7756
Worker	1.3000e-003	9.4000e-004	0.0113	3.0000e-005	3.7400e-003	2.0000e-005	3.7600e-003	9.9000e-004	2.0000e-005	1.0100e-003	0.0000	3.0060	3.0060	9.0000e-005	9.0000e-005	3.0342
Total	**1.5800e-003**	**8.1500e-003**	**0.0134**	**6.0000e-005**	**4.5900e-003**	**9.0000e-005**	**4.6800e-003**	**1.2300e-003**	**9.0000e-005**	**1.3300e-003**	**0.0000**	**5.6628**	**5.6628**	**1.5000e-004**	**4.8000e-004**	**5.8098**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1683	1.5392	1.7381	2.8800e-003		0.0749	0.0749		0.0705	0.0705	0.0000	248.0311	248.0311	0.0590	0.0000	249.5062
Total	**0.1683**	**1.5392**	**1.7381**	**2.8800e-003**		**0.0749**	**0.0749**		**0.0705**	**0.0705**	**0.0000**	**248.0311**	**248.0311**	**0.0590**	**0.0000**	**249.5062**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	0.0143	4.4600e-003	7.0000e-005	2.1100e-003	8.0000e-005	2.1900e-003	6.1000e-004	8.0000e-005	6.9000e-004	0.0000	6.3364	6.3364	1.3000e-004	9.4000e-004	6.6190
Worker	3.0100e-003	2.0600e-003	0.0261	8.0000e-005	9.3000e-003	5.0000e-005	9.3500e-003	2.4700e-003	4.0000e-005	2.5200e-003	0.0000	7.2892	7.2892	2.1000e-004	2.0000e-004	7.3540
Total	**3.3500e-003**	**0.0163**	**0.0306**	**1.5000e-004**	**0.0114**	**1.3000e-004**	**0.0115**	**3.0800e-003**	**1.2000e-004**	**3.2100e-003**	**0.0000**	**13.6255**	**13.6255**	**3.4000e-004**	**1.1400e-003**	**13.9730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1683	1.5392	1.7381	2.8800e-003		0.0749	0.0749		0.0705	0.0705	0.0000	248.0308	248.0308	0.0590	0.0000	249.5059
Total	**0.1683**	**1.5392**	**1.7381**	**2.8800e-003**		**0.0749**	**0.0749**		**0.0705**	**0.0705**	**0.0000**	**248.0308**	**248.0308**	**0.0590**	**0.0000**	**249.5059**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.4000e-004	0.0143	4.4600e-003	7.0000e-005	2.1100e-003	8.0000e-005	2.1900e-003	6.1000e-004	8.0000e-005	6.9000e-004	0.0000	6.3364	6.3364	1.3000e-004	9.4000e-004	6.6190
Worker	3.0100e-003	2.0600e-003	0.0261	8.0000e-005	9.3000e-003	5.0000e-005	9.3500e-003	2.4700e-003	4.0000e-005	2.5200e-003	0.0000	7.2892	7.2892	2.1000e-004	2.0000e-004	7.3540
Total	**3.3500e-003**	**0.0163**	**0.0306**	**1.5000e-004**	**0.0114**	**1.3000e-004**	**0.0115**	**3.0800e-003**	**1.2000e-004**	**3.2100e-003**	**0.0000**	**13.6255**	**13.6255**	**3.4000e-004**	**1.1400e-003**	**13.9730**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.6000e-004	3.3300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9290	0.9290	3.0000e-005	3.0000e-005	0.9372
Total	**3.8000e-004**	**2.6000e-004**	**3.3300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9290**	**0.9290**	**3.0000e-005**	**3.0000e-005**	**0.9372**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	2.6000e-004	3.3300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9290	0.9290	3.0000e-005	3.0000e-005	0.9372
Total	**3.8000e-004**	**2.6000e-004**	**3.3300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9290**	**0.9290**	**3.0000e-005**	**3.0000e-005**	**0.9372**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.3821**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1239	0.1239	0.0000	0.0000	0.1250
Total	**5.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1239**	**0.1239**	**0.0000**	**0.0000**	**0.1250**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3801					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**0.3821**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1239	0.1239	0.0000	0.0000	0.1250
Total	**5.0000e-005**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1239**	**0.1239**	**0.0000**	**0.0000**	**0.1250**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1166	0.1307	1.0808	2.2200e-003	0.2382	1.6500e-003	0.2399	0.0636	1.5400e-003	0.0652	0.0000	208.4735	208.4735	0.0139	0.0101	211.8319
Unmitigated	0.1166	0.1307	1.0808	2.2200e-003	0.2382	1.6500e-003	0.2399	0.0636	1.5400e-003	0.0652	0.0000	208.4735	208.4735	0.0139	0.0101	211.8319

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	283.20	286.20	256.50	646,261	646,261
Total	283.20	286.20	256.50	646,261	646,261

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.553342	0.058522	0.188738	0.121080	0.023016	0.005623	0.010412	0.007562	0.000987	0.000568	0.026444	0.000834	0.002871

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850
NaturalGas Unmitigated	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	798886	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850
Total		**4.3100e-003**	**0.0368**	**0.0157**	**2.3000e-004**		**2.9800e-003**	**2.9800e-003**		**2.9800e-003**	**2.9800e-003**	**0.0000**	**42.6316**	**42.6316**	**8.2000e-004**	**7.8000e-004**	**42.8850**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	798886	4.3100e-003	0.0368	0.0157	2.3000e-004		2.9800e-003	2.9800e-003		2.9800e-003	2.9800e-003	0.0000	42.6316	42.6316	8.2000e-004	7.8000e-004	42.8850
Total		**4.3100e-003**	**0.0368**	**0.0157**	**2.3000e-004**		**2.9800e-003**	**2.9800e-003**		**2.9800e-003**	**2.9800e-003**	**0.0000**	**42.6316**	**42.6316**	**8.2000e-004**	**7.8000e-004**	**42.8850**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	234997	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	234997	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

Estates at Ross Ranch - Bay Area AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4324	6.4400e-003	0.4798	5.4000e-004		0.0383	0.0383		0.0383	0.0383	3.8133	1.3002	5.1135	7.5500e-003	2.2000e-004	5.3673
Unmitigated	0.4324	6.4400e-003	0.4798	5.4000e-004		0.0383	0.0383		0.0383	0.0383	3.8133	1.3002	5.1135	7.5500e-003	2.2000e-004	5.3673

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2109					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1768	3.8800e-003	0.2571	5.3000e-004		0.0371	0.0371		0.0371	0.0371	3.8133	0.9363	4.7496	7.2000e-003	2.2000e-004	4.9947
Landscaping	6.6900e-003	2.5700e-003	0.2227	1.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	0.3639	0.3639	3.5000e-004	0.0000	0.3726
Total	**0.4324**	**6.4500e-003**	**0.4798**	**5.4000e-004**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**3.8133**	**1.3002**	**5.1135**	**7.5500e-003**	**2.2000e-004**	**5.3673**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2109					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1768	3.8800e-003	0.2571	5.3000e-004		0.0371	0.0371		0.0371	0.0371	3.8133	0.9363	4.7496	7.2000e-003	2.2000e-004	4.9947
Landscaping	6.6900e-003	2.5700e-003	0.2227	1.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	0.3639	0.3639	3.5000e-004	0.0000	0.3726
Total	**0.4324**	**6.4500e-003**	**0.4798**	**5.4000e-004**		**0.0383**	**0.0383**		**0.0383**	**0.0383**	**3.8133**	**1.3002**	**5.1135**	**7.5500e-003**	**2.2000e-004**	**5.3673**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.6201	0.0637	1.5000e-003	2.6606
Unmitigated	0.6201	0.0637	1.5000e-003	2.6606

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.95462 / 1.23226	0.6201	0.0637	1.5000e-003	2.6606
Total		**0.6201**	**0.0637**	**1.5000e-003**	**2.6606**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.95462 / 1.23226	0.6201	0.0637	1.5000e-003	2.6606
Total		**0.6201**	**0.0637**	**1.5000e-003**	**2.6606**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.6731	0.4535	0.0000	19.0097
Unmitigated	7.6731	0.4535	0.0000	19.0097

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	37.8	7.6731	0.4535	0.0000	19.0097
Total		**7.6731**	**0.4535**	**0.0000**	**19.0097**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	37.8	7.6731	0.4535	0.0000	19.0097
Total		**7.6731**	**0.4535**	**0.0000**	**19.0097**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Estates at Ross Ranch

Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	30.00	Dwelling Unit	17.17	54,000.00	90

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Populaiton from DOF and acreage is from project description

Demolition -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	9.74	17.17
tblLandUse	Population	86.00	90.00

2.0 Emissions Summary

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.6830	38.8786	29.5585	0.0636	19.8049	1.6358	21.4182	10.1417	1.5049	11.6260	0.0000	6,161.0231	6,161.0231	1.9483	0.0121	6,210.8421
2023	38.2099	14.5307	16.5481	0.0283	0.1232	0.7010	0.8116	0.0327	0.6596	0.6894	0.0000	2,700.6212	2,700.6212	0.7167	0.0115	2,719.3420
Maximum	**38.2099**	**38.8786**	**29.5585**	**0.0636**	**19.8049**	**1.6358**	**21.4182**	**10.1417**	**1.5049**	**11.6260**	**0.0000**	**6,161.0231**	**6,161.0231**	**1.9483**	**0.0121**	**6,210.8421**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.6830	38.8786	29.5585	0.0636	19.8049	1.6358	21.4182	10.1417	1.5049	11.6260	0.0000	6,161.0231	6,161.0231	1.9483	0.0121	6,210.8421
2023	38.2099	14.5307	16.5481	0.0283	0.1232	0.7010	0.8116	0.0327	0.6596	0.6894	0.0000	2,700.6212	2,700.6212	0.7167	0.0115	2,719.3420
Maximum	**38.2099**	**38.8786**	**29.5585**	**0.0636**	**19.8049**	**1.6358**	**21.4182**	**10.1417**	**1.5049**	**11.6260**	**0.0000**	**6,161.0231**	**6,161.0231**	**1.9483**	**0.0121**	**6,210.8421**

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Energy	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Mobile	0.7297	0.6755	6.0477	0.0132	1.3913	9.3000e-003	1.4006	0.3706	8.6700e-003	0.3792		1,361.2459	1,361.2459	0.0801	0.0594	1,380.9493
Total	**33.2811**	**1.5044**	**48.8162**	**0.0903**	**1.3913**	**5.7250**	**7.1163**	**0.3706**	**5.7244**	**6.0949**	**611.3502**	**1,808.4942**	**2,419.8443**	**0.8452**	**0.1073**	**2,472.9379**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Energy	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Mobile	0.7297	0.6755	6.0477	0.0132	1.3913	9.3000e-003	1.4006	0.3706	8.6700e-003	0.3792		1,361.2459	1,361.2459	0.0801	0.0594	1,380.9493
Total	**33.2811**	**1.5044**	**48.8162**	**0.0903**	**1.3913**	**5.7250**	**7.1163**	**0.3706**	**5.7244**	**6.0949**	**611.3502**	**1,808.4942**	**2,419.8443**	**0.8452**	**0.1073**	**2,472.9379**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2022	6/28/2022	5	20	
2	Site Preparation	Site Preparation	6/29/2022	7/12/2022	5	10	
3	Grading	Grading	7/13/2022	8/23/2022	5	30	
4	Building Construction	Building Construction	8/24/2022	10/17/2023	5	300	
5	Paving	Paving	10/18/2023	11/14/2023	5	20	
6	Architectural Coating	Architectural Coating	11/15/2023	12/12/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 0

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	11.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0576	0.0000	0.0576	8.7200e-003	0.0000	8.7200e-003			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.0576**	**1.2427**	**1.3002**	**8.7200e-003**	**1.1553**	**1.1640**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1800e-003	0.0415	9.1000e-003	1.6000e-004	4.3700e-003	3.9000e-004	4.7600e-003	1.2000e-003	3.7000e-004	1.5700e-003		17.2721	17.2721	5.7000e-004	2.7400e-003	18.1015
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0436	0.0263	0.3878	1.1000e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		112.2095	112.2095	3.0600e-003	2.8000e-003	113.1197
Total	**0.0448**	**0.0678**	**0.3969**	**1.2600e-003**	**0.1276**	**1.0300e-003**	**0.1286**	**0.0339**	**9.6000e-004**	**0.0349**		**129.4815**	**129.4815**	**3.6300e-003**	**5.5400e-003**	**131.2212**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0576	0.0000	0.0576	8.7200e-003	0.0000	8.7200e-003			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.0576**	**1.2427**	**1.3002**	**8.7200e-003**	**1.1553**	**1.1640**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1800e-003	0.0415	9.1000e-003	1.6000e-004	4.3700e-003	3.9000e-004	4.7600e-003	1.2000e-003	3.7000e-004	1.5700e-003		17.2721	17.2721	5.7000e-004	2.7400e-003	18.1015
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0436	0.0263	0.3878	1.1000e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		112.2095	112.2095	3.0600e-003	2.8000e-003	113.1197
Total	**0.0448**	**0.0678**	**0.3969**	**1.2600e-003**	**0.1276**	**1.0300e-003**	**0.1286**	**0.0339**	**9.6000e-004**	**0.0349**		**129.4815**	**129.4815**	**3.6300e-003**	**5.5400e-003**	**131.2212**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0524	0.0316	0.4653	1.3200e-003	0.1479	7.7000e-004	0.1486	0.0392	7.1000e-004	0.0399		134.6513	134.6513	3.6700e-003	3.3600e-003	135.7437
Total	**0.0524**	**0.0316**	**0.4653**	**1.3200e-003**	**0.1479**	**7.7000e-004**	**0.1486**	**0.0392**	**7.1000e-004**	**0.0399**		**134.6513**	**134.6513**	**3.6700e-003**	**3.3600e-003**	**135.7437**

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0524	0.0316	0.4653	1.3200e-003	0.1479	7.7000e-004	0.1486	0.0392	7.1000e-004	0.0399		134.6513	134.6513	3.6700e-003	3.3600e-003	135.7437
Total	**0.0524**	**0.0316**	**0.4653**	**1.3200e-003**	**0.1479**	**7.7000e-004**	**0.1486**	**0.0392**	**7.1000e-004**	**0.0399**		**134.6513**	**134.6513**	**3.6700e-003**	**3.3600e-003**	**135.7437**

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**9.2036**	**1.6349**	**10.8385**	**3.6538**	**1.5041**	**5.1579**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0582	0.0351	0.5170	1.4700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		149.6126	149.6126	4.0800e-003	3.7300e-003	150.8263
Total	**0.0582**	**0.0351**	**0.5170**	**1.4700e-003**	**0.1643**	**8.6000e-004**	**0.1652**	**0.0436**	**7.9000e-004**	**0.0444**		**149.6126**	**149.6126**	**4.0800e-003**	**3.7300e-003**	**150.8263**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**9.2036**	**1.6349**	**10.8385**	**3.6538**	**1.5041**	**5.1579**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0582	0.0351	0.5170	1.4700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		149.6126	149.6126	4.0800e-003	3.7300e-003	150.8263
Total	**0.0582**	**0.0351**	**0.5170**	**1.4700e-003**	**0.1643**	**8.6000e-004**	**0.1652**	**0.0436**	**7.9000e-004**	**0.0444**		**149.6126**	**149.6126**	**4.0800e-003**	**3.7300e-003**	**150.8263**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4700e-003	0.1618	0.0481	6.4000e-004	0.0203	1.7200e-003	0.0220	5.8500e-003	1.6500e-003	7.5000e-003		68.0958	68.0958	1.4800e-003	0.0101	71.1396
Worker	0.0320	0.0193	0.2844	8.1000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		82.2869	82.2869	2.2400e-003	2.0500e-003	82.9545
Total	**0.0385**	**0.1811**	**0.3324**	**1.4500e-003**	**0.1107**	**2.1900e-003**	**0.1129**	**0.0298**	**2.0800e-003**	**0.0319**		**150.3827**	**150.3827**	**3.7200e-003**	**0.0121**	**154.0941**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4700e-003	0.1618	0.0481	6.4000e-004	0.0203	1.7200e-003	0.0220	5.8500e-003	1.6500e-003	7.5000e-003		68.0958	68.0958	1.4800e-003	0.0101	71.1396
Worker	0.0320	0.0193	0.2844	8.1000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		82.2869	82.2869	2.2400e-003	2.0500e-003	82.9545
Total	**0.0385**	**0.1811**	**0.3324**	**1.4500e-003**	**0.1107**	**2.1900e-003**	**0.1129**	**0.0298**	**2.0800e-003**	**0.0319**		**150.3827**	**150.3827**	**3.7200e-003**	**0.0121**	**154.0941**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2600e-003	0.1287	0.0411	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.5900e-003		65.2383	65.2383	1.3400e-003	9.6400e-003	68.1457
Worker	0.0298	0.0171	0.2630	7.8000e-004	0.0904	4.5000e-004	0.0908	0.0240	4.1000e-004	0.0244		80.1729	80.1729	2.0200e-003	1.9000e-003	80.7903
Total	**0.0330**	**0.1458**	**0.3041**	**1.3900e-003**	**0.1107**	**1.2300e-003**	**0.1119**	**0.0298**	**1.1600e-003**	**0.0310**		**145.4113**	**145.4113**	**3.3600e-003**	**0.0115**	**148.9360**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2600e-003	0.1287	0.0411	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.5900e-003		65.2383	65.2383	1.3400e-003	9.6400e-003	68.1457
Worker	0.0298	0.0171	0.2630	7.8000e-004	0.0904	4.5000e-004	0.0908	0.0240	4.1000e-004	0.0244		80.1729	80.1729	2.0200e-003	1.9000e-003	80.7903
Total	**0.0330**	**0.1458**	**0.3041**	**1.3900e-003**	**0.1107**	**1.2300e-003**	**0.1119**	**0.0298**	**1.1600e-003**	**0.0310**		**145.4113**	**145.4113**	**3.3600e-003**	**0.0115**	**148.9360**

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0406	0.0233	0.3586	1.0700e-003	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		109.3267	109.3267	2.7600e-003	2.5900e-003	110.1686
Total	**0.0406**	**0.0233**	**0.3586**	**1.0700e-003**	**0.1232**	**6.1000e-004**	**0.1238**	**0.0327**	**5.6000e-004**	**0.0333**		**109.3267**	**109.3267**	**2.7600e-003**	**2.5900e-003**	**110.1686**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0406	0.0233	0.3586	1.0700e-003	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		109.3267	109.3267	2.7600e-003	2.5900e-003	110.1686
Total	**0.0406**	**0.0233**	**0.3586**	**1.0700e-003**	**0.1232**	**6.1000e-004**	**0.1238**	**0.0327**	**5.6000e-004**	**0.0333**		**109.3267**	**109.3267**	**2.7600e-003**	**2.5900e-003**	**110.1686**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	38.0128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**38.2045**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4100e-003	3.1100e-003	0.0478	1.4000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	8.0000e-005	4.4300e-003		14.5769	14.5769	3.7000e-004	3.5000e-004	14.6891
Total	**5.4100e-003**	**3.1100e-003**	**0.0478**	**1.4000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**8.0000e-005**	**4.4300e-003**		**14.5769**	**14.5769**	**3.7000e-004**	**3.5000e-004**	**14.6891**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	38.0128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**38.2045**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4100e-003	3.1100e-003	0.0478	1.4000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	8.0000e-005	4.4300e-003		14.5769	14.5769	3.7000e-004	3.5000e-004	14.6891
Total	**5.4100e-003**	**3.1100e-003**	**0.0478**	**1.4000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**8.0000e-005**	**4.4300e-003**		**14.5769**	**14.5769**	**3.7000e-004**	**3.5000e-004**	**14.6891**

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.7297	0.6755	6.0477	0.0132	1.3913	9.3000e-003	1.4006	0.3706	8.6700e-003	0.3792		1,361.2459	1,361.2459	0.0801	0.0594	1,380.9493
Unmitigated	0.7297	0.6755	6.0477	0.0132	1.3913	9.3000e-003	1.4006	0.3706	8.6700e-003	0.3792		1,361.2459	1,361.2459	0.0801	0.0594	1,380.9493

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	283.20	286.20	256.50	646,261	646,261
Total	283.20	286.20	256.50	646,261	646,261

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.553342	0.058522	0.188738	0.121080	0.023016	0.005623	0.010412	0.007562	0.000987	0.000568	0.026444	0.000834	0.002871

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
NaturalGas Unmitigated	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2188.73	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Total		**0.0236**	**0.2017**	**0.0858**	**1.2900e-003**		**0.0163**	**0.0163**		**0.0163**	**0.0163**		**257.4976**	**257.4976**	**4.9400e-003**	**4.7200e-003**	**259.0278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.18873	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Total		**0.0236**	**0.2017**	**0.0858**	**1.2900e-003**		**0.0163**	**0.0163**		**0.0163**	**0.0163**		**257.4976**	**257.4976**	**4.9400e-003**	**4.7200e-003**	**259.0278**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Unmitigated	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609

Estates at Ross Ranch - Bay Area AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2083					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	31.0895	0.5986	40.2087	0.0757		5.6857	5.6857		5.6857	5.6857	611.3502	185.2941	796.6443	0.7559	0.0431	828.3975
Landscaping	0.0744	0.0285	2.4740	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4566	4.4566	4.2800e-003		4.5635
Total	**32.5278**	**0.6271**	**42.6827**	**0.0759**		**5.6994**	**5.6994**		**5.6994**	**5.6994**	**611.3502**	**189.7507**	**801.1008**	**0.7602**	**0.0431**	**832.9609**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2083					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	31.0895	0.5986	40.2087	0.0757		5.6857	5.6857		5.6857	5.6857	611.3502	185.2941	796.6443	0.7559	0.0431	828.3975
Landscaping	0.0744	0.0285	2.4740	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4566	4.4566	4.2800e-003		4.5635
Total	**32.5278**	**0.6271**	**42.6827**	**0.0759**		**5.6994**	**5.6994**		**5.6994**	**5.6994**	**611.3502**	**189.7507**	**801.1008**	**0.7602**	**0.0431**	**832.9609**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Estates at Ross Ranch

Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	30.00	Dwelling Unit	17.17	54,000.00	90

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	4			**Operational Year**	2024
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Populaiton from DOF and acreage is from project description

Demolition -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	9.74	17.17
tblLandUse	Population	86.00	90.00

2.0 Emissions Summary

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.6843	38.8868	29.5347	0.0635	19.8049	1.6358	21.4182	10.1417	1.5049	11.6260	0.0000	6,150.3916	6,150.3916	1.9488	0.0125	6,200.3927
2023	38.2100	14.5421	16.5383	0.0283	0.1232	0.7010	0.8116	0.0327	0.6596	0.6894	0.0000	2,695.0317	2,695.0317	0.7171	0.0119	2,713.8522
Maximum	**38.2100**	**38.8868**	**29.5347**	**0.0635**	**19.8049**	**1.6358**	**21.4182**	**10.1417**	**1.5049**	**11.6260**	**0.0000**	**6,150.3916**	**6,150.3916**	**1.9488**	**0.0125**	**6,200.3927**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.6843	38.8868	29.5347	0.0635	19.8049	1.6358	21.4182	10.1417	1.5049	11.6260	0.0000	6,150.3916	6,150.3916	1.9488	0.0125	6,200.3927
2023	38.2100	14.5421	16.5383	0.0283	0.1232	0.7010	0.8116	0.0327	0.6596	0.6894	0.0000	2,695.0317	2,695.0317	0.7171	0.0119	2,713.8522
Maximum	**38.2100**	**38.8868**	**29.5347**	**0.0635**	**19.8049**	**1.6358**	**21.4182**	**10.1417**	**1.5049**	**11.6260**	**0.0000**	**6,150.3916**	**6,150.3916**	**1.9488**	**0.0125**	**6,200.3927**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Energy	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Mobile	0.6566	0.7776	6.4833	0.0124	1.3913	9.3100e-003	1.4006	0.3706	8.6700e-003	0.3792		1,285.4184	1,285.4184	0.0910	0.0651	1,307.1048
Total	**33.2080**	**1.6064**	**49.2518**	**0.0896**	**1.3913**	**5.7250**	**7.1163**	**0.3706**	**5.7244**	**6.0950**	**611.3502**	**1,732.6667**	**2,344.0168**	**0.8561**	**0.1130**	**2,399.0935**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Energy	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Mobile	0.6566	0.7776	6.4833	0.0124	1.3913	9.3100e-003	1.4006	0.3706	8.6700e-003	0.3792		1,285.4184	1,285.4184	0.0910	0.0651	1,307.1048
Total	**33.2080**	**1.6064**	**49.2518**	**0.0896**	**1.3913**	**5.7250**	**7.1163**	**0.3706**	**5.7244**	**6.0950**	**611.3502**	**1,732.6667**	**2,344.0168**	**0.8561**	**0.1130**	**2,399.0935**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/10/2022	7/7/2022	5	20	
2	Site Preparation	Site Preparation	7/8/2022	7/21/2022	5	10	
3	Grading	Grading	7/22/2022	9/1/2022	5	30	
4	Building Construction	Building Construction	9/2/2022	10/26/2023	5	300	
5	Paving	Paving	10/27/2023	11/23/2023	5	20	
6	Architectural Coating	Architectural Coating	11/24/2023	12/21/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 90

Acres of Paving: 0

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	7.00	231	0.29
Demolition	Excavators	3	8.00	158	0.38
Grading	Excavators	2	8.00	158	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	5.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	11.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0576	0.0000	0.0576	8.7200e-003	0.0000	8.7200e-003			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.0576**	**1.2427**	**1.3002**	**8.7200e-003**	**1.1553**	**1.1640**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1500e-003	0.0438	9.2400e-003	1.6000e-004	4.3700e-003	3.9000e-004	4.7600e-003	1.2000e-003	3.7000e-004	1.5700e-003		17.2777	17.2777	5.7000e-004	2.7400e-003	18.1074
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0446	0.0325	0.3699	1.0200e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		104.2358	104.2358	3.4600e-003	3.2200e-003	105.2827
Total	**0.0457**	**0.0763**	**0.3791**	**1.1800e-003**	**0.1276**	**1.0300e-003**	**0.1286**	**0.0339**	**9.6000e-004**	**0.0349**		**121.5135**	**121.5135**	**4.0300e-003**	**5.9600e-003**	**123.3901**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0576	0.0000	0.0576	8.7200e-003	0.0000	8.7200e-003			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.0576**	**1.2427**	**1.3002**	**8.7200e-003**	**1.1553**	**1.1640**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.1500e-003	0.0438	9.2400e-003	1.6000e-004	4.3700e-003	3.9000e-004	4.7600e-003	1.2000e-003	3.7000e-004	1.5700e-003		17.2777	17.2777	5.7000e-004	2.7400e-003	18.1074
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0446	0.0325	0.3699	1.0200e-003	0.1232	6.4000e-004	0.1239	0.0327	5.9000e-004	0.0333		104.2358	104.2358	3.4600e-003	3.2200e-003	105.2827
Total	**0.0457**	**0.0763**	**0.3791**	**1.1800e-003**	**0.1276**	**1.0300e-003**	**0.1286**	**0.0339**	**9.6000e-004**	**0.0349**		**121.5135**	**121.5135**	**4.0300e-003**	**5.9600e-003**	**123.3901**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0535	0.0390	0.4438	1.2300e-003	0.1479	7.7000e-004	0.1486	0.0392	7.1000e-004	0.0399		125.0830	125.0830	4.1600e-003	3.8700e-003	126.3392
Total	**0.0535**	**0.0390**	**0.4438**	**1.2300e-003**	**0.1479**	**7.7000e-004**	**0.1486**	**0.0392**	**7.1000e-004**	**0.0399**		**125.0830**	**125.0830**	**4.1600e-003**	**3.8700e-003**	**126.3392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0535	0.0390	0.4438	1.2300e-003	0.1479	7.7000e-004	0.1486	0.0392	7.1000e-004	0.0399		125.0830	125.0830	4.1600e-003	3.8700e-003	126.3392
Total	**0.0535**	**0.0390**	**0.4438**	**1.2300e-003**	**0.1479**	**7.7000e-004**	**0.1486**	**0.0392**	**7.1000e-004**	**0.0399**		**125.0830**	**125.0830**	**4.1600e-003**	**3.8700e-003**	**126.3392**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**9.2036**	**1.6349**	**10.8385**	**3.6538**	**1.5041**	**5.1579**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0433	0.4932	1.3700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		138.9811	138.9811	4.6200e-003	4.3000e-003	140.3769
Total	**0.0594**	**0.0433**	**0.4932**	**1.3700e-003**	**0.1643**	**8.6000e-004**	**0.1652**	**0.0436**	**7.9000e-004**	**0.0444**		**138.9811**	**138.9811**	**4.6200e-003**	**4.3000e-003**	**140.3769**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**9.2036**	**1.6349**	**10.8385**	**3.6538**	**1.5041**	**5.1579**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0594	0.0433	0.4932	1.3700e-003	0.1643	8.6000e-004	0.1652	0.0436	7.9000e-004	0.0444		138.9811	138.9811	4.6200e-003	4.3000e-003	140.3769
Total	**0.0594**	**0.0433**	**0.4932**	**1.3700e-003**	**0.1643**	**8.6000e-004**	**0.1652**	**0.0436**	**7.9000e-004**	**0.0444**		**138.9811**	**138.9811**	**4.6200e-003**	**4.3000e-003**	**140.3769**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4000e-003	0.1707	0.0497	6.4000e-004	0.0203	1.7300e-003	0.0221	5.8500e-003	1.6500e-003	7.5000e-003		68.1233	68.1233	1.4800e-003	0.0101	71.1716
Worker	0.0327	0.0238	0.2712	7.5000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		76.4396	76.4396	2.5400e-003	2.3600e-003	77.2073
Total	**0.0391**	**0.1945**	**0.3210**	**1.3900e-003**	**0.1107**	**2.2000e-003**	**0.1129**	**0.0298**	**2.0800e-003**	**0.0319**		**144.5629**	**144.5629**	**4.0200e-003**	**0.0125**	**148.3789**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4000e-003	0.1707	0.0497	6.4000e-004	0.0203	1.7300e-003	0.0221	5.8500e-003	1.6500e-003	7.5000e-003		68.1233	68.1233	1.4800e-003	0.0101	71.1716
Worker	0.0327	0.0238	0.2712	7.5000e-004	0.0904	4.7000e-004	0.0908	0.0240	4.3000e-004	0.0244		76.4396	76.4396	2.5400e-003	2.3600e-003	77.2073
Total	**0.0391**	**0.1945**	**0.3210**	**1.3900e-003**	**0.1107**	**2.2000e-003**	**0.1129**	**0.0298**	**2.0800e-003**	**0.0319**		**144.5629**	**144.5629**	**4.0200e-003**	**0.0125**	**148.3789**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1500e-003	0.1362	0.0425	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		65.3316	65.3316	1.3300e-003	9.6700e-003	68.2461
Worker	0.0305	0.0211	0.2519	7.3000e-004	0.0904	4.5000e-004	0.0908	0.0240	4.1000e-004	0.0244		74.4901	74.4901	2.3000e-003	2.1900e-003	75.2000
Total	**0.0337**	**0.1573**	**0.2943**	**1.3400e-003**	**0.1107**	**1.2300e-003**	**0.1119**	**0.0298**	**1.1600e-003**	**0.0310**		**139.8218**	**139.8218**	**3.6300e-003**	**0.0119**	**143.4461**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1500e-003	0.1362	0.0425	6.1000e-004	0.0203	7.8000e-004	0.0211	5.8500e-003	7.5000e-004	6.6000e-003		65.3316	65.3316	1.3300e-003	9.6700e-003	68.2461
Worker	0.0305	0.0211	0.2519	7.3000e-004	0.0904	4.5000e-004	0.0908	0.0240	4.1000e-004	0.0244		74.4901	74.4901	2.3000e-003	2.1900e-003	75.2000
Total	**0.0337**	**0.1573**	**0.2943**	**1.3400e-003**	**0.1107**	**1.2300e-003**	**0.1119**	**0.0298**	**1.1600e-003**	**0.0310**		**139.8218**	**139.8218**	**3.6300e-003**	**0.0119**	**143.4461**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0288	0.3434	9.9000e-004	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		101.5775	101.5775	3.1300e-003	2.9900e-003	102.5455
Total	**0.0416**	**0.0288**	**0.3434**	**9.9000e-004**	**0.1232**	**6.1000e-004**	**0.1238**	**0.0327**	**5.6000e-004**	**0.0333**		**101.5775**	**101.5775**	**3.1300e-003**	**2.9900e-003**	**102.5455**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0327**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0416	0.0288	0.3434	9.9000e-004	0.1232	6.1000e-004	0.1238	0.0327	5.6000e-004	0.0333		101.5775	101.5775	3.1300e-003	2.9900e-003	102.5455
Total	**0.0416**	**0.0288**	**0.3434**	**9.9000e-004**	**0.1232**	**6.1000e-004**	**0.1238**	**0.0327**	**5.6000e-004**	**0.0333**		**101.5775**	**101.5775**	**3.1300e-003**	**2.9900e-003**	**102.5455**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	38.0128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**38.2045**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5500e-003	3.8300e-003	0.0458	1.3000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	8.0000e-005	4.4300e-003		13.5437	13.5437	4.2000e-004	4.0000e-004	13.6727
Total	**5.5500e-003**	**3.8300e-003**	**0.0458**	**1.3000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**8.0000e-005**	**4.4300e-003**		**13.5437**	**13.5437**	**4.2000e-004**	**4.0000e-004**	**13.6727**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	38.0128					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**38.2045**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.5500e-003	3.8300e-003	0.0458	1.3000e-004	0.0164	8.0000e-005	0.0165	4.3600e-003	8.0000e-005	4.4300e-003		13.5437	13.5437	4.2000e-004	4.0000e-004	13.6727
Total	**5.5500e-003**	**3.8300e-003**	**0.0458**	**1.3000e-004**	**0.0164**	**8.0000e-005**	**0.0165**	**4.3600e-003**	**8.0000e-005**	**4.4300e-003**		**13.5437**	**13.5437**	**4.2000e-004**	**4.0000e-004**	**13.6727**

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6566	0.7776	6.4833	0.0124	1.3913	9.3100e-003	1.4006	0.3706	8.6700e-003	0.3792		1,285.4184	1,285.4184	0.0910	0.0651	1,307.1048
Unmitigated	0.6566	0.7776	6.4833	0.0124	1.3913	9.3100e-003	1.4006	0.3706	8.6700e-003	0.3792		1,285.4184	1,285.4184	0.0910	0.0651	1,307.1048

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	283.20	286.20	256.50	646,261	646,261
Total	283.20	286.20	256.50	646,261	646,261

4.3 Trip Type Information

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.553342	0.058522	0.188738	0.121080	0.023016	0.005623	0.010412	0.007562	0.000987	0.000568	0.026444	0.000834	0.002871

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
NaturalGas Unmitigated	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2188.73	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Total		**0.0236**	**0.2017**	**0.0858**	**1.2900e-003**		**0.0163**	**0.0163**		**0.0163**	**0.0163**		**257.4976**	**257.4976**	**4.9400e-003**	**4.7200e-003**	**259.0278**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	2.18873	0.0236	0.2017	0.0858	1.2900e-003		0.0163	0.0163		0.0163	0.0163		257.4976	257.4976	4.9400e-003	4.7200e-003	259.0278
Total		**0.0236**	**0.2017**	**0.0858**	**1.2900e-003**		**0.0163**	**0.0163**		**0.0163**	**0.0163**		**257.4976**	**257.4976**	**4.9400e-003**	**4.7200e-003**	**259.0278**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609
Unmitigated	32.5278	0.6271	42.6827	0.0759		5.6994	5.6994		5.6994	5.6994	611.3502	189.7507	801.1008	0.7602	0.0431	832.9609

Estates at Ross Ranch - Bay Area AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2083					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	31.0895	0.5986	40.2087	0.0757		5.6857	5.6857		5.6857	5.6857	611.3502	185.2941	796.6443	0.7559	0.0431	828.3975
Landscaping	0.0744	0.0285	2.4740	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4566	4.4566	4.2800e-003		4.5635
Total	**32.5278**	**0.6271**	**42.6827**	**0.0759**		**5.6994**	**5.6994**		**5.6994**	**5.6994**	**611.3502**	**189.7507**	**801.1008**	**0.7602**	**0.0431**	**832.9609**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2083					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	31.0895	0.5986	40.2087	0.0757		5.6857	5.6857		5.6857	5.6857	611.3502	185.2941	796.6443	0.7559	0.0431	828.3975
Landscaping	0.0744	0.0285	2.4740	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4566	4.4566	4.2800e-003		4.5635
Total	**32.5278**	**0.6271**	**42.6827**	**0.0759**		**5.6994**	**5.6994**		**5.6994**	**5.6994**	**611.3502**	**189.7507**	**801.1008**	**0.7602**	**0.0431**	**832.9609**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Soil Investigation Report

REESE CONSULTING GEOTECHNICAL & ASSOCIATES ENGINEERS

134 LYSTRA COURT SANTA ROSA, CA 95403
TELEPHONE (707) 528-3078 FACSIMILE (707) 528-2837

Report
Soil Investigation
Jensen Lane Subdivision
1295 Jensen Lane
Windsor, California

Prepared for
Synergy Communities
435 E Street
Santa Rosa, CA 95404
Attention: Andy Christopherson

By

REESE & ASSOCIATES
Consulting Geotechnical Engineers



Jonathan D. Morris
Geotechnical Engineer No. 2911



Jeffrey K. Reese
Civil Engineer No. 47753

Job No. 1352.2.1
November 20, 2018

INTRODUCTION

This report presents the results of our soil investigation for the proposed Jenson Lane residential development to be located in Windsor, California. The approximate 17-acre site is located at 1295 Jenson Lane and is identified as Assessor's Parcel Number 162-020-004.

The proposed development will consist of subdividing the property into about 21 to 25 parcels for single-family residential construction. We understand that the proposed residences would be one- and/or two-story, wood-frame structures with post-tensioned, concrete slab-on-grade floors. The project will include about one-quarter mile of asphalt-paved public roadway and be serviced by underground utilities. The property is gently to moderately sloping and we anticipate the project could include retaining walls. Site grading plans were not available at the time of this report. However, based on the site topographic map provided, the subdivision layout plan, and our experience with similar projects in the area, we anticipate site grading will generally consist of cuts and fills up to about 4 to 6 feet to create level building areas.

The object of our investigation, as outlined in our proposal dated January 30, 2018, was to review selected, geologic references in our files, explore subsurface conditions, measure depth to groundwater, if encountered, and determine physical properties of the soils encountered. We then performed engineering analyses to develop conclusions and recommendations concerning:

1. Proximity of the site to active faults.
2. Site preparation and grading.
3. Foundation support and design criteria.

4. Support of concrete slab-on-grade floors.

5. Retaining wall design criteria.

6. The results of two laboratory stabilometer (R-value) tests for pavement thickness determination by others.

7. Quality and compaction criteria for development of asphalt-paved roadways.

8. Soil engineering drainage.

9. Supplemental soil engineering services.

WORK PERFORMED

We reviewed selected, published, geologic information in our files including:

1. The "Geology for Planning in Sonoma County" maps, Special Report 120, California Division of Mines and Geology, 1980.

2. The "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada," Uniform Building Code (UBC), 1997.

3. The Healdsburg Quadrangle Sheet of the Alquist-Priolo Special Studies Zone maps, California Division of Mines and Geology, 1983.

4. Google Earth, (http://earth.google.com); includes historical aerial photos from 1993 to 2017.

On May 30 and 31, 2018, we observed surface features and explored subsurface conditions to the extent of eight test borings at the approximate locations indicated on Plate 1. The test borings were drilled to depths between 8 and 15 feet with track-mounted, auger equipment. Our representative located the borings, observed the drilling, logged the conditions

encountered and obtained samples for visual classification and laboratory testing. Relatively undisturbed samples were obtained with a 2.5-inch (inside-diameter), split-spoon sampler driven with a 140-pound drop hammer. The stroke during driving was about 30 inches. The blows required to drive the sampler were recorded and converted to equivalent Standard Penetration blow counts for correlation with empirical data. Logs of the test borings showing soil classifications, sample depths and converted blow counts are presented on Plates 2 through 9. The soils are classified in accordance with the Unified Soil Classification System explained on Plate 11.

On June 4, 2018, we returned to the site and further explored the subsurface conditions by excavating 4 test pits at the approximate locations indicated on Plate 1. The pits were excavated to depths between 3 and 6 feet with a track-mounted excavator. Our representative located the pits, observed the excavations, logged the conditions encountered and obtained a few samples for minor laboratory classification testing. In addition, we performed strength indicator tests in the walls of the pits with a penetrometer. Logs of the pits showing soil conditions encountered are presented on Plate 10.

Selected samples were tested in our laboratory to determine moisture content, dry density, classification (percent free swell, Atterberg Limits and percent passing the No. 200 sieve) and strength characteristics. The laboratory results for samples obtained from the test pits and penetrometer data are summarized on Plate 12. Test results for samples obtained from the test borings are shown on the test boring logs with the strength data shown in the manner described

by the Key to Test Data, Plate 11. Detailed results of the Atterberg Limits tests are presented on Plate 13.

Bulk samples of the near-surface soils were obtained for laboratory stabilometer (R-value) testing. Detailed results of the R-value tests are presented on Plates 14 and 15.

The test boring and pit locations shown on Plate 1 were determined by visually estimating from existing surface features. The locations should be considered no more accurate than implied by the methods used to establish the data. At completion of exploration, the boreholes were backfilled with the soil cuttings and the test pits were backfilled with the excavated soil.

SURFACE AND SUBSURFACE CONDITIONS

The rectangular property measures about 1,300 feet from north to south and is about 560 feet wide. The property is accessed by proceeding east on Jensen Lane from Hembree Lane. The property is bounded by Vinecrest Road to the north, vineyards to the south, open fields and two single-family residences to the east, and single-family residences to the west. The property is generally planar with about 35 feet of vertical relief from the northeast corner to the southwest corner. However, a 20-foot tall ridge extends through the property from east to west just south of the middle of the property. Based on the topographic map provided, side slopes on the ridge are inclined at about eight horizontal to one vertical (8:1) to 10:1. Three, generally broad and shallow, drainage courses were observed to extend west and southwest through the northern half of the property. The southern-most drainage is well-defined, about 1 to 2 feet deep, and 2 to 4 feet wide. Areas of perched surface water were observed around the southern drainage near the

west property line and near the southwest corner of the property at the time of our surface reconnaissance in April of 2018. The property is generally undeveloped. However, a residence, barn, and several outbuildings are present on the ridge and a block of dilapidated vines or trees is present at the southeast corner of the property.

The borings and laboratory tests indicate that the site is generally blanketed by topsoil underlain by a discontinuous sandy clay layer and firm sediments of the Glen Ellen Formation. The topsoil consisted mainly of sandy silt and was observed to vary from soft to very stiff and dry to wet. The topsoil extends to depths between about 2 and 4 feet below the ground surface and was observed to be porous to about 1½ to 2½ feet. The sandy clay layer is about 1 to 2 feet thick and was observed to be very stiff to hard and moist to wet. Laboratory testing indicates that the sandy clay is of moderate to high expansion potential. That is, the clay would tend to undergo moderate to high strength and volume changes because of seasonal changes in moisture content. Below about 3 to 5 feet, firm sediments of the Glen Ellen Formation were encountered. The sediments consisted of mixtures of sand, silt, clay, and gravel that were observed to be stiff to hard and medium dense to very dense. However, at the southwest part of the site the sediments were observed to be less firm at depth relative to the rest of the site. Also, expansive clay was encountered at a depth of 6 feet in Test Boring 7, located in the west-southwest part of the site, and extended to the termination depth of 12 feet.

Groundwater was not encountered in any of the test pits or borings during our exploration. However, we believe that groundwater conditions and seepage levels can vary seasonally and could rise and fall several feet annually.

CONCLUSIONS

Based on the results of our field exploration, laboratory tests and engineering analyses, we conclude that from a soil engineering standpoint, the site can be used for the proposed residential construction. The most significant geotechnical engineering factors that must be considered in design and construction are the presence of weak, compressible upper soils and clayey materials of moderate to high expansion potential in localized areas.

Weak, compressible upper soils, such as those encountered at the site, can undergo considerable strength loss and settlement when saturated under load. Where evaporation is inhibited by footings, slabs, or fills, eventual saturation of the underlying soils can occur. Therefore, we conclude that the weak, upper, porous soils are not suitable for foundation support in their present condition.

Expansive soils can shrink and swell with seasonal changes in moisture content and can heave lightly loaded conventional foundations and slabs. The risk of future distress to structures resulting from shrinking and swelling of the expansive clays can be considerably reduced by initially moisture conditioning the soils to cause preswelling and utilizing foundation systems designed to tolerate expansive soil movements.

We understand that you desire to use a post-tensioned slab-on-grade foundation system with perimeter and possibly interior stiffening beams to support the residences. We conclude that post-tensioned slab-on-grade foundations can be used for support of the residences, as proposed. Because of the presence of weak compressible upper soils, locally occurring expansive soils and relatively shallow bedrock, we judge that post-tensioned slab-on-grade foundations would need to be designed to tolerate the potential for differential soil movements. To help provide more uniform supporting conditions and reduce potential foundation heave and/or settlement, we judge that it will be necessary to underlie post-tensioned slabs-on-grade with properly compacted fill, as subsequently recommended. In addition, buildings supported on compacted fill that varies significantly in thickness and on pads that transition from cut to fill can be subject to differential settlement and resultant distress. To reduce the risk of intolerable differential settlement, differential fill thickness under a building would need to be limited to 6 feet or less.

The test pits were backfilled with the excavated materials, but the soils were not compacted. Therefore, the pit backfills constitute local zones of material subject to settlement and/or erosion. Where encountered in planned improvement areas, compressible pit backfills would need to be removed for their entire depth and replaced as properly compacted fill or foundation elements deepened accordingly.

SEISMIC DESIGN PARAMETERS

The geologic maps reviewed did not indicate the presence of active faults at the site, and the site is not located within a presently designated Alquist-Priolo Earthquake Fault Zone. Therefore, we judge that there is little risk of fault-related ground rupture during earthquakes. In a seismically active region such as Northern California, there is always some possibility for future faulting at any site. However, historical occurrences of surface faulting have generally closely followed the trace of the more recently active faults.

The closest faults generally considered active are the Rodgers Creek fault zone located approximately 1½ miles to the southeast, the Maacama (southern extension) fault zone located approximately 5 miles to the northeast, and the San Andreas fault zone located approximately 20 miles to the southwest.

Very strong ground shaking could occur during earthquakes. The intensity at the site will depend on the distance to the earthquake epicenter, depth and magnitude of the shock and the response characteristics of the materials beneath the site. Because of the proximity of active faults in the region and the potential for very strong ground shaking, it will be necessary to design and construct the project in strict accordance with current standards for earthquake-resistant construction.

We have determined seismic ground motion values in accordance with procedures outlined in Section 1613 of the 2016 California Building Code (CBC). Mapped acceleration parameters (S_S and S_1) were obtained by inputting approximate site coordinates (latitude and

longitude) into earthquake ground motion software developed by the United States Geological Survey. Based on our review of available geologic maps and our knowledge of the subsurface conditions, we judge that the site can be classified as Site Class C, as described in Table 20.3-1 of the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) Standard ASCE/SEI 7-10. Using corresponding values of site coefficients for Site Class C, and the procedures outlined in the CBC, the mapped acceleration parameters were adjusted to yield the design spectral response acceleration parameters S_{DS} and S_{D1}. The following earthquake design data summarize the results of the procedures outlined above.

2016 CBC Ground Motion Parameters

Site Class	C
Mapped Spectral Response Accelerations:	
S_S	2.367 g
S_1	0.984 g
Design Spectral Response Accelerations:	
S_{DS}	1.578 g
S_{D1}	0.853 g

RECOMMENDATIONS

Site Grading

The site should be cleared of debris and brush, where encountered. Designated trees should be removed, and the root systems excavated. Designated structures, old foundations and slabs should be completely removed. The resultant voids should be backfilled with compacted

soil, as subsequently recommended. Dense growths of grass and vegetation should be removed. The surface then should be stripped of upper soils containing root growth and organic matter. We anticipate that the depth of stripping needed will average about 3 inches. The strippings should be removed from the site, stockpiled for reuse as topsoil, or mixed with at least five parts of soil and used as fill at least 10 feet away from structures, walkways, or paved areas.

Wells, septic tanks, leach fields and other voids encountered or created should be removed, filled with compacted soil or compacted granular material, or capped with concrete, as determined by the appropriate regulatory agency or the soil engineer.

After stripping, excavation can be performed as necessary. Areas 6:1 or steeper planned to received fill, if any, should be prepared by cutting level keyways extending into firm soil. Keyway excavations should extend at least 1 foot into firm soil or bedrock on the downhill side of the keyway excavation, as determined in the field by the soil engineer. Keyway depths are anticipated to be 3 to 5 feet below the grade exposed by stripping but could be deeper if deeper deposits of weak upper soil are encountered, as determined in the field by the soil engineer. Subsurface drainage facilities could need to be installed at the rear of keyways, as determined in the field by the soil engineer. Typical hillside grading and subdrain details are shown on Plate 16.

Existing fills, if encountered, within building areas should be removed for their full depth. Within planned building areas and extending to at least 5 and 3 feet beyond the building perimeter and adjacent concrete walkways, respectively, excavations should be performed so as

to provide space for at least 12 inches of properly compacted fill below planned finished pad grade elevation. We anticipate that, with the exception of organic matter and rocks or hard fragments larger than 4 inches in diameter, the on-site excavated materials will be suitable for reuse as compacted fill.

The surfaces exposed by stripping and/or excavation should be scarified at least 6 inches deep, moisture conditioned to near optimum (at least 4 percentage points above optimum for on-site clayey soils and so as to close any shrinkage cracks for their full depth) and compacted to at least 87 percent relative compaction.[1] Approved, excavated and/or imported fill should then be placed in 8-inch thick loose layers, similarly moisture conditioned and compacted to at least 90 percent.

For grading performed in the rainy season (late fall, winter, or spring), there is a risk that the site can become too wet and soft to support construction equipment, normally suitable on-site or imported fill can become too wet to compact (requiring more expensive rocky fill), excavation bottoms can become unstable requiring overexcavation and/or use of geotextile fabrics or placement of granular working pads, and procedures to reduce the possibility of tracking mud onto adjacent public streets would be required. Accordingly, we suggest that the contract documents contain provisions to account for such possible additional costs.

1 Relative compaction refers to the in-place dry density of fill expressed as a percentage of maximum dry density of the same material determined in accordance with the American Society for Testing and Materials (ASTM) Standard ASTM D1557 laboratory compaction test procedure. Optimum moisture content refers to the moisture content at maximum dry density.

Imported fill, if needed, should be of low expansion potential and have a Plasticity Index of 15 or less, and be free of organic matter and rocks or hard fragments larger than 4 inches in diameter. Material proposed for use as imported fill should be tested and approved by the soil engineer prior to delivery to the site.

Finished cut and fill slopes should be trimmed to expose firm material and should be no steeper than 2:1. Slopes over 3 feet high should be planted with fast-growing, deep-rooted ground cover to reduce erosion.

Foundation Support

Provided the site is graded as outlined above, post-tensioned slabs should be underlain by at least 12 inches of properly compacted fill. We recommend that the post-tensioned slabs be designed in accordance with the Post-Tensioning Institute's design manual for Design and Construction of Post-Tensioned Slabs-on-Ground, current edition, or the criteria in the California Building Code, latest adopted edition. Based on our field and laboratory data, we believe that the following average soil properties could be assumed for design:

E_m = 7.0 feet (center lift)	Y_m = 1.5-inch (center lift)
E_m = 4.0 feet (edge lift)	Y_m = 1.0-inch (edge lift)

For design, an allowable bearing pressure of 1,000 pounds per square foot (psf) and a friction factor of 0.30 can be used. Waffle mat post-tensioned slabs, if used, can be designed using an average allowable bearing pressure of 1,500 psf on the base of the ribs.

The slabs should be underlain with a capillary moisture break and cushion layer consisting of at least 4 inches of free-draining gravel or crushed rock (slab rock). The gravel or crushed rock should be at least 1/4-inch and no larger than 3/4-inch in size. Moisture vapor will condense on the underside of slabs. Accordingly, where migration of moisture vapor through slabs is detrimental, a 10-mil (minimum) vapor retarder should be provided beneath the slabs. Two inches of moist, clean sand could be placed on top of the membrane to aid in curing and to help provide puncture protection. However, the actual use of sand should be determined by the architect or design engineer. The use of a less permeable and stronger membrane should be considered if sand is not to be placed for puncture protection, or where the flooring manufacturer requires a vapor barrier. If sand is not placed on top of the vapor retarder, concrete design and curing specifications should recognize the potential adverse effects associated with placement of concrete directly on the vapor retarder. The thickened edges of the slab foundation should penetrate through the slab rock and sand, if used, and bottom in compacted pad soils to act as a moisture barrier. From a geotechnical engineering standpoint, the slab rock can be omitted if the slab is designed as a waffle mat.

The compacted pad soils should be firm, uniform, and maintained in a moist condition until concrete placement. If the pad is allowed to dry, remoistening prior to construction could be needed. We should be notified to observe the building pads prior to covering with the vapor barrier or slab rock to verify that the pad is firm, uniform, and moist.

Retaining Walls

Retaining walls that are free to rotate slightly and support level (and up to 3:1) backfill should be designed to resist an active equivalent fluid pressure of 40 pounds per cubic foot (pcf) acting in a triangular pressure distribution. Where the backfill slope is steeper than 3:1, the pressure should be increased to 55 pcf. If the wall is constrained at the top and cannot tilt, the design pressures for level and sloping backfill should be increased to 55 and 70 pcf, respectively. Where retaining wall backfill is subject to vehicular traffic, the walls should be designed to resist an added surcharge pressure equivalent to 1½ feet of additional backfill.

Spread footing foundations can be used for support of site retaining walls. Footings should be at least 12 inches deep and bottom on firm natural soil, bedrock or properly compacted fill. Footing excavations that expose weak compressible or expansive soils would need to be deepened, as determined in the field by the soil engineer. Footings can be designed to impose dead plus code live load and total design load (including wind or seismic forces) bearing pressures of 2,000 and 3,000 psf, respectively.

Resistance to lateral loads can be obtained from passive earth pressures and soil friction. We recommend the following criteria for design:

Passive Earth Pressure	=	300 pcf equivalent fluid, neglect the upper 1 foot unless confined by pavement or slabs
Soil Friction Factor	=	0.30

The bottom of footing excavations should be no steeper than 10:1, and should be stepped as needed to provide a relatively level bottom. Footings excavated on slopes should extend to a depth that provides at least 7 feet of horizontal confinement, as measured from the outside bottom edge of the footing and the face of the slope.

As outlined in the 2016 CBC, it could be necessary to design retaining walls to resist additional lateral soil loads imposed during seismic shaking. Accordingly, based on the Mononobe-Okabe Method, we have computed the following dynamic component of total thrust induced on the wall for varying backslope inclinations.

Backslope Inclination (β)	Dynamic Component* of Total Thrust (lbs/ft)
$0 \leq \beta \leq 8{:}1$	$18H^2$
$8{:}1 < \beta \leq 6{:}1$	$21H^2$
$6{:}1 < \beta \leq 4{:}1$	$38H^2$

* The dynamic component of total thrust should be applied as a line load at a height of 0.6H above the base of the retaining wall; where H is height of the retaining wall.

Retaining walls should be fully backdrained. The backdrains should consist of 4-inch-diameter, perforated rigid-wall pipe sloped to drain to outlets by gravity and free-draining, crushed rock or gravel. The crushed rock or gravel should extend to within 1 foot of the surface. The drainrock should conform to the quality requirements for Class 2 Permeable Materials per Caltrans Standard Specifications. As an alternative, any clean drainrock could be used if the rock is covered and separated from the soil bank by a nonwoven, geotextile fabric, such as Mirafi 140N or equivalent, weighing at least four ounces per square yard. The upper 1 foot should be backfilled with compacted soil to exclude surface water infiltration.

The ground surface behind retaining walls should be sloped to drain. Where migration of moisture through retaining walls would be detrimental, the walls should be waterproofed.

Pavements

For planning purposes, we anticipate that streets in the subdivision will be constructed of asphalt concrete placed over aggregate base materials. The flexible pavement materials and methods used should conform to the quality requirements of the State of California, Caltrans Standard Specifications, current edition, and the requirements of the Town of Windsor.

The results of the laboratory stabilometer tests from bulk samples obtained at approximate depths of 1 to 2 feet below the existing ground surface indicate R-values of 4 and 35. However, because of variability of soil conditions at planned subgrade level we recommend an R-value of 5 be used for determination of the pavement section within the public right-of-way. We can provide additional R-value tests during rough grading once the roadway subgrade has been rough graded, if requested.

Prior to subgrade preparation, underground utilities in the paved areas should be installed and properly backfilled. Pavement subgrades should be prepared by scarifying to a depth of at least 6 inches, moisture conditioning to slightly above optimum (at least 2 percent above optimum for on-site clayey soils) and compacting to at least 95 percent relative compaction. Finished subgrade should be smooth and nonyielding. Aggregate base material should be spread in layers, moisture conditioned and compacted to at least 95 percent relative compaction. The aggregate base material should also be firm and nonyielding.

Geotechnical Drainage

Ponding water will cause softening and possibly swelling of site soils and could be detrimental to foundations. It is important that the finished ground surface be sloped to drain away from foundations. A positive gradient of at least 1/2 inch per foot extending at least 4 feet out should be provided away from all residences. The roofs should be provided with gutters, and the downspouts should discharge onto paved areas or splash blocks draining at least 30 inches away from foundations or be connected to nonperforated rigid plastic pipelines that discharge into planned or existing drainage facilities.

To provide an outlet for water that could accumulate in the underslab rock and reduce the risk of future moisture migration up through the floor slab, installation of an underslab subdrain system beneath interior floor slabs should be considered. The underslab subdrain system should consist of a system of perforated pipes designed so as to drain each bay created by interior and/or perimeter foundations. The underslab subdrain system should be connected to a nonperforated outlet pipe that extends through or beneath the perimeter foundation to a suitable discharge point. A typical cross-section of our recommended underslab subdrain is shown on Plate 17. We can provide additional consultation concerning the configuration and location of the underslab subdrain system during final design, once foundation plans have been prepared.

Roof downspouts and surface drains must be maintained entirely separate from underslab subdrains and retaining wall backdrains. Property owner and/or professional landscaping should maintain good positive flow of surface water away from and around the residences. It should be

recognized that fences, walks, patio slabs, lawns, planters, etc., can impede water flow and promote surface soil saturation and seepage under post-tensioned slabs.

Supplemental Geotechnical Services

We should review final grading and foundation plans for conformance with the intent of our recommendations. During site grading operations, we should provide intermittent observation and testing to determine the conditions encountered and to modify our recommendations, if warranted. Field and laboratory tests should be performed to ascertain that the indicated moisture content and degree of compaction are being attained.

The soil engineer should observe floor slab areas prior to placement of underslab sand and/or rock to verify that suitably moisture conditioned and adequate bearing materials are encountered and to modify our recommendations, if warranted. Concrete placement and reinforcing should be checked as stipulated on the project plans or as required by the Building Department. It is our understanding that approval from the Building Department must be obtained prior to the placement of concrete in foundation elements.

LIMITATIONS

We have performed the investigation and prepared this report in accordance with generally accepted standards of the soil engineering profession. No other warranty, neither express nor implied, is given. It should be understood that our services were limited to the scope of work outlined above and specifically excluded other services including, but not limited to, an

evaluation or analysis of soil chemistry, corrosion potential, mold and soil/groundwater contamination.

Subsurface conditions are complex and may differ from those indicated by surface features or encountered at test boring and test pit locations. Therefore, variations in subsurface conditions not indicated on the logs could be encountered. If the project is revised, or if conditions different from those described in this report are encountered during construction, we should be notified immediately so that we can take timely action to modify our recommendations, if warranted.

Supplemental services as recommended herein are performed on an as-requested basis. We can accept no responsibility for items we are not notified to check, nor for use or interpretation by others of the information contained herein. Such services are in addition to this soil investigation and are charged for on an hourly basis in accordance with our Standard Schedule of Charges.

Site conditions and standards of practice change. Therefore, we should be notified to update this report if construction is not performed within 24 months.

LIST OF PLATES

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Plate 11	Soil Classification Chart and Key to Test Data
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Plates 14 and 15	R-Value Test Results
Plate 16	Typical Cross-Section Recommended Hillside Grading
Plate 17	Typical Cross-Section Underslab Subdrain

DISTRIBUTION

Copies submitted: 5

Synergy Communities
435 E Street
Santa Rosa, CA 95404
Attention: Kent Byers
kent@byersre.com

JDM/JKR:nay/ra/Job No. 1352.2.1

LOG OF BORING 1

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-30-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		GRAY-BROWN SANDY CLAY (CL), stiff, moist, porous to 1.8 feet
LL = 27, PL = 20. PI = 7 Percent Free Swell = 20	16			2		
						SILTY SAND (SM), medium dense, moist to wet
TxUU = 2490 (1000)	27	13.7	107			YELLOW-BROWN GRAVELLY CLAY (CL), stiff to very stiff, moist to wet
				4		
UC(P) = 2750	50	19.3	100			LIGHT BROWN VERY SANDY CLAY (CL), stiff to very stiff, moist to wet
				6		
				8		LIGHT BROWN CLAYEY GRAVEL (GC), medium dense to dense, moist to wet
	40	15.2	110			
				10		
						with zones of clayey sand and sandy clay
				12		
				14		
	27					
						(No free water encountered)

REESE & ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1352.2.1

Date: 10-12-18

Appr: JDM

LOG OF BORING 1

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **2**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 2

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-30-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		GRAY-BROWN SILTY SAND (SM), medium dense, moist, with occasional roots
Percent Free Swell = 25	20					
				2		LIGHT BROWN CLAYEY SAND (SC), medium dense, moist to wet, with occasional gravel and fine roots, porous to 2.7 feet
TxUU = 1880 (500)	19	13.6	105			
				4		
UC(P) = 3250 Percent Passing No. 200 Sieve = 33.0	20	13.4	107			
				6		
						BROWN SANDY CLAY (CL), stiff to hard, wet, with occasional subrounded gravel
	32	13.6	111	8		
				10		
						LIGHT BROWN VERY CLAYEY SAND (SC), medium dense, wet, with occasional fine gravel
				12		
Percent Passing No. 200 Sieve = 35.7	27	19.0	108			
						(No free water encountered)

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LOG OF BORING 2

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **3**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 3

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-30-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		BROWN SANDY SILT (ML), soft, dry, porous
UC(P) = 1750 LL = 50, PL = 24, PI = 26 Percent Free Swell = 90	18	18.8	102	2		DARK BROWN SANDY CLAY (CH), medium stiff to stiff, very moist to wet, plastic
						LIGHT BROWN SANDY CLAY (CL), very stiff to hard, wet, with dark brown mottling
TxUU = 3070 (750)	41	17.1	105	4		
				6		MOTTLED DARK BROWN AND LIGHT BROWN CLAYEY GRAVEL (GC), dense, moist to wet
	36	10.3	99	8		
						(No free water encountered)

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Date: 10-12-18

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LOG OF BORING 3

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **4**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 4

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-30-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
Percent Free Swell = 20				0		GRAY-BROWN SANDY SILT (ML), medium stiff to stiff, moist to wet, with orange-brown mottling
Percent Free Swell = 20	16	14.8	104			
				2		GRAY-BROWN SANDY CLAY (CH), very stiff, wet
TxUU = 1640 (750)	47	21.2	104			LIGHT BROWN SANDY CLAY (CL), medium stiff to stiff, moist to wet
				4		
						BROWN CLAYEY GRAVEL (GC), dense to very dense, wet
	48	9.9		6		
				8		
	50+	16.1				
						(No free water encountered)

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LOG OF BORING 4

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **5**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 5

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-31-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		GRAY-BROWN SANDY SILT (ML), soft, dry, porous
Percent Free Swell = 25	50+					YELLOW-BROWN CLAYEY SAND (SC), very dense, dry to moist
				2		
	50+	20.0	91			
				4		
UC(P) = 4000	31	21.8	99			becomes dense, wet
				6		
				8		
Percent Passing No. 200 Sieve = 52.7	20	23.7	95			
				10		to medium dense with zones of sandy clay
				12		
	16	22.2	102	14		
						(No free water encountered)

*Converted to Standard Penetration Blow Counts

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Date: 10-12-18

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LOG OF BORING 5

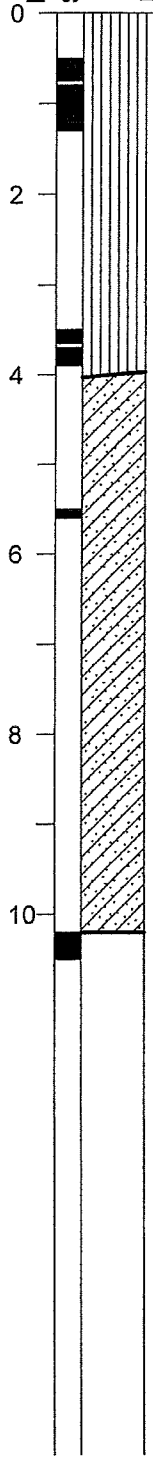
JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **6**

LOG OF BORING 6

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-31-18



Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		GRAY-BROWN SANDY SILT (ML), very stiff to hard, dry, porous to about 1.0 feet, occasional fine roots
UC(P) = 4500+	18	12.6	104			
				2		
Percent Free Swell = 45	45	17.0	97	4		BROWN CLAYEY SAND (SC), dense, moist
	36	14.9		6		
				8		
				10		becomes very dense
	50+	16.9	90			
						(No free water encountered)

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LOG OF BORING 6

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **7**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 7

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-31-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
Percent Free Swell = 15	27			0		RED-BROWN SANDY SILT (ML), very stiff, dry, porous
TxUU = 2130 (500)	36	13.3	97	2		RED-BROWN SANDY CLAY (CL), stiff to hard, moist
	50+	24.7		4		MOTTLED RED-BROWN AND GRAY CLAYEY SAND (SC), very dense, wet
				6		MOTTLED RED-BROWN AND GRAY SANDY CLAY (CL), stiff to very stiff, moist to wet
LL = 49, PL = 22, PI = 27 UC(P) = 4500+	25	19.4	83	8		
	14	18.2	93	10		becomes olive-gray, stiff with occasional gravel
				12		(No free water encountered)

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Job No: 1352.2.1

Date: 10-12-18

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LOG OF BORING 7

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **8**

*Converted to Standard Penetration Blow Counts

LOG OF BORING 8

Equipment 6" FLIGHT AUGER

Elevation _____ Date 5-31-18

Laboratory Test Results or Remarks	Blows/foot *	Moisture Content (%)	Dry Density(pcf)	Depth (ft)	Sample	
				0		BROWN SILTY SAND (SM), medium dense, dry, porous with occasional fine roots
Percent Free Swell = 30	16	4.3	93	2		RED-BROWN SANDY CLAY (CL), stiff to very stiff, moist to wet
UC(P) = 4500+ Percent Free Swell = 40	45	26.8	87	4		MOTTLED LIGHT BROWN AND RED-BROWN SANDY SILT (ML), hard, moist to wet
TxUU = 1950 (1500)	35	34.0	82	6		LIGHT BROWN, GRAY AND ORANGE GRAVELLY CLAY (CL), stiff to hard, very moist to wet
				8		
				10		
UC(P) = 4500+ Percent Passing No. 200 Sieve = 56.0	15	21.6	94	12		becomes olive-brown
						(No free water encountered)

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Job No: 1352.2.1

Date: 10-12-18

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LOG OF BORING 8

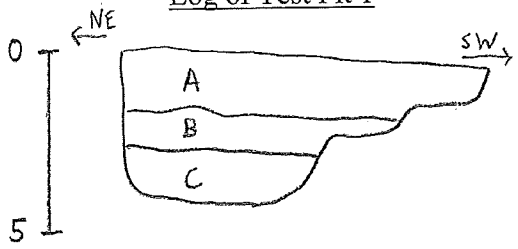
JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE **9**

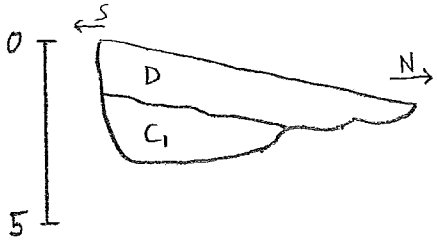
*Converted to Standard Penetration Blow Counts

Scale: 1 inch = 5 feet
Horizontal and Vertical

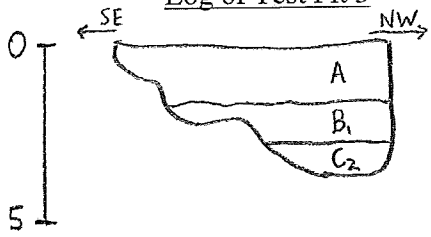
Log of Test Pit 1



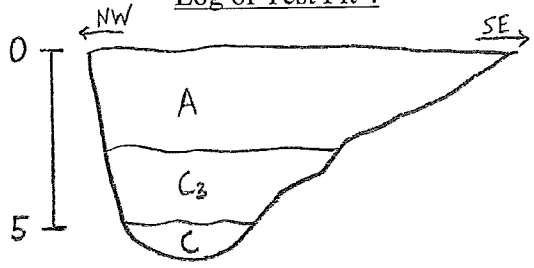
Log of Test Pit 2



Log of Test Pit 3



Log of Test Pit 4



Soil & Rock Descriptions

A = GRAY BROWN SANDY SILT (SM); very stiff, dry, porous with occasional gravels and abundant fine roots in upper 3 to 4 inches.

B = GRAY BROWN SANDY CLAY (CH); very stiff to hard, moist to wet, plastic.

B_1 = RED BROWN SANDY CLAY (CL); stiff, dry to moist.

C = YELLOW BROWN CLAYEY SAND (SC); very dense, moist with gravel (GLEN ELLEN FORMATION).

C_1 = GRAY BROWN CLAYEY GRAVEL (GC); very dense, moist, weakly cemented with zones of clay, cobbles, and orange brown mottling (GLEN ELLEN FORMATION).

C_2 = RED BROWN TUFF; low hardness, friable, deeply weathered with orange brown mottling (GLEN ELLEN FORMATION).

C_3 = RED BROWN MUDSTONE; soft to low hardness, plastic to friable, deeply weathered with occasional fine roots (GLEN ELLEN FORMATION).

D = GRAY BROWN SILTY GRAVEL (GM); medium dense, dry to moist, porous with few roots and cobbles.

REESE & ASSOCIATES CONSULTING GEOTECHNICAL ENGINEERS	Job No: 1352.2.1 Date: 10-11-18 Appr: JDM	LOG OF TEST PITS 1 THROUGH 4 JENSEN LANE SUBDIVISION, WINDSOR, CALIFORNIA	PLATE 10

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN No. 200 SIEVE)	GRAVEL — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVEL WITH LESS THAN 5% FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE
		GRAVEL WITH OVER 12% FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
			GC	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURE
	SAND — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN No. 4 SIEVE SIZE	CLEAN SAND WITH LESS THAN 5% FINES	SW	WELL GRADED SAND, GRAVELLY SAND
			SP	POORLY GRADED SAND, GRAVELLY SAND
		SAND WITH OVER 12% FINES	SM	SILTY SAND, GRAVEL-SAND-SILT MIXTURE
			SC	CLAYEY SAND, GRAVEL-SAND-CLAY MIXTURE
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN No. 200 SIEVE)	SILT AND CLAY — LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILT, ROCK FLOUR, SANDY OR CLAYEY SILT WITH LOW PLASTICITY
			CL	INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAY (LEAN)
			OL	ORGANIC CLAY AND ORGANIC SILTY CLAY OF LOW PLASTICITY
	SILT AND CLAY — LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOIL, ELASTIC SILT
			CH	INORGANIC CLAY OF HIGH PLASTICITY, GRAVELLY, SANDY OR SILTY CLAY (FAT)
			OH	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KEY TO TEST DATA

							Shear Strength, psf	Confining Pressure, psf
EI	–	Expansion Index	TxUU	–	Unconsolidated Undrained Triaxial		320	(2600)
Consol	–	Consolidation	TxCU	–	Consolidated Undrained Triaxial		320	(2600)
LL	–	Liquid Limit (in %)	DSCD	–	Consolidated Drained Direct Shear		2750	(2000)
PL	–	Plastic Limit (in %)	FVS	–	Field Vane Shear		470	
PI	–	Plasticity Index	LVS	–	Laboratory Vane Shear		700	
SA	–	Sieve Analysis	UC	–	Unconfined Compression		2000	*
G_s	–	Specific Gravity	UC(P)	–	Laboratory Penetrometer		700	*
■		"Undisturbed" Sample						
□		Bulk Sample						

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated. * Compressive Strength

REESE & ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1352.2.1
Date: 10-12-18
Appr: JDM

SOIL CLASSIFICATION CHART AND KEY TO TEST DATA
JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

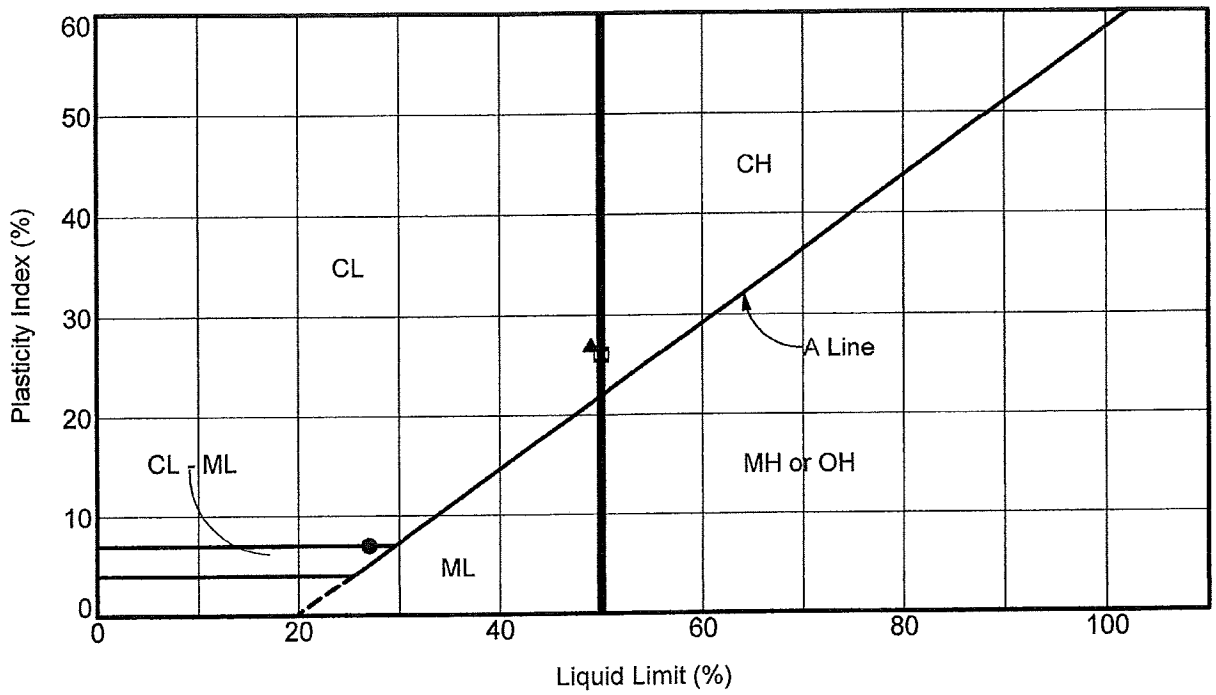
PLATE **11**

PIT NUMBER	DEPTH	TEST TYPE*	TEST RESULTS
1	1.0	FS	25.0
	1.0	UC(P)	4500+
	2.0	M	21.6
	2.0	FS	70
	2.0	UC(P)	3750
	3.5	M	16.8
	3.5	UC(P)	4500
2	0.5	UC(P)	1000
	0.5	M	27.3
	0.5	FS	20
	2.0	UC(P)	4500
	3.0	M	15.2
	3.0	FS	20
	3.0	UC(P)	4500
3	1.0	FS	10
	1.0	UC(P)	1500
	2.2	M	20.0
	2.2	FS	30
	2.2	UC(P)	3500
	3.0	M	17.9
	3.0	FS	30
	3.0	UC(P)	4500+
4	1.5	FS	15
	1.5	UC(P)	1000
	3.5	M	27.7
	3.5	FS	30
	3.5	UC(P)	3500
	5.5	M	27.9

*Test Type

M	Moisture Content (percent of dry weight)
MD	Moisture Content (percent of dry weight)/dry density (pounds per cubic foot)
UC(P)	Penetrometer - strength indicator (pounds per square foot)
UC	Unconfined Compression (pounds per square foot)
-200	Percent Passing No. 200 sieve by weight
FS	Percent Free Swell

REESE & ASSOCIATES CONSULTING GEOTECHNICAL ENGINEERS	Job No: 1352.2.1 Date: 10-11-18 Appr: JDM	**LABORATORY TEST DATA** **JENSEN LANE SUBDIVISION** **WINDSOR, CALIFORNIA**	PLATE **12**



ASTM D 4318-98

Symbol	Classification and Source	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Free Swell (%)
●	**DARK BROWN SANDY CLAY (CL)** **Test Boring 1 at 1.0 feet**	**27**	**20**	**7**	**20**
⊠	**DARK BROWN SANDY CLAY (CH)** **Test Boring 3 at 2.2 feet**	**50**	**24**	**26**	**90**
▲	**BROWN SANDY CLAY (CL)** **Test Boring 7 at 7.0 feet**	**49**	**22**	**27**	--

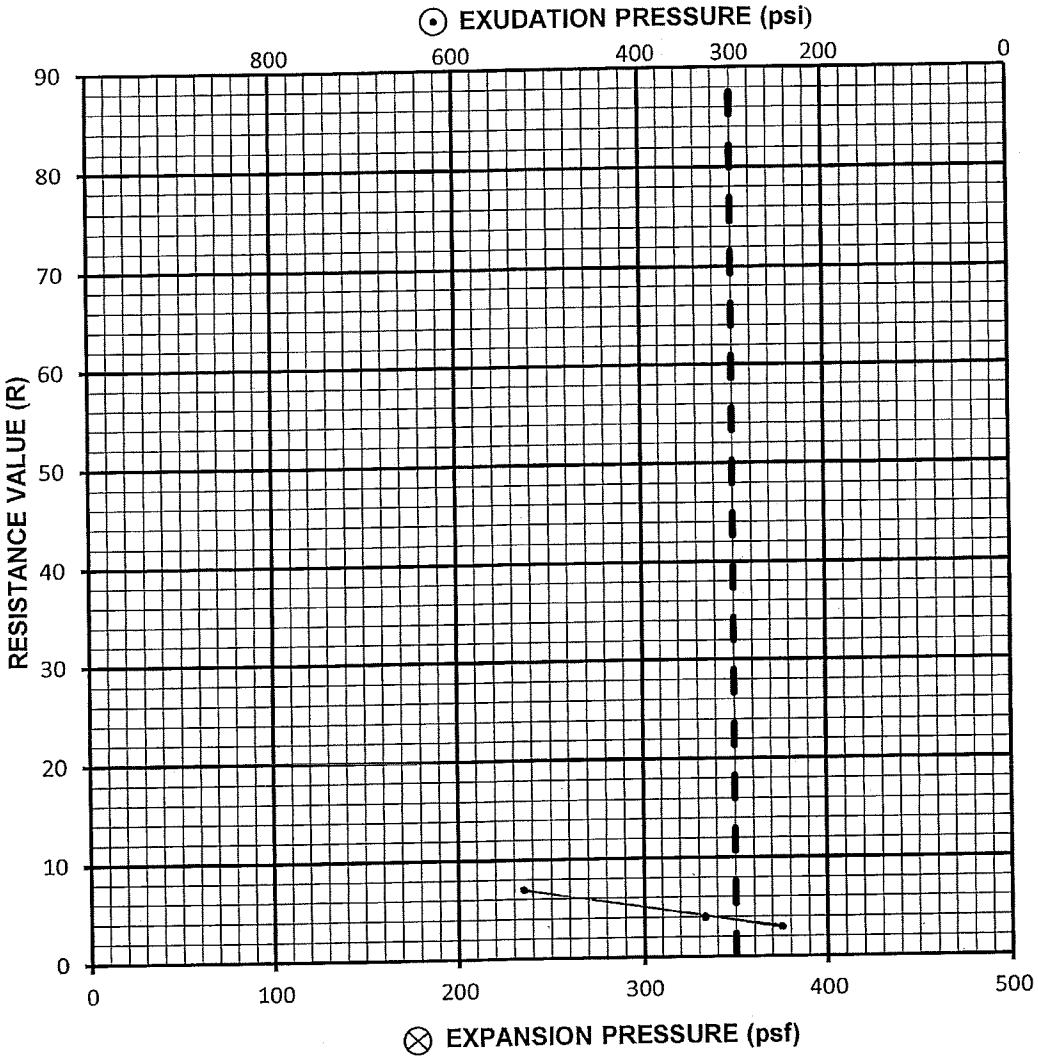
REESE & ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1352.2.1
Date: 10-12-18
Appr: JDM

ATTERBERG LIMITS TEST RESULTS

JENSEN LANE SUBDIVISION
WINDSOR, CALIFORNIA

PLATE
13



Specimen	A	B	C
Moisture Content (%)	25.9	23.7	22.0
Dry Density (pcf)	97	102	103
Exudation Pressure (psi)	247	334	533
Expansion Pressure (psf)	0	0	0
Resistance Value (R)	3	4	7

Sample Source	Classification	Expansion Pressure (psf)	R-Value
Bulk 1; 1.0 to 2.0 feet	GRAY BROWN SANDY CLAY (CH)	--	5

Reference: State of California 301, ASTM D2844

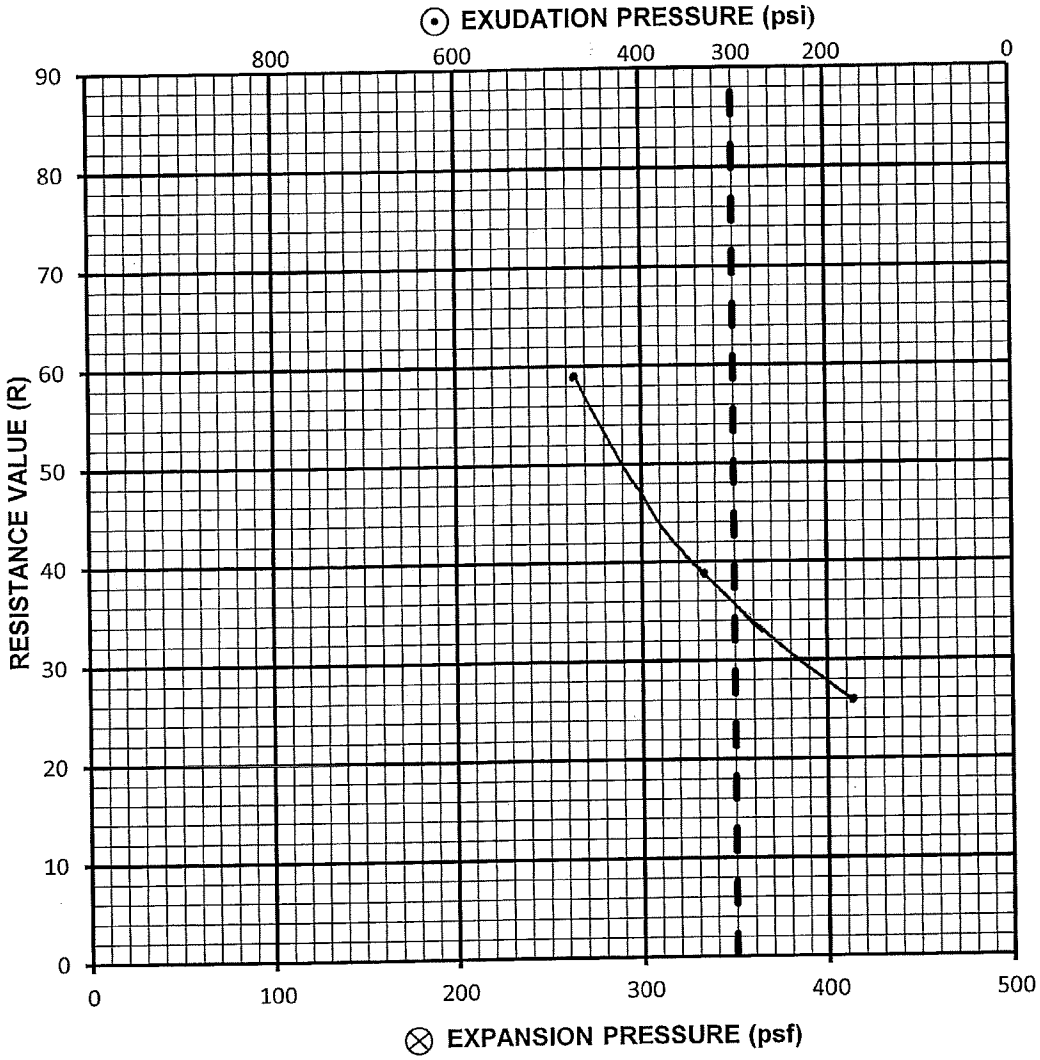
REESE & ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1352.2.1
Date: 10-10-18
Appr: JDM

R-VALUE TEST RESULTS

JENSEN SUBDIVISION
WINDSOR, CALIFORNIA

PLATE
14



Specimen	A	B	C
Moisture Content (%)	16.3	14.9	13.9
Dry Density (pcf)	112	115	115
Exudation Pressure (psi)	174	335	471
Expansion Pressure (psf)	9	31	118
Resistance Value (R)	26	39	59

Sample Source	Classification	Expansion Pressure (psf)	R-Value
Bulk 2; 1.0 to 2.0 feet	LIGHT BROWN SANDY CLAY (CL)	19	35

Reference: State of California 301, ASTM D2844

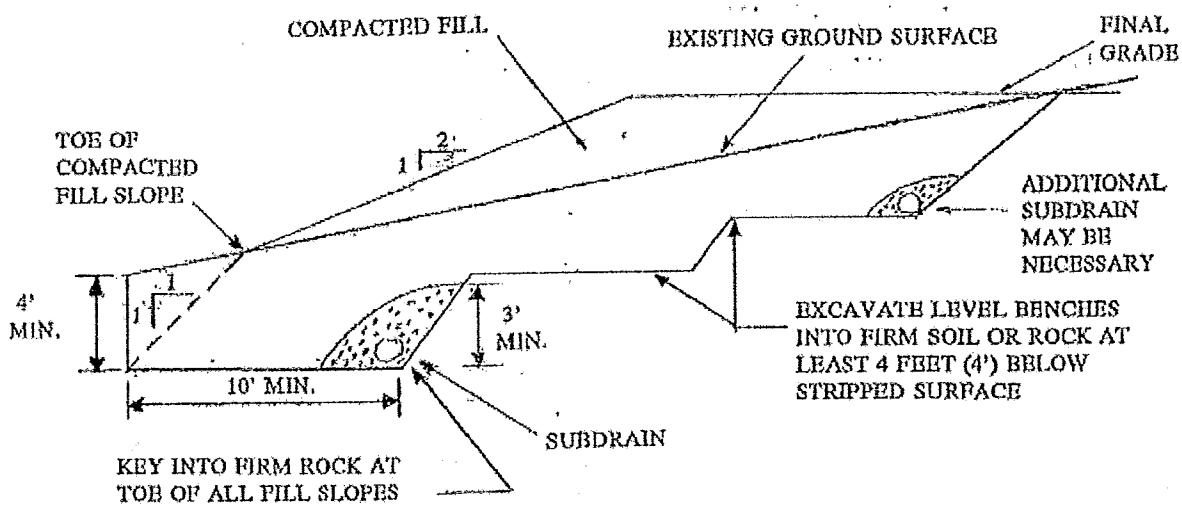
REESE & ASSOCIATES
CONSULTING GEOTECHNICAL ENGINEERS

Job No: 1352.2.1
Date: 10-10-18
Appr: JDM

R-VALUE TEST RESULTS

JENSEN SUBDIVISION
WINDSOR, CALIFORNIA

PLATE
15



TYPICAL FILL SECTION
(NOT TO SCALE)

NOTES:

1. Dimensions shown are for estimating purposes. Actual dimensions and extent of keyways, benches, and subdrains will be determined in the field by the soil engineer.

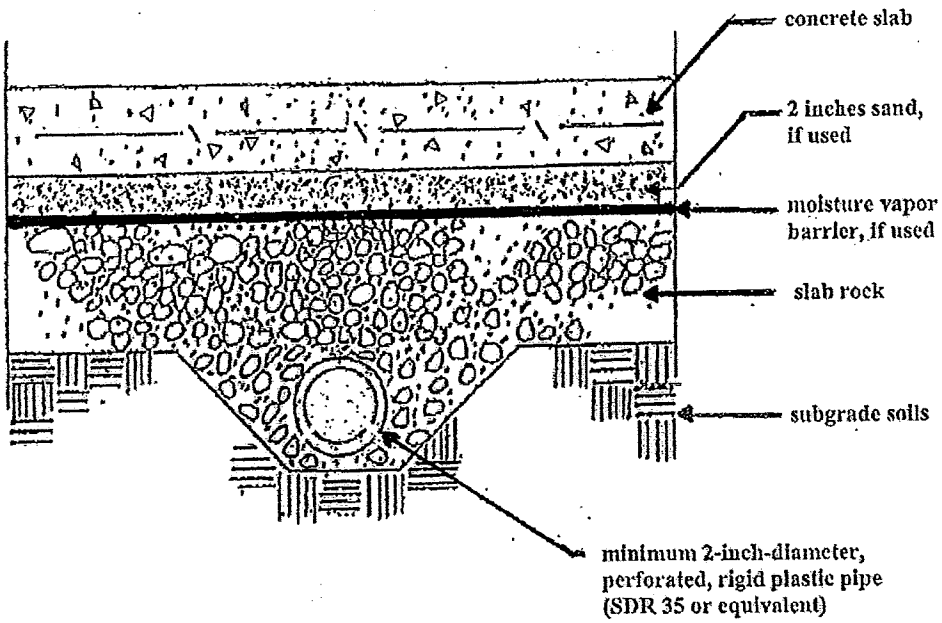
2. The upper 6 inches of soil exposed by excavation should be scarified, moisture conditioned and compacted to at least 90 percent relative compaction.

3. Fill should be placed in thin lifts and similarly compacted.

4. Slopes should be planted with deep-rooted vegetation (or protected by other suitable means) to reduce erosion.

5. Subdrains should consist of 4-inch-diameter perforated, rigid plastic pipe (SDR-35 or equivalent) with a gravity outlet and Class 2 Permeable material, or any drainrock encased in a nonwoven geotextile fabric weighing at least 4 ounces per square yard.

REESE & ASSOCIATES CONSULTING GEOTECHNICAL ENGINEERS	Job No: 1352.2.1 Date: 10-10-18 Appr: JDM	TYPICAL CROSS-SECTION HILLSIDE GRADING JENSEN LANE SUBDIVISION WINDSOR, CALIFORNIA	PLATE 16



REESE & ASSOCIATES CONSULTING GEOTECHNICAL ENGINEERS	Job No: 1352.2.1 Date: 10-10-18 Appr: JDM	**TYPICAL CROSS-SECTION UNDERSLAB SUBDRAIN** **JENSEN LANE SUBDIVISION WINDSOR, CALIFORNIA**	PLATE **17**

Appendix C

Hydrology Analysis

THE ESTATES AT ROSS RANCH HYDROLOGY ANALYSIS

THE ESTATES AT ROSS RANCH

1295 Jensen Lane
A.P.N 162-020-004
PROJECT #18101
July 7, 2020

ANALISYS PREPARED BY
TDG CONSULTING CIVIL ENGINEERS, INC.
CIVIL ENGINEERING – LAND SURVEYING
883 3rd Street, Santa Rosa, CA 95404
(707) 577-0425 Office (707) 573-1418 FAX
tdg@sonic.net

OWNER
Synergy Group.
435 E street
SANTA ROSA CA 95404
(707) 577-0425



Charlie Traboulsi RPE No.34079

Mr. Phillip E. Wadsworth
Sonoma County Water Agency
Flood and Drainage Review
2227 Capricorn Way, Building E, Suit 108
Santa Rosa CA 95407

Dear Phil:

Enclosed for your initial plan check are the following items for THE ESTATES AT ROSS RANCH subdivision 1295 Jensen Lane Windsor Ca.95942:

Page(s)	Item
1	Transmittal Letter
3-5	Explanation of Analysis approach
2	Submittal Information sheet
Attached	Tentative Map
Attached	Final Map or Parcel Map (if applicable)
Attachment 1	Hydrology Map
3-7 & 9-11 Plates (B1,B3,B4)	Establish Factors used in Analysis
7-18	Hydrology Calculation (*) 10-year Storm and (*) 100-year Storm
7-18	Hydraulic Calculations
Attachments A1 – A4	Establish Starting HGL (from Vintage Hill Subdivision Hydrology map & Calculations file #8-8-7-5)
Attachment 2A-2D	(*) EGL and (*) HGL Plots 10 yr.
Attachment 3	100-year Storm Routing
See Attachment 3	100-year Storm Elevations
23-28	Curb Water Depth Calculations
29	Inlet Capacity calculations
30	Assessor Parcel Map with Site Outlined

Please contact me if you have any questions or comments regarding this submittal.
Thanks.
TDG Consulting Civil Engineers, Inc

Charlie Traboulsi

FLOOD AND DRAINAGE REVIEW PLAN SUBMITTAL CHECKLIST

PROJECT NAME: ESTATES AT ROSS RANCH SUBDIVISION
DATE:
SCWA FILE# _____

- ✓ **TRASNMITTAL LETTER**
- ✓ **EXPLANATION OF ANALYSIS**
- ✓ **SUBMITTAL INFORMATION SHEET**
- ✓ **PLAN CHECK FEE**
- ✓ **IMPROVEMENTS PLANS**
- ✓ **FINAL MAP OR PARCEL MAP**
- ✓ **HYDROLOGY MAP**
- ✓ **ESTABLISH FACTORS USED IN ANALYSIS**
- ✓ **HYDROLOGY CALCULATIONS**
- ✓ **10-YEAR STORM**
- ✓ **100-YEAR STORM**
- ✓ **HYDRAULIC CALCULATIONS**
- ✓ **ESTABLISH STARTING HGL**
- ✓ **EGL AND HGL PLOTS**
- ✓ **100-YEAR STORM ROUTING**
- ✓ **100-YEAR STORM ELEVATION VS FINISH FLOOR ELEVATIONS**
- ✓ **INLET CAPACITY CALCULATIONS**
- ✓ **CURB WATER DEPTH CALCULATIONS**
- ✓ **ASSESOR PARCEL MAP WITH SITE OUTLINED**
- ✓ **COPY OF THE CONDITIONS OF APPROVAL OF THE PROJECT**

INTRODUCTION

This submittal package contains the hydrology maps and hydraulic calculations for THE ESTATES AT ROSS RANCH project.

The references used for this report are:

- Flood Control Design Criteria, Sonoma County Water Agency

This drainage report analyzes the flow capacity of the underground storm drain system for the 10-year storm event.

All documentation used in supporting our analysis is included in the various sections or the exhibits section of this package.

PROJECT DESCRIPTION

This plan is being developed to control run-off from development of a 30 lot Major subdivision. The project is located at 1295 Jensen Lane, east of town of Windsor. The Parcel is approximately 16.17 acres in size. The proposed development will consist of 30 lots. A new road is proposed through the property Portland Way, the extension of prince George Way Connecting with Jensen Lane.

EXISTING SITE CONDITION

The site with A.P.N 162-020-004 with address 1295 Jensen Lane; the Parcel is at rural residential designated there is an existing residence with multiples ban/sheds within the subject site; and existing driveway connecting the main residence and structures from Jensen Lane; existing vegetation is a combine grass, trees (see horticultural report for save and removed trees mitigation plan) and vineyard rows. Project site slope westerly at 0% to 5% ± there is a high point ridge close to the center of the subject parcel; There are two point of connection one will be tie to an existing 36” storm drain pipe between lot 46 and 47 of Vintage Hill Subdivision, the second point of connection is 24” storm drain at the end of the improvement at Prince George Way.

HYDROLOGY

The following hydrology calculations were performed using variables of the modified Rational Method. The variables used in the analysis were obtained from the latest SCWA Flood Control Design Criteria Manual. Runoff coefficients were calculated for each tributary area based on "Commercial, Industrial & Multiple Residential Areas" shown on Plate B-1 of the SCWA Design Criteria Manual, with a value of 0.35 used for C_V and a value of 0.90 used for C_P. Additionally, the initial time of concentrations are per the SCWA Flood Control Design Criteria Manual plate B-1, and were set at 10 minutes for this project. These two variables reflect the current land use of the property.

The intensity of the rainfall was calculated using the equations found on Plate B-2 of the SCWA Manual. The K-factor was determined by locating the project on the Mean Seasonal Precipitation Map of Sonoma County (Plate B-3) and reading the corresponding K-factor value from the K-factor vs. Mean Seasonal Precipitation chart (Plate B-4). This project receives approximately 40 inches of rainfall per year, and therefore has a K-factor of 1.33. Thus, no modifications to the rainfall intensity equations were necessary.

The hydrology calculations were performed using the Hydraflow Storm Sewers Extension for Civil 3D software developed and marketed by Autodesk. This software suite calculates the peak flow of a catchment by simultaneously calculating a basin's hydrologic characteristics and hydraulic capacity. This differs from the traditional approach of calculating the hydrology independent of any hydraulic or backwater effects. In some situations, this sort of analysis appears to lengthen the time of concentration of a basin due to the velocity in the pipes of the system being calculated under backwater conditions rather than under full-flow/ gravity depth velocities. Such an approach is slightly less conservative, but is probably more realistic. Further explanation of the implications of this approach is discussed in the Hydraulic Section of this submittal.

The enclosed THE ESTATES AT ROSS RANCH project Map define the limits of the local catchments and have been used as the basis for determining the runoff quantities that the project's storm drain systems must convey. The limits of these areas were determined by the proposed project improvements.

HYDRAULICS

Basis

As was mentioned in the preceding section, the hydraulics for this project was analyzed simultaneously with the hydrology of the project. Therefore, the hydraulics and hydrology are more interdependent than had they been analyzed separately.

Starting HGL

The storm drain network was divide on two areas one will connect on the Existing 36" RCP between lot 46 & 47 at west property line at "Vintage Hills Subdivision" File # 8-8-7-5; 10 year HGL=153.9 feet and feet higher for the 100 year HGL= 154.66 .The second storm drain network will connect at the existing 24" storm drain at the end of improvements at Prince George Way 10 year HGL= 146.46.05 feet and the 100 year HGL= 147.16 feet.

Note: HGL calculations were base on the Drainage report for Vintage Hill Subdivision file # 8-8-7-5 dated 9/28/88.

Project Datum

The benchmark of the project base on top brass dick in standard monument well at P.I. of curve of center line of Hembree lane, approximately 366 feet south of intersection of foot hill Drive and Hembree Lane; Elevation 156.53 USGS Datum.

System Analysis

The Autodesk software automatically computes losses at junctions and inlets of a system based on data adapted from FHWA HEC No. 22. The hydrology/backwater analysis of this submittal is based on this method. The following Storm Sewer Tabulations show the HGLs for the piped storm drain system networks within the project. The attached Estates at Ross Ranch Hydrology Map show the project tributary areas and storm drain system in relation to the calculations.

Inlet Capacity Analysis

The capacity of inlet structures within the model has been calculated by the software. The software calculates the capacity of all inlet structures within the model, and reports the

capture efficiency. The proposed Catch Basin (CB) within the project's tributary boundaries have been analyzed. Had the capacity of any of CB's been exceeded, the capture efficiency would have been reported to be less than 100%. During the 10-year storm event, the proposed CB's structures within the study area have an efficiency level of 100%. The worst case gutter depth for catch basins and depth of water are included in the hydraulic pages.

100-Year Overland Release

The proposed storm drain improvements for The Estates at Ross Ranch project were designed for the 10-year storm event. During the 100-year storm event, the project will route drainage over land. The attached Colgan Village Hydrology Map included a map showing the flood routing course and areas of anticipated inundation, and flood routing during a 100-year event. The route was determined by calculating the HGL at each proposed and existing inlet of the project, in addition to analyzing the degree of ponding that must occur in order for the flow to pass obstacles, such as curbs and high points. The finish floor elevations, accumulation escape elevations, and local break point escape elevations can all be seen on this map. There is a minimum of 1 foot freeboard between the finished floor elevations and the 100yr max. water surface elevation is 168.24 '

CONCLUSION

The hydraulic calculations contained in this report demonstrate that that during the 10-year storm event the HGL is below the inlet elevation of all drainage structures. All building structures will remain flood free during the 100-year storm event.

The proposed storm drain improvements will contain both the 10-year storm and 100-year flood events on site before entering the existing storm drain system. There will be no additional negative impacts to the adjacent properties with respect to pre-project and post-project flooding.

TRIBUTARIES

A-1 0.12 AC (5,101 SF)

A-2 0.39 AC (16,952 SF)

A-3 0.26 AC (11,509 SF)

A-4 2.84 AC (123,653 SF)

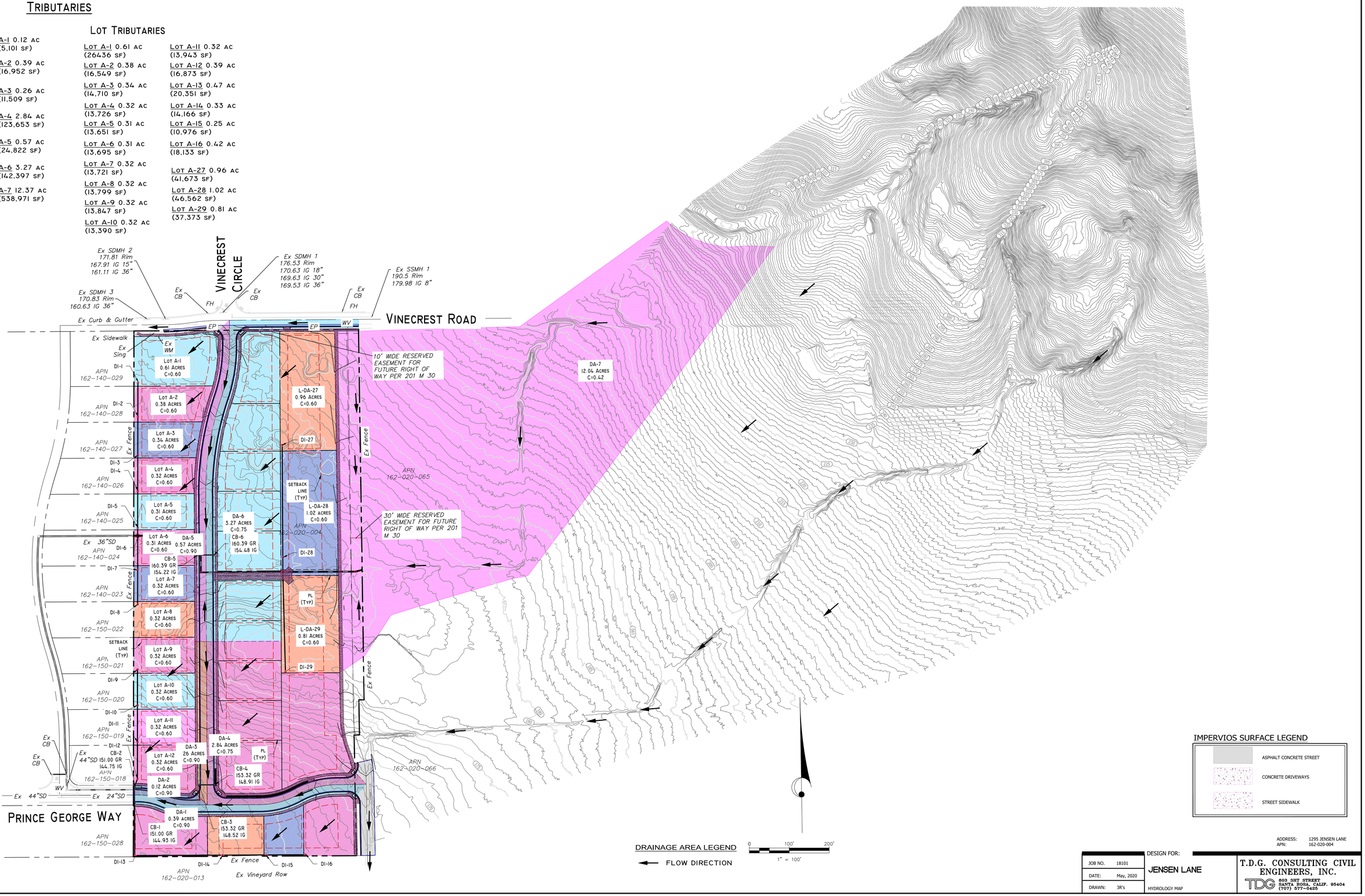
A-5 0.57 AC (24,822 SF)

A-6 3.27 AC (142,397 SF)

A-7 12.37 AC (538,971 SF)

LOT TRIBUTARIES

LOT A-1 0.61 AC (26436 SF)
LOT A-2 0.38 AC (16,549 SF)
LOT A-3 0.34 AC (14,710 SF)
LOT A-4 0.32 AC (13,726 SF)
LOT A-5 0.31 AC (13,651 SF)
LOT A-6 0.31 AC (13,695 SF)
LOT A-7 0.32 AC (13,721 SF)
LOT A-8 0.32 AC (13,799 SF)
LOT A-9 0.32 AC (13,847 SF)
LOT A-10 0.32 AC (13,390 SF)
LOT A-11 0.32 AC (13,943 SF)
LOT A-12 0.39 AC (16,873 SF)
LOT A-13 0.47 AC (20,351 SF)
LOT A-14 0.33 AC (14,166 SF)
LOT A-15 0.25 AC (10,976 SF)
LOT A-16 0.42 AC (18,133 SF)
LOT A-27 0.96 AC (41,673 SF)
LOT A-28 1.02 AC (46,562 SF)
LOT A-29 0.81 AC (37,373 SF)



DRAINAGE AREA LEGEND

FLOW DIRECTION

0 100' 200'
1" = 100'

IMPERVIOS SURFACE LEGEND

ASPHALT CONCRETE STREET
CONCRETE DRIVEWAYS
STREET SIDEWALK

ADDRESS: 1295 JENSEN LANE
APN: 162-020-004

JOB NO.	18101
DATE:	May, 2020
DRAWN:	3R's

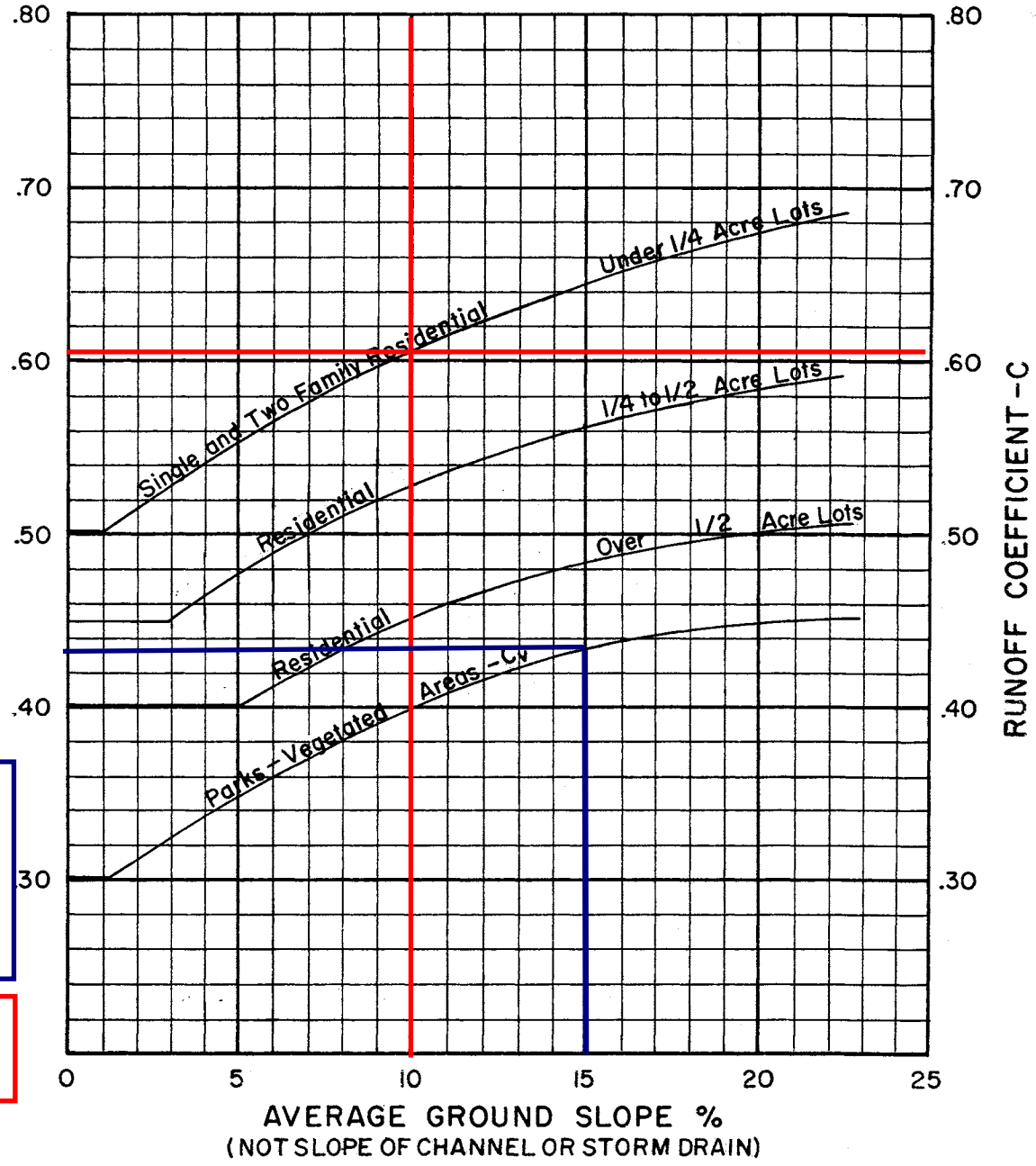
DESIGN FOR: JENSEN LANE

HYDROLOGY MAP

T.D.G. CONSULTING CIVIL ENGINEERS, INC.
TDG 803 3HT STREET SANTA ROSA, CALIF. 95404 (707) 577-0455

Attachment 1

RUNOFF COEFFICIENTS FOR RATIONAL FORMULA



Drainage Areas: Open space with slope average slope 15% C=0.42

Drainage Areas: Lots C=0.60

NOTE: Commercial, Industrial & Multiple Residential Areas

$C_P = 0.9$ (Based on paving, roofs, etc.)

When vegetated area exceeds 20% of total, C_V from vegetated curve may be used to reduce above C_P as follows:

$$C_T = C_V \frac{A_V}{A_T} + C_P \frac{A_P}{A_T}$$

Street areas with planter strip C=0.90 conservative assumption

SONOMA COUNTY WATER AGENCY

118-2
7/64

PLATE No. B-1

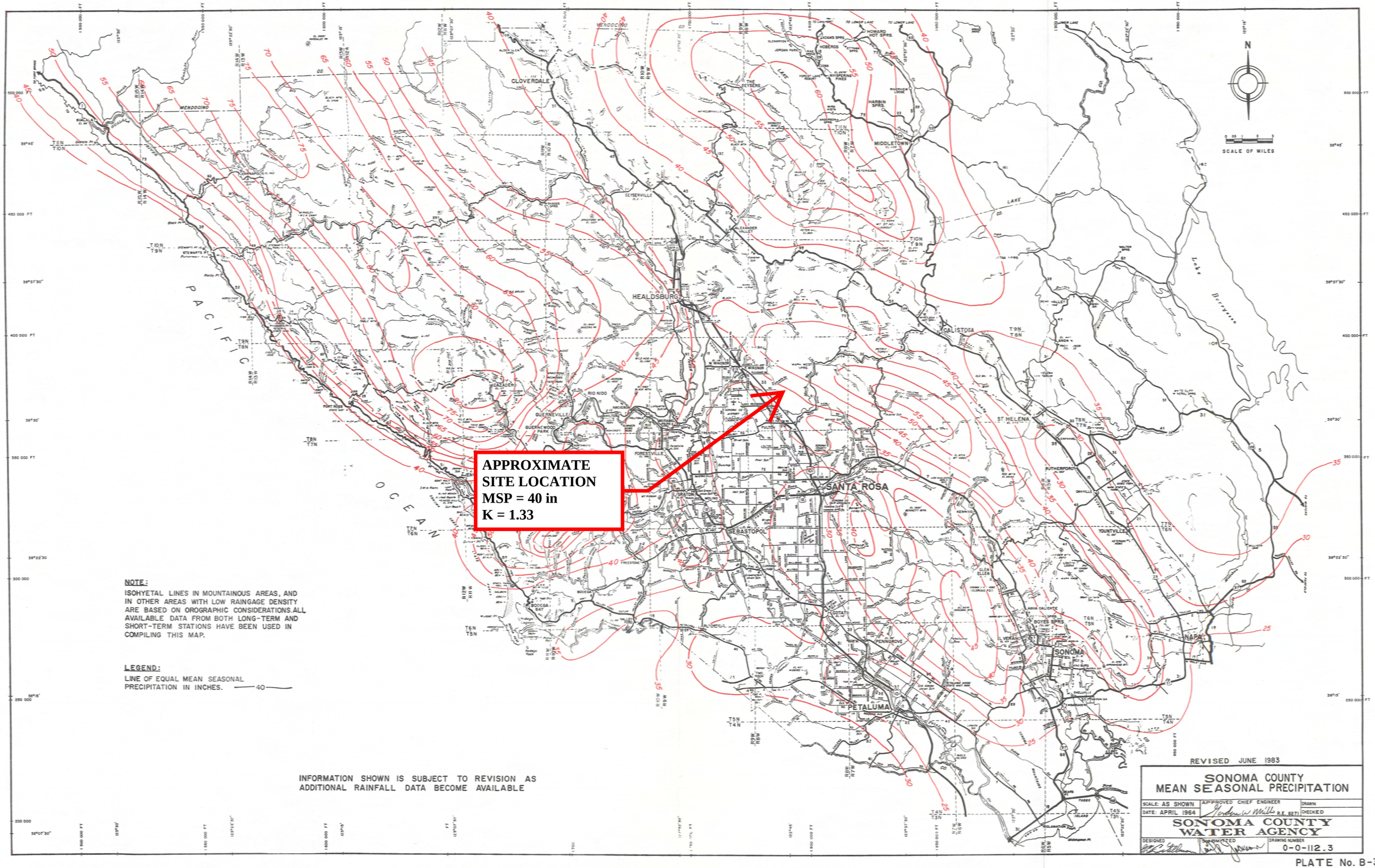

APPROXIMATE
SITE LOCATION
MSP = 40 in
K = 1.33
NOTE:
ISOHYETAL LINES IN MOUNTAINOUS AREAS, AND IN OTHER AREAS WITH LOW RAINGAGE DENSITY ARE BASED ON OROGRAPHIC CONSIDERATIONS.ALL AVAILABLE DATA FROM BOTH LONG-TERM AND SHORT-TERM STATIONS HAVE BEEN USED IN COMPILING THIS MAP.
LEGEND:
LINE OF EQUAL MEAN SEASONAL PRECIPITATION IN INCHES. —40—
INFORMATION SHOWN IS SUBJECT TO REVISION AS ADDITIONAL RAINFALL DATA BECOME AVAILABLE
SCALE OF MILES
REVISED JUNE 1983
SONOMA COUNTY
MEAN SEASONAL PRECIPITATION
SCALE: AS SHOWN
DATE: APRIL 1964
APPROVED CHIEF ENGINEER
R.E. 8271
DRAWN
CHECKED
SONOMA COUNTY
WATER AGENCY
DESIGNED
SUBMITTED
DRAWING NUMBER
0-0-112.3
PACIFIC OCEAN
Lake Berryessa
GLOVERDALE
HEALDSBURG
SANTA ROSA
PETALUMA
SONOMA
NAPA
CALISTOGA
ST HELENA
GUERNEVILLE
SEBASTOPOL
MIDDLETOWN

PLATE No. B-3

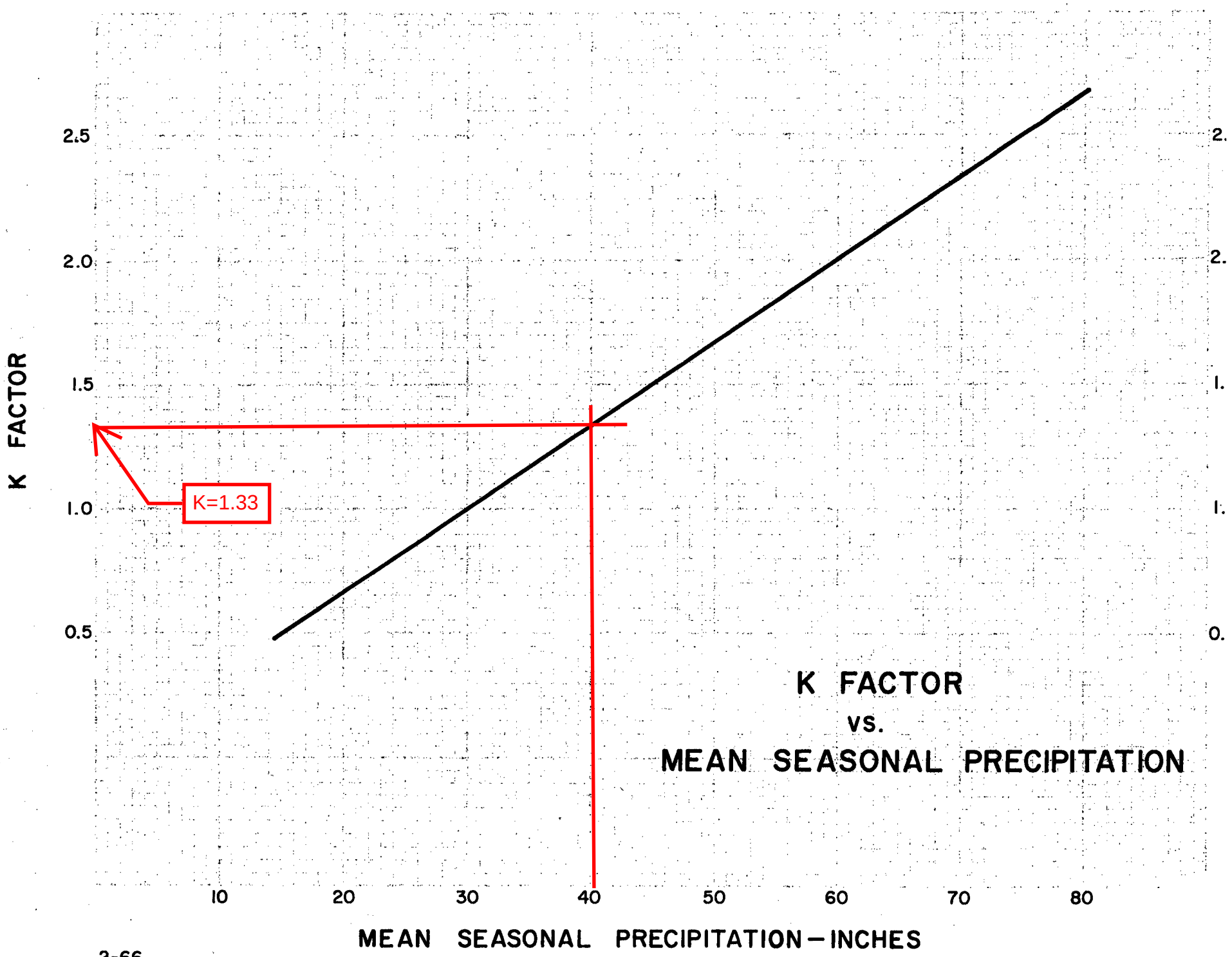


PLATE No. B-4

2-66

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	OUT EX-36 TO NODE	16.24	36	Cir	237.000	147.91	150.91	1.266	153.96*	154.08*	0.01	154.09	End	None
2	NODE -DI-6	16.27	36	Cir	11.000	150.91	151.13	2.000	154.09	154.10	0.12	154.22	1	DropGrate
3	DI-6 TO SDMH-3	14.23	36	Cir	158.075	151.13	153.00	1.183	154.22	154.20	n/a	154.20 j	2	Manhole
4	SDMH-3 TO SDMH-4	14.37	36	Cir	49.043	153.00	153.25	0.510	154.20	154.46	0.45	154.46	3	Manhole
5	SDMH-4 TO SDMH-5	10.14	36	Cir	43.515	153.25	154.00	1.724	154.46	155.01	n/a	155.01 j	4	Manhole
6	SDMH-5 TO DI-30	10.28	36	Cir	47.000	154.00	154.74	1.574	155.01	155.75	n/a	155.75	5	DropGrate
7	DI-31 TO DI-30	10.68	36	Cir	158.859	154.74	159.48	2.984	155.75	160.51	n/a	160.51	6	DropGrate
8	DI-30 TO SDMH-6	8.61	36	Cir	181.808	159.48	163.61	2.272	160.51	164.54	n/a	164.54 j	7	Manhole
9	SDMH-6 TO HW-1	8.68	36	Cir	17.501	164.00	168.10	23.427	164.54	169.03	0.34	169.03	8	OpenHeadwall
10	DI-30 TO DI-28	2.41	15	Cir	37.415	162.10	162.79	1.844	162.53	163.41	n/a	163.41	7	DropGrate
11	DI-28 TO DI-27	1.47	15	Cir	280.775	162.79	170.87	2.878	163.41	171.35	n/a	171.35 j	10	DropGrate
12	DI-6 TO DI-5	2.31	15	Cir	19.509	153.68	155.08	7.176	154.22	155.69	n/a	155.69	2	DropGrate
13	DI-5 TO DI-4	2.02	15	Cir	92.442	155.08	156.89	1.958	155.69	157.46	n/a	157.46 j	12	DropGrate
14	DI-4 TO DI-3	1.68	12	Cir	89.710	157.01	158.40	1.549	157.46	158.95	n/a	158.95	13	DropGrate
15	DI-3 TO DI-2	1.35	15	Cir	96.541	158.28	160.58	2.382	158.95	161.04	n/a	161.04 j	14	DropGrate
16	DI-2 TO DI-1	0.94	15	Cir	84.826	160.58	160.99	0.483	161.04	161.37	n/a	161.37	15	DropGrate
17	DI-30 TO DI-29	1.24	15	Cir	251.000	160.45	167.72	2.896	160.72	168.16	n/a	168.16	7	DropGrate
18	DI-6 TO DI-7	0.79	15	Cir	85.209	153.17	154.25	1.267	154.22	154.60	n/a	154.60 j	2	DropGrate
19	DI-7 TO DI-8	0.49	15	Cir	87.124	154.25	154.73	0.551	154.60	155.00	n/a	155.00 j	18	DropGrate
20	SDMH-4 TO CB-5	1.32	15	Cir	6.335	154.16	154.22	0.947	154.53	154.67	0.17	154.67	4	Curb-
21	SDMH-4 TO CB-6	6.28	15	Cir	32.335	154.16	154.48	0.990	155.09	155.49	0.54	155.49	4	Curb-
22	EX-SD TO SDMH-1	7.18	18	Cir	166.000	142.82	144.77	1.175	146.46*	147.12*	0.26	147.38	End	Manhole
23	SDMH-1 TO CB-1	1.62	15	Cir	4.696	144.77	144.78	0.213	147.38*	147.38*	0.02	147.40	22	Curb-
24	CB-1 TO DI-12	1.45	15	Cir	24.602	144.78	146.61	7.438	147.40	147.39	0.04	147.42	23	DropGrate
25	DI-12-DI-11	1.09	15	Cir	102.741	146.61	147.12	0.496	147.42	147.53	n/a	147.53 j	24	DropGrate
26	DI-11 TO DI-10	0.79	15	Cir	86.845	147.12	151.46	4.997	147.53	151.81	n/a	151.81 j	25	DropGrate
27	DI-9 TO DI-8	0.49	15	Cir	85.024	152.46	155.96	4.116	152.62	156.23	0.10	156.23	26	DropGrate
28	SDMH-1 TO NODE	5.69	18	Cir	73.000	144.77	146.24	2.014	147.38	147.52	0.03	147.55	22	None
29	NODE TO SDMH-2	5.88	18	Cir	94.000	146.24	148.15	2.032	147.55	149.09	n/a	149.09 j	28	Manhole
30	SDMH-2 TO CB-3	5.96	18	Cir	37.392	148.15	148.52	0.990	149.09	149.46	n/a	149.46	29	Curb-
31	CB-3 TO CB-4	5.45	18	Cir	38.676	148.52	148.91	1.008	149.46	149.81	n/a	149.81 j	30	Curb-

Project File: Jensen Lane 10 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
32	SDMH-1 TO CB-2	1.98	15	Cir	31.221	144.77	144.93	0.512	147.38*	147.40*	0.02	147.42	22	Curb-
33	CB-2 TO DI-13	1.48	15	Cir	132.326	144.93	145.59	0.499	147.42*	147.48*	0.03	147.52	32	DropGrate
34	DI-13 TO DI-14	1.13	15	Cir	215.088	145.59	146.67	0.502	147.52	147.57	0.01	147.58	33	DropGrate
35	DI-14-DI-15	0.84	15	Cir	112.444	146.67	147.23	0.498	147.58	147.59	n/a	147.59	34	DropGrate
36	DI-15 TO DI-16	0.65	15	Cir	103.306	147.23	147.75	0.503	147.59	148.06	n/a	148.06 j	35	DropGrate

Project File: Jensen Lane 10 Yrs.stm	Number of lines: 36	Run Date: 7/7/2020

NOTES: Return period = 10 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	237.000	0.00	21.78	0.00	0.00	11.56	0.0	22.0	1.4	16.24	81.29	2.30	36	1.27	147.91	150.91	153.96	154.08	151.99	154.70	OUT EX-36 TO NODE
2	1	11.000	0.31	21.78	0.60	0.19	11.56	7.0	21.9	1.4	16.27	102.2	2.30	36	2.00	150.91	151.13	154.09	154.10	154.70	158.47	NODE -DI-6
3	2	158.075	0.00	18.87	0.00	0.00	9.82	0.0	20.7	1.4	14.23	78.58	3.70	36	1.18	151.13	153.00	154.22	154.20	158.47	161.13	DI-6 TO SDMH-3
4	3	49.043	0.00	18.87	0.00	0.00	9.82	0.0	20.4	1.5	14.37	51.59	5.42	36	0.51	153.00	153.25	154.20	154.46	161.13	160.10	SDMH-3 TO SDMH-4
5	4	43.515	0.00	15.03	0.00	0.00	6.85	0.0	19.9	1.5	10.14	94.85	4.34	36	1.72	153.25	154.00	154.46	155.01	160.10	161.11	SDMH-4 TO SDMH-5
6	5	47.000	0.10	15.03	0.60	0.06	6.85	7.0	19.4	1.5	10.28	90.66	4.91	36	1.57	154.00	154.74	155.01	155.75	161.11	162.27	SDMH-5 TO DI-30
7	6	158.859	0.10	14.93	0.60	0.06	6.79	7.0	17.7	1.6	10.68	124.8	5.01	36	2.98	154.74	159.48	155.75	160.51	162.27	167.09	DI-31 TO DI-30
8	7	181.808	0.00	12.04	0.00	0.00	5.06	0.0	15.2	1.7	8.61	108.9	4.32	36	2.27	159.48	163.61	160.51	164.54	167.09	172.42	DI-30 TO SDMH-6
9	8	17.501	12.04	12.04	0.42	5.06	5.06	15.0	15.0	1.7	8.68	349.7	7.41	36	23.43	164.00	168.10	164.54	169.03	172.42	171.89	SDMH-6 TO HW-1
10	7	37.415	1.02	1.98	0.60	0.61	1.19	7.0	10.9	2.0	2.41	9.50	5.21	15	1.84	162.10	162.79	162.53	163.41	167.09	167.18	DI-30 TO DI-28
11	10	280.775	0.96	0.96	0.60	0.58	0.58	7.0	7.0	2.6	1.47	11.87	2.91	15	2.88	162.79	170.87	163.41	171.35	167.18	174.66	DI-28 TO DI-27
12	2	19.509	0.31	1.96	0.60	0.19	1.18	7.0	11.6	2.0	2.31	18.74	4.22	15	7.18	153.68	155.08	154.22	155.69	158.47	158.63	DI-6 TO DI-5
13	12	92.442	0.32	1.65	0.60	0.19	0.99	7.0	10.8	2.0	2.02	9.79	3.58	15	1.96	155.08	156.89	155.69	157.46	158.63	159.92	DI-5 TO DI-4
14	13	89.710	0.34	1.33	0.60	0.20	0.80	7.0	10.2	2.1	1.68	4.80	4.37	12	1.55	157.01	158.40	157.46	158.95	159.92	162.31	DI-4 TO DI-3
15	14	96.541	0.38	0.99	0.60	0.23	0.59	7.0	8.9	2.3	1.35	10.80	2.66	15	2.38	158.28	160.58	158.95	161.04	162.31	163.98	DI-3 TO DI-2
16	15	84.826	0.61	0.61	0.60	0.37	0.37	7.0	7.0	2.6	0.94	4.86	2.64	15	0.48	160.58	160.99	161.04	161.37	163.98	166.40	DI-2 TO DI-1
17	7	251.000	0.81	0.81	0.60	0.49	0.49	7.0	7.0	2.6	1.24	11.91	4.75	15	2.90	160.45	167.72	160.72	168.16	167.09	174.79	DI-30 TO DI-29
18	2	85.209	0.32	0.64	0.60	0.19	0.38	7.0	10.6	2.1	0.79	7.88	1.78	15	1.27	153.17	154.25	154.22	154.60	158.47	159.08	DI-6 TO DI-7
19	18	87.124	0.32	0.32	0.60	0.19	0.19	7.0	7.0	2.6	0.49	5.19	2.12	15	0.55	154.25	154.73	154.60	155.00	159.08	160.31	DI-7 TO DI-8
20	4	6.335	0.57	0.57	0.90	0.51	0.51	7.0	7.0	2.6	1.32	6.81	3.79	15	0.95	154.16	154.22	154.53	154.67	160.10	160.39	SDMH-4 TO CB-5
21	4	32.335	3.27	3.27	0.75	2.45	2.45	7.0	7.0	2.6	6.28	6.96	6.16	15	0.99	154.16	154.48	155.09	155.49	160.10	160.39	SDMH-4 TO CB-6
22	End	166.000	0.00	6.43	0.00	0.00	4.52	0.0	17.4	1.6	7.18	12.33	4.06	18	1.17	142.82	144.77	146.46	147.12	149.92	150.79	EX-SD TO SDMH-1
23	22	4.696	0.12	1.47	0.90	0.11	0.92	7.0	14.2	1.8	1.62	3.23	1.32	15	0.21	144.77	144.78	147.38	147.38	150.79	152.53	SDMH-1 TO CB-1
24	23	24.602	0.39	1.35	0.60	0.23	0.81	7.0	13.9	1.8	1.45	19.08	1.49	15	7.44	144.78	146.61	147.40	147.39	152.53	152.75	CB-1 TO DI-12
25	24	102.741	0.32	0.96	0.60	0.19	0.58	7.0	12.4	1.9	1.09	4.93	2.20	15	0.50	146.61	147.12	147.42	147.53	152.75	153.49	DI-12-DI-11
26	25	86.845	0.32	0.64	0.60	0.19	0.38	7.0	10.5	2.1	0.79	15.64	2.55	15	5.00	147.12	151.46	147.53	151.81	153.49	156.75	DI-11 TO DI-10
27	26	85.024	0.32	0.32	0.60	0.19	0.19	7.0	7.0	2.6	0.49	14.19	3.94	15	4.12	152.46	155.96	152.62	156.23	156.75	160.54	DI-9 TO DI-8
28	22	73.000	0.00	3.10	0.00	0.00	2.36	0.0	7.9	2.4	5.69	16.14	3.38	18	2.01	144.77	146.24	147.38	147.52	150.79	152.44	SDMH-1 TO NODE

Project File: Jensen Lane 10 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

NOTES:Intensity = 7.22 / (Inlet time + 0.10) ^ 0.53; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
29	28	94.000	0.00	3.10	0.00	0.00	2.36	0.0	7.4	2.5	5.88	16.22	4.33	18	2.03	146.24	148.15	147.55	149.09	152.44	153.54	NODE TO SDMH-2
30	29	37.392	0.26	3.10	0.90	0.23	2.36	7.0	7.2	2.5	5.96	11.32	5.12	18	0.99	148.15	148.52	149.09	149.46	153.54	153.34	SDMH-2 TO CB-3
31	30	38.676	2.84	2.84	0.75	2.13	2.13	7.0	7.0	2.6	5.45	11.42	4.80	18	1.01	148.52	148.91	149.46	149.81	153.34	153.34	CB-3 TO CB-4
32	22	31.221	0.39	1.86	0.90	0.35	1.23	7.0	17.1	1.6	1.98	5.01	1.61	15	0.51	144.77	144.93	147.38	147.40	150.79	156.95	SDMH-1 TO CB-2
33	32	132.326	0.47	1.47	0.60	0.28	0.88	7.0	15.7	1.7	1.48	4.94	1.20	15	0.50	144.93	145.59	147.42	147.48	156.95	152.01	CB-2 TO DI-13
34	33	215.088	0.33	1.00	0.60	0.20	0.60	7.0	12.6	1.9	1.13	4.96	1.06	15	0.50	145.59	146.67	147.52	147.57	152.01	153.09	DI-13 TO DI-14
35	34	112.444	0.25	0.67	0.60	0.15	0.40	0.0	10.3	2.1	0.84	4.94	1.88	15	0.50	146.67	147.23	147.58	147.59	153.09	153.65	DI-14-DI-15
36	35	103.306	0.42	0.42	0.60	0.25	0.25	7.0	7.0	2.6	0.65	4.96	2.44	15	0.50	147.23	147.75	147.59	148.06	153.65	154.16	DI-15 TO DI-16

Project File: Jensen Lane 10 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

NOTES:Intensity = 7.22 / (Inlet time + 0.10) ^ 0.53; Return period =Yrs. 10 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	36	16.24	147.91	153.96	3.00	7.07	2.30	0.08	154.04	0.051	237.000	150.91	154.08	3.00	7.07	2.30	0.08	154.16	0.051	0.051	0.120	0.15	0.01
2	36	16.27	150.91	154.09	3.00	7.07	2.30	0.08	154.17	0.051	11.000	151.13	154.10	2.97	7.06	2.31	0.08	154.18	0.047	0.049	0.005	1.50	0.12
3	36	14.23	151.13	154.22	3.00	2.64	2.01	0.06	154.28	0.039	158.075	153.00	154.20 j	1.20**	2.64	5.38	0.45	154.65	0.341	0.190	n/a	1.00	n/a
4	36	14.37	153.00	154.20	1.20	2.64	5.44	0.45	154.65	0.000	49.043	153.25	154.46	1.21**	2.66	5.40	0.45	154.91	0.000	0.000	n/a	1.00	0.45
5	36	10.14	153.25	154.46	1.21	2.08	3.81	0.37	154.83	0.000	43.515	154.00	155.01 j	1.01**	2.08	4.87	0.37	155.38	0.000	0.000	n/a	1.00	0.37
6	36	10.28	154.00	155.01	1.01	2.08	4.94	0.37	155.38	0.000	47.000	154.74	155.75	1.01**	2.10	4.89	0.37	156.13	0.000	0.000	n/a	0.50	n/a
7	36	10.68	154.74	155.75	1.01	2.10	5.08	0.38	156.13	0.000	158.859	159.48	160.51	1.03**	2.16	4.94	0.38	160.89	0.000	0.000	n/a	2.25	n/a
8	36	8.61	159.48	160.51	1.03	1.85	3.98	0.34	160.85	0.000	181.808	163.61	164.54 j	0.93**	1.85	4.65	0.34	164.87	0.000	0.000	n/a	0.28	0.09
9	36	8.68	164.00	164.54	0.54	0.85	10.17	0.34	164.87	0.000	17.501	168.10	169.03	0.93**	1.86	4.66	0.34	169.37	0.000	0.000	n/a	1.00	0.34
10	15	2.41	162.10	162.53	0.43*	0.37	6.46	0.24	162.77	0.000	37.415	162.79	163.41	0.62**	0.61	3.96	0.24	163.66	0.000	0.000	n/a	0.50	n/a
11	15	1.47	162.79	163.41	0.62	0.43	2.42	0.18	163.59	0.000	280.775	170.87	171.35 j	0.48**	0.43	3.40	0.18	171.53	0.000	0.000	n/a	1.00	n/a
12	15	2.31	153.68	154.22	0.54	0.51	4.53	0.24	154.46	0.000	19.509	155.08	155.69	0.61**	0.59	3.91	0.24	155.92	0.000	0.000	n/a	0.50	n/a
13	15	2.02	155.08	155.69	0.61	0.54	3.42	0.22	155.90	0.000	92.442	156.89	157.46 j	0.57**	0.54	3.74	0.22	157.67	0.000	0.000	n/a	0.50	n/a
14	12	1.68	157.01	157.46	0.45	0.34	4.96	0.22	157.68	0.000	89.710	158.40	158.95	0.55**	0.44	3.79	0.22	159.17	0.000	0.000	n/a	0.50	n/a
15	15	1.35	158.28	158.95	0.67	0.41	2.01	0.17	159.12	0.000	96.541	160.58	161.04 j	0.46**	0.41	3.30	0.17	161.21	0.000	0.000	n/a	0.50	n/a
16	15	0.94	160.58	161.04	0.46	0.32	2.30	0.14	161.18	0.000	84.826	160.99	161.37	0.38**	0.32	2.97	0.14	161.51	0.000	0.000	n/a	1.00	n/a
17	15	1.24	160.45	160.72	0.27*	0.20	6.28	0.16	160.88	0.000	251.000	167.72	168.16	0.44**	0.39	3.23	0.16	168.32	0.000	0.000	n/a	1.00	n/a
18	15	0.79	153.17	154.22	1.05	0.28	0.72	0.12	154.35	0.000	85.209	154.25	154.60 j	0.35**	0.28	2.83	0.12	154.72	0.000	0.000	n/a	0.50	n/a
19	15	0.49	154.25	154.60	0.35	0.20	1.76	0.10	154.69	0.000	87.124	154.73	155.00 j	0.27**	0.20	2.48	0.10	155.10	0.000	0.000	n/a	1.00	0.10
20	15	1.32	154.16	154.53	0.37*	0.31	4.29	0.17	154.70	0.000	6.335	154.22	154.67	0.45**	0.40	3.29	0.17	154.84	0.000	0.000	n/a	1.00	0.17
21	15	6.28	154.16	155.09	0.93*	0.98	6.42	0.54	155.63	0.000	32.335	154.48	155.49	1.01**	1.06	5.91	0.54	156.03	0.000	0.000	n/a	1.00	0.54
22	18	7.18	142.82	146.46	1.50	1.77	4.06	0.26	146.72	0.399	166.000	144.77	147.12	1.50	1.77	4.06	0.26	147.38	0.398	0.398	0.661	1.00	0.26
23	15	1.62	144.77	147.38	1.25	1.23	1.32	0.03	147.41	0.054	4.696	144.78	147.38	1.25	1.23	1.32	0.03	147.41	0.054	0.054	0.003	0.72	0.02
24	15	1.45	144.78	147.40	1.25	1.23	1.18	0.02	147.42	0.043	24.602	146.61	147.39	0.78	0.80	1.80	0.05	147.44	0.085	0.064	0.016	0.70	0.04
25	15	1.09	146.61	147.42	0.81	0.35	1.29	0.15	147.57	0.000	102.741	147.12	147.53 j	0.41**	0.35	3.11	0.15	147.68	0.000	0.000	n/a	0.50	n/a
26	15	0.79	147.12	147.53	0.41	0.28	2.26	0.13	147.66	0.000	86.845	151.46	151.81 j	0.35**	0.28	2.84	0.13	151.93	0.000	0.000	n/a	0.50	0.06
27	15	0.49	152.46	152.62	0.16*	0.09	5.40	0.10	152.72	0.000	85.024	155.96	156.23	0.27**	0.20	2.48	0.10	156.33	0.000	0.000	n/a	1.00	0.10
28	18	5.69	144.77	147.38	1.50	1.77	3.22	0.16	147.54	0.251	73.000	146.24	147.52	1.28	1.61	3.54	0.19	147.72	0.234	0.242	0.177	0.15	0.03

Project File: Jensen Lane 10 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
29	18	5.88	146.24	147.55	1.31	1.16	3.59	0.40	147.95	0.000	94.000	148.15	149.09 j	0.94**	1.16	5.07	0.40	149.49	0.000	0.000	n/a	1.00	n/a
30	18	5.96	148.15	149.09	0.94	1.16	5.14	0.40	149.49	0.000	37.392	148.52	149.46	0.94**	1.17	5.10	0.40	149.87	0.000	0.000	n/a	1.50	n/a
31	18	5.45	148.52	149.46	0.94	1.11	4.67	0.38	149.84	0.000	38.676	148.91	149.81 j	0.90**	1.11	4.93	0.38	150.19	0.000	0.000	n/a	1.00	n/a
32	15	1.98	144.77	147.38	1.25	1.23	1.61	0.04	147.42	0.080	31.221	144.93	147.40	1.25	1.23	1.61	0.04	147.44	0.080	0.080	0.025	0.50	0.02
33	15	1.48	144.93	147.42	1.25	1.23	1.20	0.02	147.45	0.045	132.326	145.59	147.48	1.25	1.23	1.20	0.02	147.50	0.045	0.045	0.059	1.50	0.03
34	15	1.13	145.59	147.52	1.25	1.23	0.92	0.01	147.53	0.026	215.088	146.67	147.57	0.90	0.95	1.19	0.02	147.59	0.034	0.030	0.065	0.50	0.01
35	15	0.84	146.67	147.58	0.91	0.29	0.88	0.13	147.71	0.000	112.444	147.23	147.59	0.36**	0.29	2.88	0.13	147.72	0.000	0.000	n/a	0.50	n/a
36	15	0.65	147.23	147.59	0.36	0.24	2.21	0.11	147.70	0.000	103.306	147.75	148.06 j	0.31**	0.24	2.68	0.11	148.17	0.000	0.000	n/a	1.00	n/a

Project File: Jensen Lane 10 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	OUT EX-36 TO NODE	23.95	36	Cir	237.000	147.91	150.91	1.266	154.66*	154.92*	0.03	154.95	End	None
2	NODE -DI-6	23.98	36	Cir	11.000	150.91	151.13	2.000	154.95*	154.96*	0.27	155.23	1	DropGrate
3	DI-6 TO SDMH-3	20.84	36	Cir	158.075	151.13	153.00	1.183	155.23	155.31	0.20	155.50	2	Manhole
4	SDMH-3 TO SDMH-4	20.99	36	Cir	49.043	153.00	153.25	0.510	155.50	154.72	n/a	154.72	3	Manhole
5	SDMH-4 TO SDMH-5	14.78	36	Cir	43.515	153.25	154.00	1.724	154.72	155.22	n/a	155.22 j	4	Manhole
6	SDMH-5 TO DI-30	14.94	36	Cir	47.000	154.00	154.74	1.574	155.22	155.97	n/a	155.97	5	DropGrate
7	DI-31 TO DI-30	15.34	36	Cir	158.859	154.74	159.48	2.984	155.97	160.73	1.06	160.73	6	DropGrate
8	DI-30 TO SDMH-6	12.11	36	Cir	181.808	159.48	163.61	2.272	160.73	164.71	n/a	164.71 j	7	Manhole
9	SDMH-6 TO HW-1	12.18	36	Cir	17.501	164.00	168.10	23.427	164.71	169.21	n/a	169.21	8	OpenHeadwall
10	DI-30 TO DI-28	3.58	15	Cir	37.415	162.10	162.79	1.844	162.63	163.55	n/a	163.55	7	DropGrate
11	DI-28 TO DI-27	2.07	15	Cir	280.775	162.79	170.87	2.878	163.55	171.44	n/a	171.44 j	10	DropGrate
12	DI-6 TO DI-5	3.45	15	Cir	19.509	153.68	155.08	7.176	155.23	155.83	n/a	155.83 j	2	DropGrate
13	DI-5 TO DI-4	2.99	15	Cir	92.442	155.08	156.89	1.958	155.83	157.59	n/a	157.59 j	12	DropGrate
14	DI-4 TO DI-3	2.47	12	Cir	89.710	157.01	158.40	1.549	157.59	159.07	n/a	159.07	13	DropGrate
15	DI-3 TO DI-2	1.95	15	Cir	96.541	158.28	160.58	2.382	159.07	161.14	n/a	161.14 j	14	DropGrate
16	DI-2 TO DI-1	1.31	15	Cir	84.826	160.58	160.99	0.483	161.14	161.44	n/a	161.44 j	15	DropGrate
17	DI-30 TO DI-29	1.75	15	Cir	251.000	160.45	167.72	2.896	160.77	168.24	n/a	168.24	7	DropGrate
18	DI-6 TO DI-7	1.17	15	Cir	85.209	153.17	154.25	1.267	155.23	155.25	0.01	155.26	2	DropGrate
19	DI-7 TO DI-8	0.69	15	Cir	87.124	154.25	154.73	0.551	155.26	155.05	0.12	155.05	18	DropGrate
20	SDMH-4 TO CB-5	1.85	15	Cir	6.335	154.16	154.22	0.947	154.72	154.76	0.21	154.76	4	Curb-
21	SDMH-4 TO CB-6	8.81	15	Cir	32.335	154.16	154.48	0.990	155.41*	155.92*	0.80	156.72	4	Curb-
22	EX-SD TO SDMH-1	11.12	18	Cir	166.000	142.82	144.77	1.175	147.16*	148.75*	0.62	149.36	End	Manhole
23	SDMH-1 TO CB-1	2.47	15	Cir	4.696	144.77	144.78	0.213	149.36*	149.37*	0.05	149.41	22	Curb-
24	CB-1 TO DI-12	2.20	15	Cir	24.602	144.78	146.61	7.438	149.41*	149.44*	0.03	149.47	23	DropGrate
25	DI-12-DI-11	1.64	15	Cir	102.741	146.61	147.12	0.496	149.47*	149.53*	0.01	149.54	24	DropGrate
26	DI-11 TO DI-10	1.17	15	Cir	86.845	147.12	151.46	4.997	149.54	151.89	n/a	151.89 j	25	DropGrate
27	DI-9 TO DI-8	0.69	15	Cir	85.024	152.46	155.96	4.116	152.65	156.28	0.12	156.28	26	DropGrate
28	SDMH-1 TO NODE	8.12	18	Cir	73.000	144.77	146.24	2.014	149.36*	149.73*	0.05	149.78	22	None
29	NODE TO SDMH-2	8.32	18	Cir	94.000	146.24	148.15	2.032	149.78*	150.28*	0.34	150.63	28	Manhole
30	SDMH-2 TO CB-3	8.40	18	Cir	37.392	148.15	148.52	0.990	150.63*	150.83*	0.53	151.36	29	Curb-
31	CB-3 TO CB-4	7.65	18	Cir	38.676	148.52	148.91	1.008	151.36*	151.53*	0.29	151.83	30	Curb-

Project File: Jensen Lane 100 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
32	SDMH-1 TO CB-2	3.06	15	Cir	31.221	144.77	144.93	0.512	149.36*	149.42*	0.05	149.47	22	Curb-
33	CB-2 TO DI-13	2.27	15	Cir	132.326	144.93	145.59	0.499	149.47*	149.61*	0.08	149.69	32	DropGrate
34	DI-13 TO DI-14	1.70	15	Cir	215.088	145.59	146.67	0.502	149.69*	149.81*	0.01	149.83	33	DropGrate
35	DI-14-DI-15	1.24	15	Cir	112.444	146.67	147.23	0.498	149.83*	149.87*	0.01	149.87	34	DropGrate
36	DI-15 TO DI-16	0.90	15	Cir	103.306	147.23	147.75	0.503	149.87*	149.89*	0.01	149.90	35	DropGrate

Project File: Jensen Lane 100 Yrs.stm	Number of lines: 36	Run Date: 7/7/2020

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	237.000	0.00	21.78	0.00	0.00	11.56	0.0	20.0	2.1	23.95	81.29	3.39	36	1.27	147.91	150.91	154.66	154.92	151.99	154.70	OUT EX-36 TO NODE
2	1	11.000	0.31	21.78	0.60	0.19	11.56	7.0	19.9	2.1	23.98	102.2	3.39	36	2.00	150.91	151.13	154.95	154.96	154.70	158.47	NODE -DI-6
3	2	158.075	0.00	18.87	0.00	0.00	9.82	0.0	19.1	2.1	20.84	78.58	3.26	36	1.18	151.13	153.00	155.23	155.31	158.47	161.13	DI-6 TO SDMH-3
4	3	49.043	0.00	18.87	0.00	0.00	9.82	0.0	18.8	2.1	20.99	51.59	4.71	36	0.51	153.00	153.25	155.50	154.72	161.13	160.10	SDMH-3 TO SDMH-4
5	4	43.515	0.00	15.03	0.00	0.00	6.85	0.0	18.5	2.2	14.78	94.85	4.87	36	1.72	153.25	154.00	154.72	155.22	160.10	161.11	SDMH-4 TO SDMH-5
6	5	47.000	0.10	15.03	0.60	0.06	6.85	7.0	18.1	2.2	14.94	90.66	5.49	36	1.57	154.00	154.74	155.22	155.97	161.11	162.27	SDMH-5 TO DI-30
7	6	158.859	0.10	14.93	0.60	0.06	6.79	7.0	16.9	2.3	15.34	124.8	5.56	36	2.98	154.74	159.48	155.97	160.73	162.27	167.09	DI-31 TO DI-30
8	7	181.808	0.00	12.04	0.00	0.00	5.06	0.0	15.2	2.4	12.11	108.9	4.74	36	2.27	159.48	163.61	160.73	164.71	167.09	172.42	DI-30 TO SDMH-6
9	8	17.501	12.04	12.04	0.42	5.06	5.06	15.0	15.0	2.4	12.18	349.7	7.29	36	23.43	164.00	168.10	164.71	169.21	172.42	171.89	SDMH-6 TO HW-1
10	7	37.415	1.02	1.98	0.60	0.61	1.19	7.0	9.8	3.0	3.58	9.50	5.88	15	1.84	162.10	162.79	162.63	163.55	167.09	167.18	DI-30 TO DI-28
11	10	280.775	0.96	0.96	0.60	0.58	0.58	7.0	7.0	3.6	2.07	11.87	3.20	15	2.88	162.79	170.87	163.55	171.44	167.18	174.66	DI-28 TO DI-27
12	2	19.509	0.31	1.96	0.60	0.19	1.18	7.0	10.3	2.9	3.45	18.74	3.65	15	7.18	153.68	155.08	155.23	155.83	158.47	158.63	DI-6 TO DI-5
13	12	92.442	0.32	1.65	0.60	0.19	0.99	7.0	9.7	3.0	2.99	9.79	4.09	15	1.96	155.08	156.89	155.83	157.59	158.63	159.92	DI-5 TO DI-4
14	13	89.710	0.34	1.33	0.60	0.20	0.80	7.0	9.3	3.1	2.47	4.80	4.84	12	1.55	157.01	158.40	157.59	159.07	159.92	162.31	DI-4 TO DI-3
15	14	96.541	0.38	0.99	0.60	0.23	0.59	7.0	8.3	3.3	1.95	10.80	3.04	15	2.38	158.28	160.58	159.07	161.14	162.31	163.98	DI-3 TO DI-2
16	15	84.826	0.61	0.61	0.60	0.37	0.37	7.0	7.0	3.6	1.31	4.86	2.89	15	0.48	160.58	160.99	161.14	161.44	163.98	166.40	DI-2 TO DI-1
17	7	251.000	0.81	0.81	0.60	0.49	0.49	7.0	7.0	3.6	1.75	11.91	5.25	15	2.90	160.45	167.72	160.77	168.24	167.09	174.79	DI-30 TO DI-29
18	2	85.209	0.32	0.64	0.60	0.19	0.38	7.0	9.6	3.0	1.17	7.88	1.03	15	1.27	153.17	154.25	155.23	155.25	158.47	159.08	DI-6 TO DI-7
19	18	87.124	0.32	0.32	0.60	0.19	0.19	7.0	7.0	3.6	0.69	5.19	1.69	15	0.55	154.25	154.73	155.26	155.05	159.08	160.31	DI-7 TO DI-8
20	4	6.335	0.57	0.57	0.90	0.51	0.51	7.0	7.0	3.6	1.85	6.81	3.56	15	0.95	154.16	154.22	154.72	154.76	160.10	160.39	SDMH-4 TO CB-5
21	4	32.335	3.27	3.27	0.75	2.45	2.45	7.0	7.0	3.6	8.81	6.96	7.18	15	0.99	154.16	154.48	155.41	155.92	160.10	160.39	SDMH-4 TO CB-6
22	End	166.000	0.00	6.43	0.00	0.00	4.52	0.0	14.4	2.5	11.12	12.33	6.29	18	1.17	142.82	144.77	147.16	148.75	149.92	150.79	EX-SD TO SDMH-1
23	22	4.696	0.12	1.47	0.90	0.11	0.92	7.0	12.1	2.7	2.47	3.23	2.01	15	0.21	144.77	144.78	149.36	149.37	150.79	152.53	SDMH-1 TO CB-1
24	23	24.602	0.39	1.35	0.60	0.23	0.81	7.0	11.9	2.7	2.20	19.08	1.79	15	7.44	144.78	146.61	149.41	149.44	152.53	152.75	CB-1 TO DI-12
25	24	102.741	0.32	0.96	0.60	0.19	0.58	7.0	10.9	2.9	1.64	4.93	1.34	15	0.50	146.61	147.12	149.47	149.53	152.75	153.49	DI-12-DI-11
26	25	86.845	0.32	0.64	0.60	0.19	0.38	7.0	9.5	3.1	1.17	15.64	2.06	15	5.00	147.12	151.46	149.54	151.89	153.49	156.75	DI-11 TO DI-10
27	26	85.024	0.32	0.32	0.60	0.19	0.19	7.0	7.0	3.6	0.69	14.19	4.35	15	4.12	152.46	155.96	152.65	156.28	156.75	160.54	DI-9 TO DI-8
28	22	73.000	0.00	3.10	0.00	0.00	2.36	0.0	7.6	3.4	8.12	16.14	4.60	18	2.01	144.77	146.24	149.36	149.73	150.79	152.44	SDMH-1 TO NODE

Max HGL

Project File: Jensen Lane 100 Yrs.stm

Number of lines: 36

Run Date: 7/7/2020

NOTES:Intensity = 10.13 / (Inlet time + 0.10) ^ 0.53; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
29	28	94.000	0.00	3.10	0.00	0.00	2.36	0.0	7.3	3.5	8.32	16.22	4.71	18	2.03	146.24	148.15	149.78	150.28	152.44	153.54	NODE TO SDMH-2
30	29	37.392	0.26	3.10	0.90	0.23	2.36	7.0	7.1	3.6	8.40	11.32	4.75	18	0.99	148.15	148.52	150.63	150.83	153.54	153.34	SDMH-2 TO CB-3
31	30	38.676	2.84	2.84	0.75	2.13	2.13	7.0	7.0	3.6	7.65	11.42	4.33	18	1.01	148.52	148.91	151.36	151.53	153.34	153.34	CB-3 TO CB-4
32	22	31.221	0.39	1.86	0.90	0.35	1.23	7.0	14.2	2.5	3.06	5.01	2.49	15	0.51	144.77	144.93	149.36	149.42	150.79	156.95	SDMH-1 TO CB-2
33	32	132.326	0.47	1.47	0.60	0.28	0.88	7.0	13.2	2.6	2.27	4.94	1.85	15	0.50	144.93	145.59	149.47	149.61	156.95	152.01	CB-2 TO DI-13
34	33	215.088	0.33	1.00	0.60	0.20	0.60	7.0	11.0	2.8	1.70	4.96	1.39	15	0.50	145.59	146.67	149.69	149.81	152.01	153.09	DI-13 TO DI-14
35	34	112.444	0.25	0.67	0.60	0.15	0.40	0.0	9.3	3.1	1.24	4.94	1.01	15	0.50	146.67	147.23	149.83	149.87	153.09	153.65	DI-14-DI-15
36	35	103.306	0.42	0.42	0.60	0.25	0.25	7.0	7.0	3.6	0.90	4.96	0.74	15	0.50	147.23	147.75	149.87	149.89	153.65	154.16	DI-15 TO DI-16

Project File: Jensen Lane 100 Yrs.stm

Number of lines: 36

Run Date: 7/7/2020

NOTES:Intensity = 10.13 / (Inlet time + 0.10) ^ 0.53; Return period =Yrs. 100 ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
1	36	23.95	147.91	154.66	3.00	7.07	3.39	0.18	154.84	0.110	237.000	150.91	154.92	3.00	7.07	3.39	0.18	155.10	0.110	0.110	0.260	0.15	0.03
2	36	23.98	150.91	154.95	3.00	7.07	3.39	0.18	155.13	0.110	11.000	151.13	154.96	3.00	7.07	3.39	0.18	155.14	0.110	0.110	0.012	1.50	0.27
3	36	20.84	151.13	155.23	3.00	7.07	2.95	0.14	155.36	0.083	158.075	153.00	155.31	2.31	5.83	3.58	0.20	155.50	0.095	0.089	0.141	1.00	0.20
4	36	20.99	153.00	155.50	2.50	3.45	3.33	0.58	156.08	0.000	49.043	153.25	154.72	1.47**	3.45	6.09	0.58	155.30	0.000	0.000	n/a	1.00	n/a
5	36	14.78	153.25	154.72	1.47	2.71	4.29	0.46	155.18	0.000	43.515	154.00	155.22 j	1.22**	2.71	5.45	0.46	155.69	0.000	0.000	n/a	1.00	n/a
6	36	14.94	154.00	155.22	1.22	2.71	5.51	0.46	155.69	0.000	47.000	154.74	155.97	1.23**	2.73	5.47	0.46	156.44	0.000	0.000	n/a	0.50	n/a
7	36	15.34	154.74	155.97	1.23	2.73	5.62	0.47	156.44	0.000	158.859	159.48	160.73	1.25**	2.78	5.51	0.47	161.20	0.000	0.000	n/a	2.25	1.06
8	36	12.11	159.48	160.73	1.25	2.36	4.35	0.41	161.14	0.000	181.808	163.61	164.71 j	1.10**	2.36	5.13	0.41	165.12	0.000	0.000	n/a	0.28	n/a
9	36	12.18	164.00	164.71	0.71	1.29	9.45	0.41	165.12	0.000	17.501	168.10	169.21	1.11**	2.37	5.14	0.41	169.62	0.000	0.000	n/a	1.00	n/a
10	15	3.58	162.10	162.63	0.53*	0.50	7.20	0.32	162.96	0.000	37.415	162.79	163.55	0.76**	0.79	4.56	0.32	163.88	0.000	0.000	n/a	0.50	n/a
11	15	2.07	162.79	163.55	0.76	0.55	2.63	0.22	163.77	0.000	280.775	170.87	171.44 j	0.57**	0.55	3.77	0.22	171.66	0.000	0.000	n/a	1.00	n/a
12	15	3.45	153.68	155.23	1.25	0.77	2.81	0.12	155.35	0.243	19.509	155.08	155.83 j	0.75**	0.77	4.50	0.31	156.14	0.541	0.392	n/a	0.50	n/a
13	15	2.99	155.08	155.83	0.75	0.70	3.90	0.28	156.11	0.000	92.442	156.89	157.59 j	0.70**	0.70	4.27	0.28	157.87	0.000	0.000	n/a	0.50	n/a
14	12	2.47	157.01	157.59	0.58	0.47	5.29	0.30	157.89	0.000	89.710	158.40	159.07	0.67**	0.56	4.40	0.30	159.37	0.000	0.000	n/a	0.50	n/a
15	15	1.95	158.28	159.07	0.79	0.53	2.37	0.21	159.29	0.000	96.541	160.58	161.14 j	0.56**	0.53	3.70	0.21	161.35	0.000	0.000	n/a	0.50	0.11
16	15	1.31	160.58	161.14	0.56	0.40	2.50	0.17	161.30	0.000	84.826	160.99	161.44 j	0.45**	0.40	3.28	0.17	161.61	0.000	0.000	n/a	1.00	n/a
17	15	1.75	160.45	160.77	0.32*	0.25	6.93	0.20	160.97	0.000	251.000	167.72	168.24	0.52**	0.49	3.57	0.20	168.44	0.000	0.000	n/a	1.00	n/a
18	15	1.17	153.17	155.23	1.25	1.23	0.95	0.01	155.24	0.028	85.209	154.25	155.25	1.00	1.05	1.12	0.02	155.27	0.029	0.029	0.024	0.50	0.01
19	15	0.69	154.25	155.26	1.01	0.25	0.65	0.12	155.37	0.000	87.124	154.73	155.05	0.32**	0.25	2.73	0.12	155.17	0.000	0.000	n/a	1.00	0.12
20	15	1.85	154.16	154.72	0.56	0.51	3.47	0.21	154.93	0.000	6.335	154.22	154.76	0.54**	0.51	3.64	0.21	154.97	0.000	0.000	n/a	1.00	0.21
21	15	8.81	154.16	155.41	1.25*	1.23	7.18	0.80	156.21	1.585	32.335	154.48	155.92	1.25	1.23	7.18	0.80	156.72	1.585	1.585	0.512	1.00	0.80
22	18	11.12	142.82	147.16	1.50	1.77	6.29	0.62	147.78	0.955	166.000	144.77	148.75	1.50	1.77	6.29	0.62	149.36	0.955	0.955	1.585	1.00	0.62
23	15	2.47	144.77	149.36	1.25	1.23	2.01	0.06	149.42	0.125	4.696	144.78	149.37	1.25	1.23	2.01	0.06	149.43	0.125	0.125	0.006	0.72	0.05
24	15	2.20	144.78	149.41	1.25	1.23	1.79	0.05	149.46	0.099	24.602	146.61	149.44	1.25	1.23	1.79	0.05	149.49	0.099	0.099	0.024	0.70	0.03
25	15	1.64	146.61	149.47	1.25	1.23	1.34	0.03	149.50	0.055	102.741	147.12	149.53	1.25	1.23	1.34	0.03	149.56	0.055	0.055	0.057	0.50	0.01
26	15	1.17	147.12	149.54	1.25	0.37	0.96	0.01	149.56	0.028	86.845	151.46	151.89 j	0.43**	0.37	3.17	0.16	152.04	0.448	0.238	n/a	0.50	0.08
27	15	0.69	152.46	152.65	0.19*	0.12	5.97	0.12	152.76	0.000	85.024	155.96	156.28	0.32**	0.25	2.73	0.12	156.40	0.000	0.000	n/a	1.00	0.12
28	18	8.12	144.77	149.36	1.50	1.77	4.60	0.33	149.69	0.510	73.000	146.24	149.73	1.50	1.77	4.60	0.33	150.06	0.510	0.510	0.372	0.15	0.05

Project File: Jensen Lane 100 Yrs.stm

Number of lines: 36

Run Date: 7/7/2020

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

Hydraulic Grade Line Computations

Line	Size	Q	Downstream								Len	Upstream								Check		JL coeff	Minor loss
			Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf		Invert elev	HGL elev	Depth	Area	Vel	Vel head	EGL elev	Sf	Ave Sf	Enrgy loss		
	(in)	(cfs)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft/s)	(ft)	(ft)	(%)	(%)	(ft)	(K)	(ft)
29	18	8.32	146.24	149.78	1.50	1.77	4.71	0.34	150.13	0.535	94.000	148.15	150.28	1.50	1.77	4.71	0.34	150.63	0.534	0.534	0.502	1.00	0.34
30	18	8.40	148.15	150.63	1.50	1.77	4.75	0.35	150.98	0.545	37.392	148.52	150.83	1.50	1.77	4.75	0.35	151.18	0.545	0.545	0.204	1.50	0.53
31	18	7.65	148.52	151.36	1.50	1.77	4.33	0.29	151.65	0.452	38.676	148.91	151.53	1.50	1.77	4.33	0.29	151.83	0.452	0.452	0.175	1.00	0.29
32	15	3.06	144.77	149.36	1.25	1.23	2.49	0.10	149.46	0.191	31.221	144.93	149.42	1.25	1.23	2.49	0.10	149.52	0.191	0.191	0.060	0.50	0.05
33	15	2.27	144.93	149.47	1.25	1.23	1.85	0.05	149.52	0.105	132.326	145.59	149.61	1.25	1.23	1.85	0.05	149.66	0.105	0.105	0.139	1.50	0.08
34	15	1.70	145.59	149.69	1.25	1.23	1.39	0.03	149.72	0.059	215.088	146.67	149.81	1.25	1.23	1.39	0.03	149.84	0.059	0.059	0.127	0.50	0.01
35	15	1.24	146.67	149.83	1.25	1.23	1.01	0.02	149.85	0.032	112.444	147.23	149.87	1.25	1.23	1.01	0.02	149.88	0.032	0.032	0.035	0.50	0.01
36	15	0.90	147.23	149.87	1.25	1.23	0.74	0.01	149.88	0.017	103.306	147.75	149.89	1.25	1.23	0.74	0.01	149.90	0.017	0.017	0.017	1.00	0.01

Project File: Jensen Lane 100 Yrs.stm | Number of lines: 36 | Run Date: 7/7/2020

Notes: * depth assumed; ** Critical depth.; j-Line contains hyd. jump ; c = cir e = ellip b = box

point of connection
Ex 36" 234 ' long

point of connection
Ex 18" 165' Long

N 0° 17' 30" E 1318.72'

1" = 40'

VANCOUVER LANE

PROPOSED 15' PUBLIC SDE

RETAIN EXIST. VINEYARD

VICTORIA LANE

PRINCE GEORGE WAY

200' AGRICULTURAL SETBACK

15' PROPOSED PRIVATE SD EASEMENT

LOT 13 BUILDING ENVELOPE
SEWER AND WATER EASEMENT

WATER, SEWER AND STORM DRAIN PER ASSESSMENT DISTRICT

Vintage Hills Subd
8-8-7-5

N 89° 48' 00" E

858.28'

EXIST. VINECREST RD.

& PROPOSED EXTENSION OF VINECREST RD.

ARBROR HILL LOCATION FOR ASSESSMENT DISTRICT

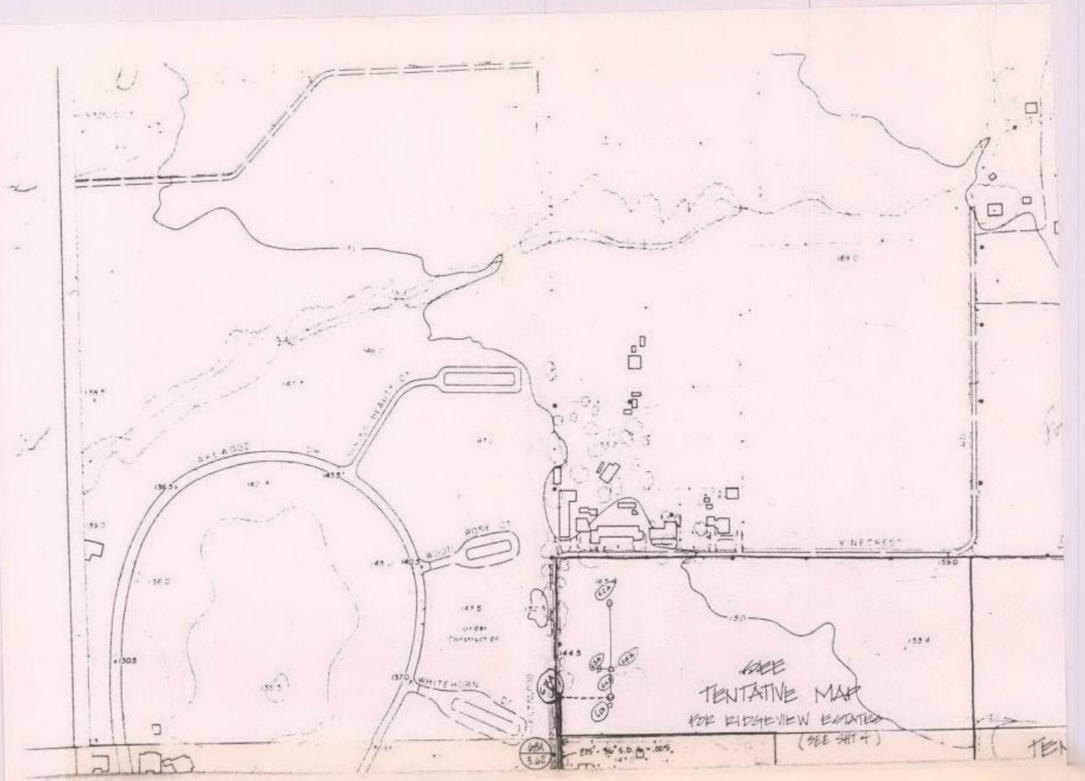
N 89° 56' 23" E

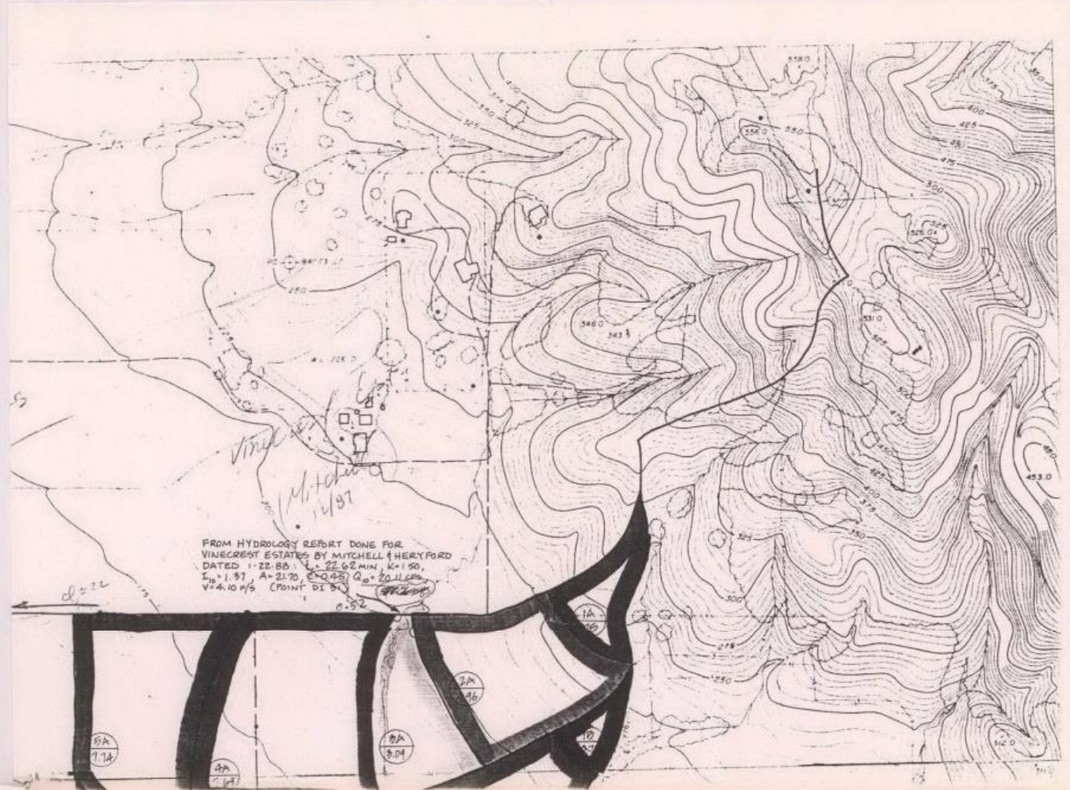
833.50'

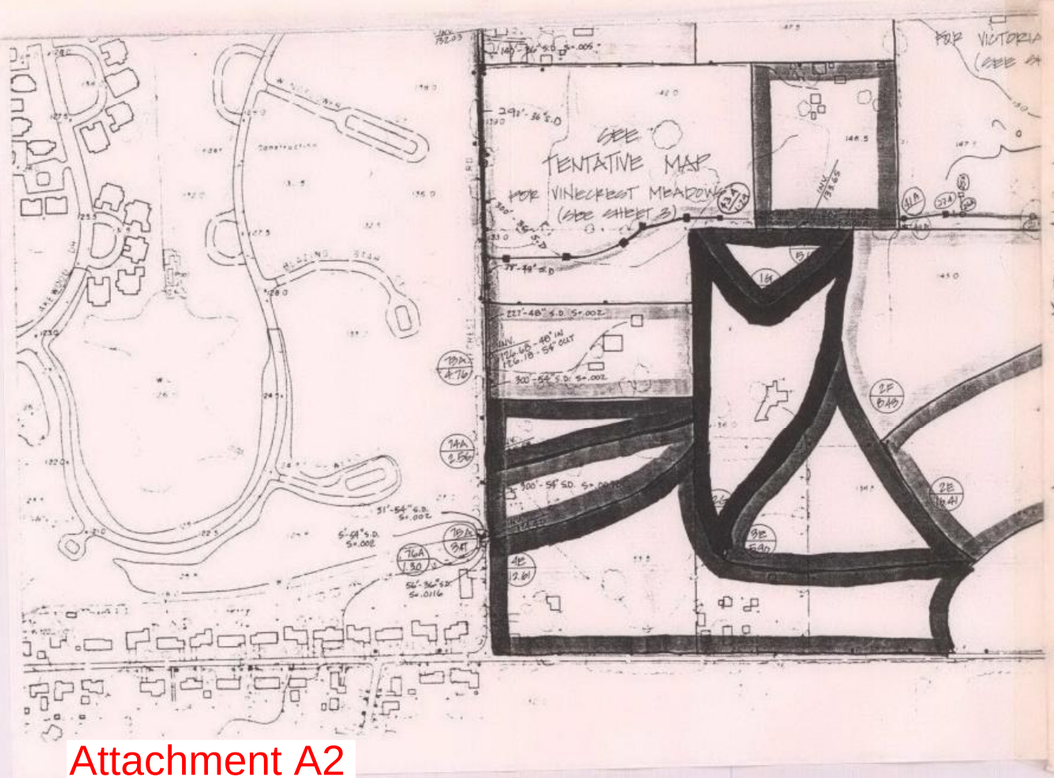
N 0° 47' 10" W 1316.70'

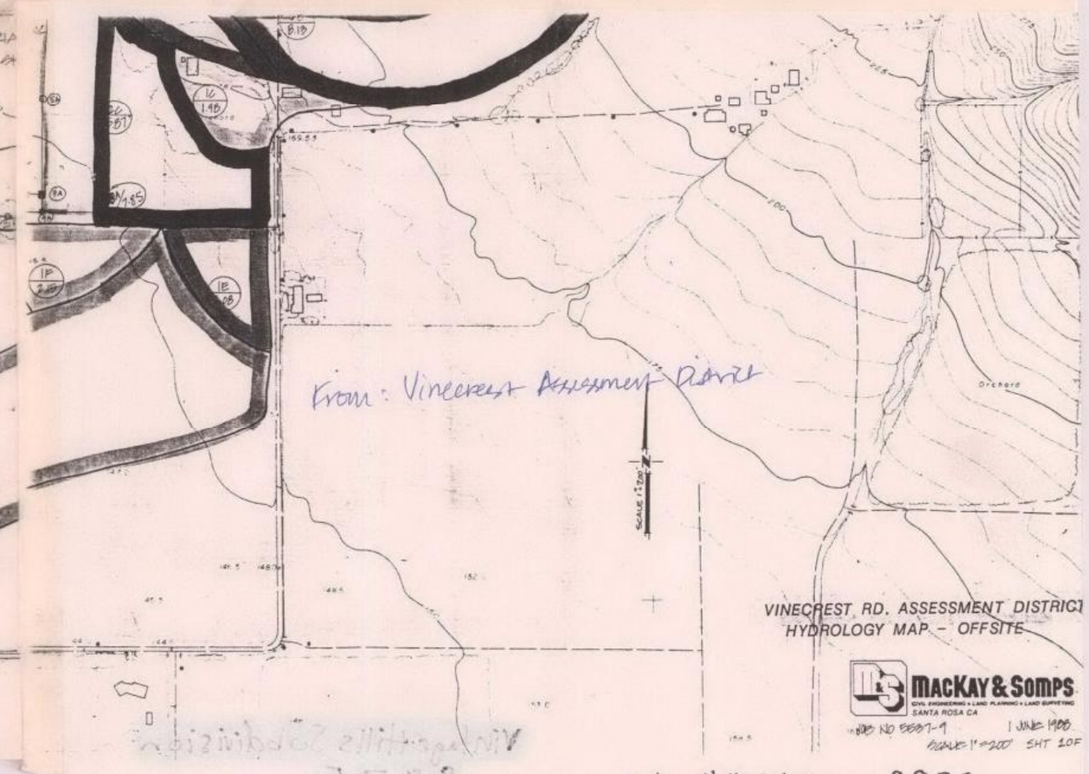
VINECREST RD. ASSESSMENT DISTRICT
HYDROLOGY MAP (formerly VICTORIA PARK)
MacKAY & SOMPS
CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
SANTA ROSA CA
JOB NO 5587-9 6/1/88
SCALE 1"=40'
SHT 2 OF 5

Attachment A1

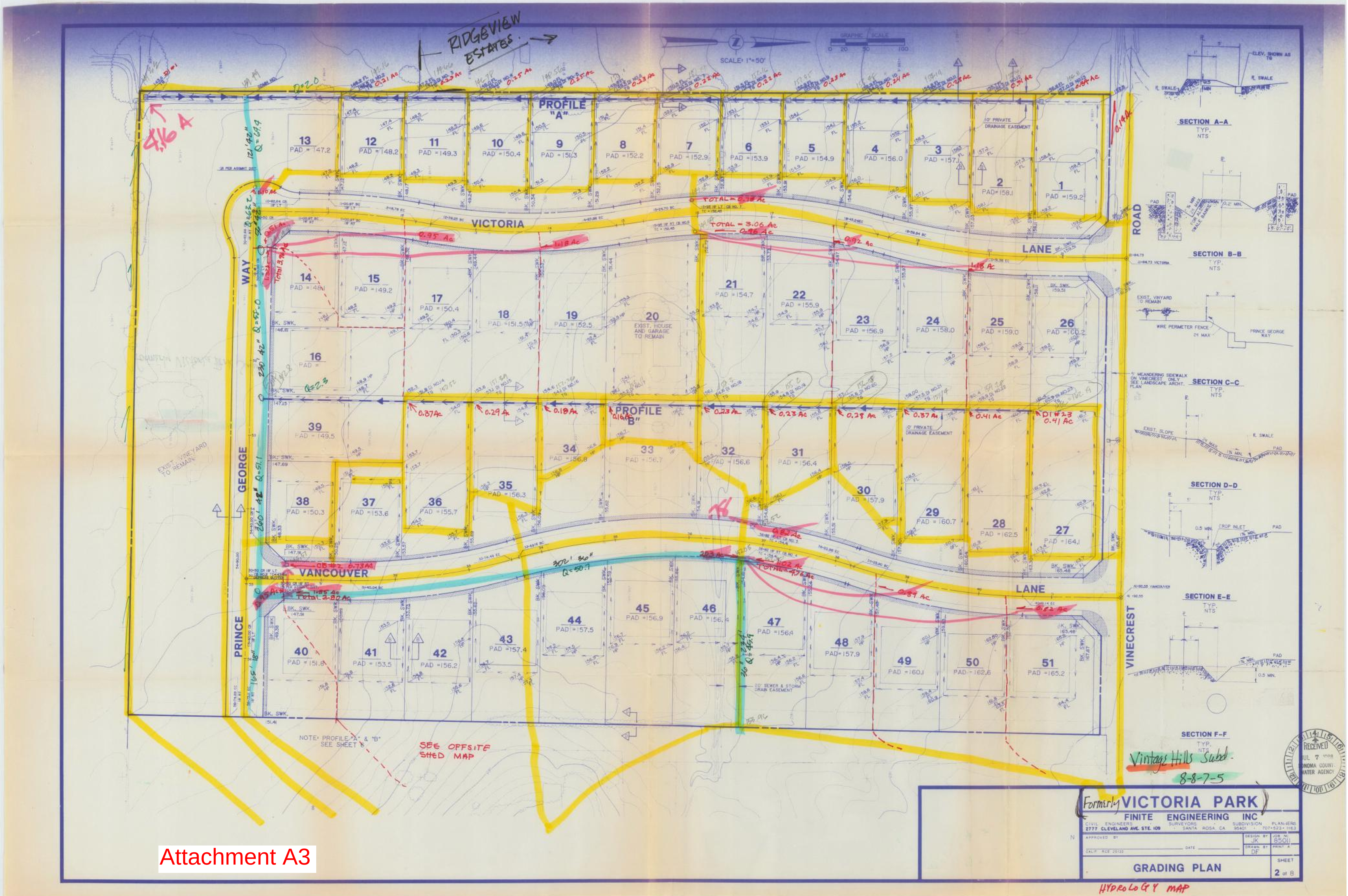








Attachment A2



Attachment A3

Return Period 10 years

OPEN & CLOSED CONDUIT CALCULATIONS

Version 2.32 / 03

VINECREST A.D.

Job No. 5537-9
Designed By: JLW
Date: 06 07 1988

Mean Annual Rainfall 40
Roof to Gutter time = 10 minutes
Manning's "n"= .014
Line Al Hydrology Hydraulics

Pt. #	Area Des.	dA Acres	C	dCA	Sum A Acres	Sum CA	Time of Conc.	Rain- fall Iten.	Q CIA cfs	#	Dia. in.	Sf Sp	Len. Dn ft.	Vel. fps	Time min.	Hf= Sfxl ft.	Junt loss ft.	Bend loss ft.	E&C loss ft.	HGL	MTC= HGL+ 0.70	To Point	Plan TC-TG* F.L.	BW or OC
1	A	55.84	.48	26.96	55.84	26.96	26.0	1.28	45.9	1=36		0.0055	234	6.5	0.6	1.28	0.00	0.74	0.49	153.96	154.66		159.00	EC
												0.0140	1.72	10.9	0.4							4	151.01	
2	A	2.41	.45	1.08	2.41	1.08	10.0	2.11	3.0	1=18		0.0010	40	1.7	0.4	0.04	0.00	0.02	0.00	152.52	153.22		155.00	BW
												0.0100	0.58	4.9	0.1							3	149.78	
3	A	4.45	.45	2.00	6.86	3.09	10.4	2.07	8.5	1=18		0.0076	15	4.8	0.1	0.11	0.32	0.00	0.00	152.48	153.18		155.00	BW
												0.0100	1.10	6.2	0.0							4	149.38	
4	A	0.00	.45	0.00	62.70	30.05	26.4	1.27	50.7	1=36		0.0067	302	7.2	0.7	2.03	1.92	0.00	1.07	152.05	152.75		157.50	PM
												0.0070	2.40	8.4	0.6							5	147.73	
5	A	0.00	.45	0.00	62.70	30.05	27.0	1.25	50.7	1=36		0.0067	302	7.2	0.7	2.03	0.00	0.00	0.00	148.01	148.71		152.50	BW
												0.0120	1.93	10.5	0.5							7	145.62	
6	A	0.87	.45	0.39	0.87	0.39	10.0	2.11	1.1	1=18		0.0001	48	0.6	1.3	0.01	0.00	0.00	0.00	145.58	146.28		150.50	BW
												0.0100	0.34	3.7	0.2							7	143.98	
7	A	1.30	.45	0.59	64.87	31.02	27.7	1.23	51.1	1=42		0.0030	58	5.3	0.2	0.17	0.00	0.00	0.00	145.57	146.27		150.50	BW
												0.0100	1.85	9.9	0.1							9	141.50	
8	A	7.85	.45	3.53	7.85	3.53	15.8	1.66	7.8	1=18		0.0064	165	4.4	0.6	1.06	0.00	0.12	0.00	146.46	147.16		151.50	BW
												0.0100	1.02	6.1	0.4							9	144.77	
9	A	0.00	.45	0.00	72.72	34.56	27.8	1.23	56.7	1=42		0.0037	260	5.9	0.7	0.96	1.06	0.00	0.60	145.40	146.10		148.30	PM
												0.0070	2.22	8.9	0.5							21	142.12	
10	A	0.25	.45	0.11	0.25	0.11	10.0	2.11	0.3	1= 8		0.0008	90	0.9	1.7	0.07	0.00	0.11	0.07	162.19	162.89		166.00	EC
												0.0330	0.18	4.2	0.4							11	161.83	
11	A	0.24	.45	0.11	0.49	0.22	10.4	2.07	0.6	1= 8		0.0029	90	1.7	0.9	0.26	0.02	0.00	0.18	159.28	159.98		163.00	EC
												0.0220	0.27	4.3	0.3							12	158.83	
12	A	0.23	.45	0.10	0.72	0.32	10.7	2.03	0.9	1= 8		0.0061	90	2.5	0.6	0.55	0.00	0.00	0.18	157.41	158.11		161.00	EC
												0.0140	0.40	4.1	0.4							13	156.83	
13	A	0.20	.45	0.09	0.92	0.41	11.1	2.00	1.1	1=18		0.0001	90	0.6	2.4	0.01	0.00	0.00	0.15	156.08	156.78		159.00	EC
												0.0100	0.34	3.7	0.4							14	155.59	
14	A	0.18	.45	0.08	1.10	0.50	11.5	1.96	1.3	1=18		0.0002	91	0.7	2.1	0.02	0.00	0.00	0.14	155.20	155.90		157.00	EC
												0.0100	0.37	3.8	0.4							15	154.69	
15	A	0.17	.45	0.08	1.27	0.57	11.9	1.93	1.5	1=18		0.0002	125	0.8	2.5	0.03	0.00	0.00	0.15	154.32	155.02		157.00	EC
												0.0100	0.39	4.0	0.5							16	153.78	
16	A	0.24	.45	0.11	1.51	0.68	12.4	1.88	1.7	1=18		0.0003	90	1.0	1.6	0.03	0.00	0.00	0.16	153.11	153.81		157.00	EC
												0.0100	0.42	4.1	0.4							17	152.53	

point of connection
Ex 36" 234 ' long

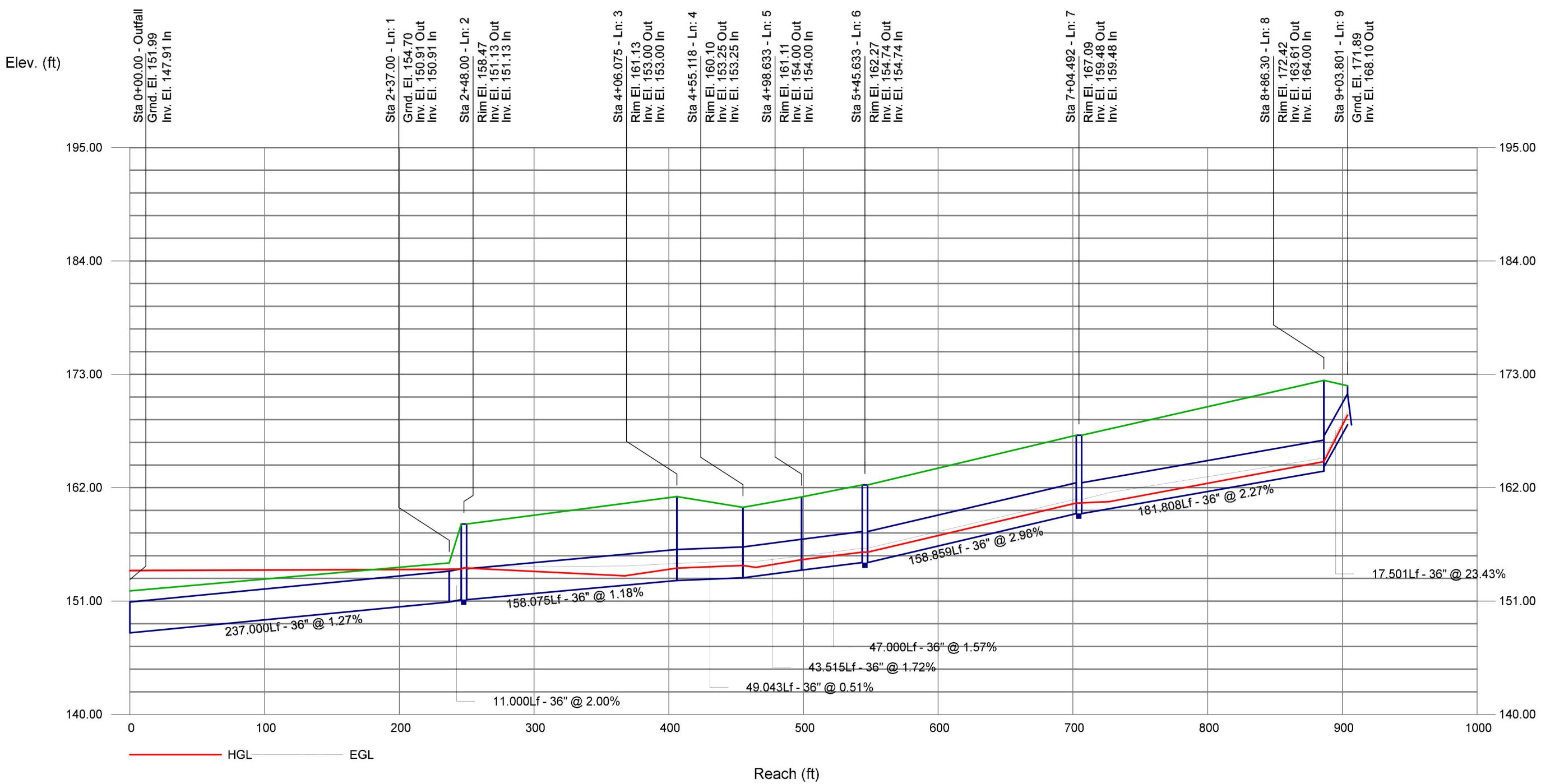
point of connection
Ex CB-1 302' Long

point of connection
Ex 18" 165' Long

Attachment A4

Storm Sewer Profile

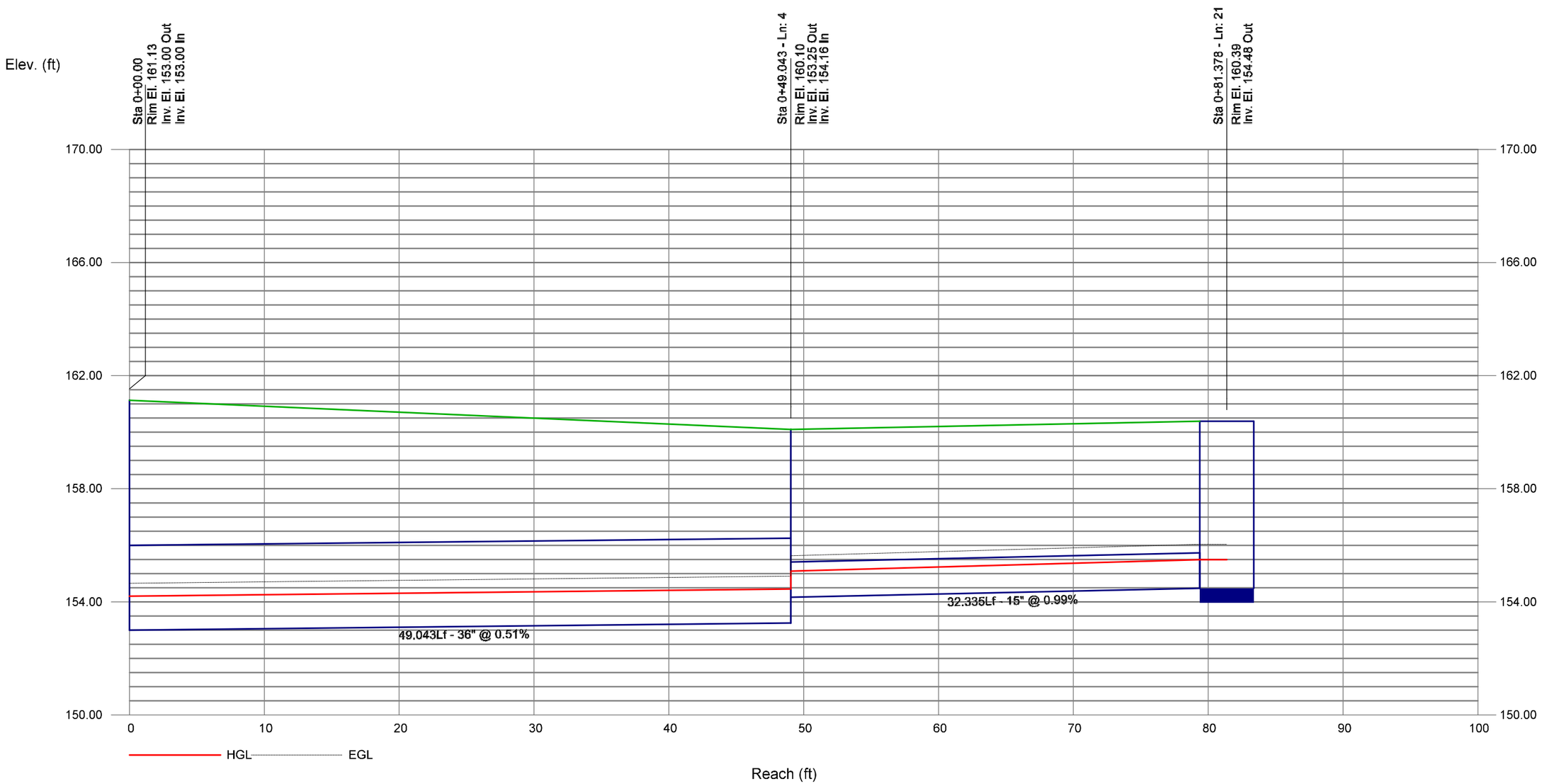
Proj. file: Jensen Lane 10 Yrs.stm



Attachment 2A

Storm Sewer Profile

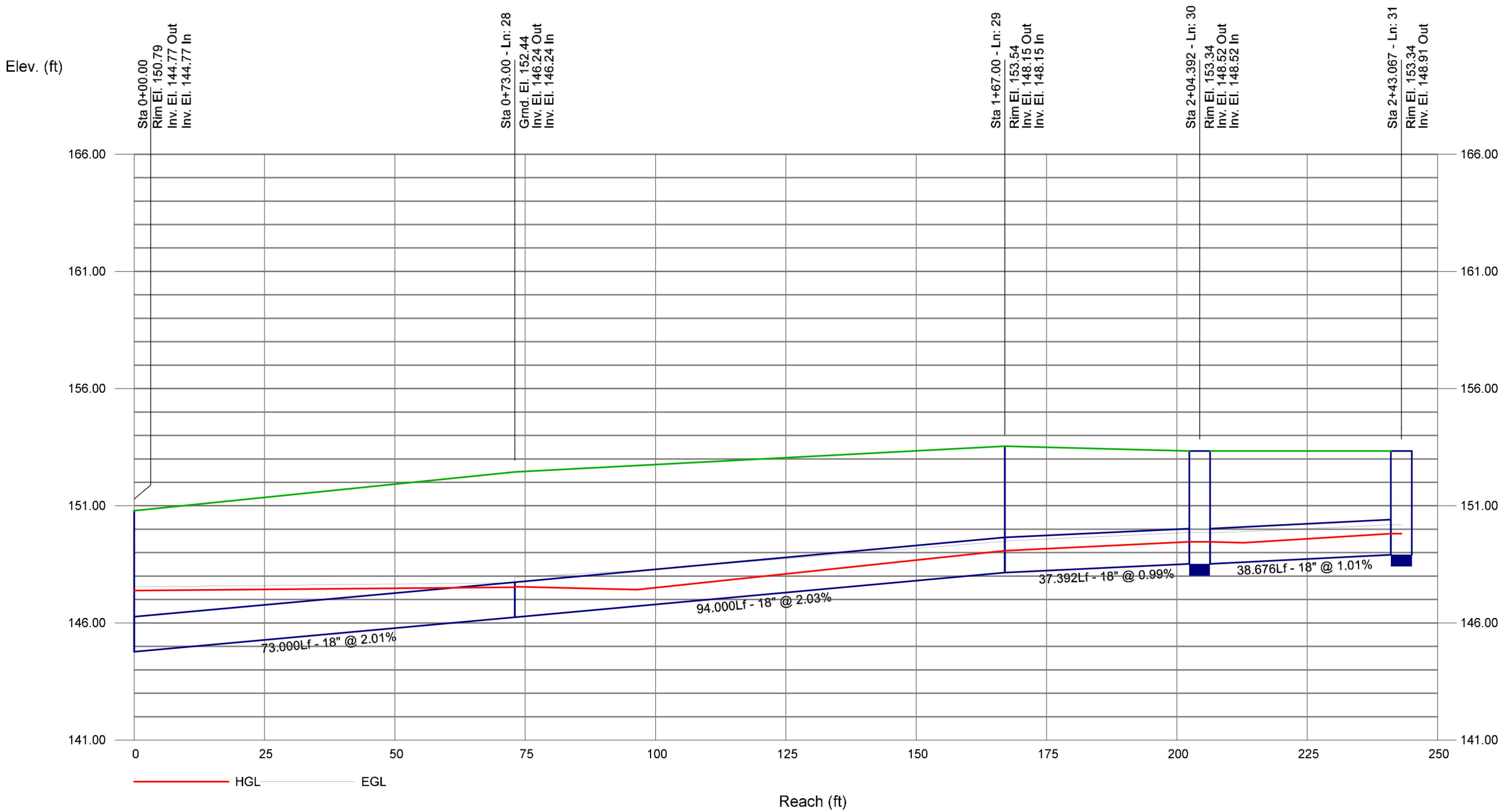
Proj. file: Jensen Lane 10 Yrs.stm



Attachment 2B

Storm Sewer Profile

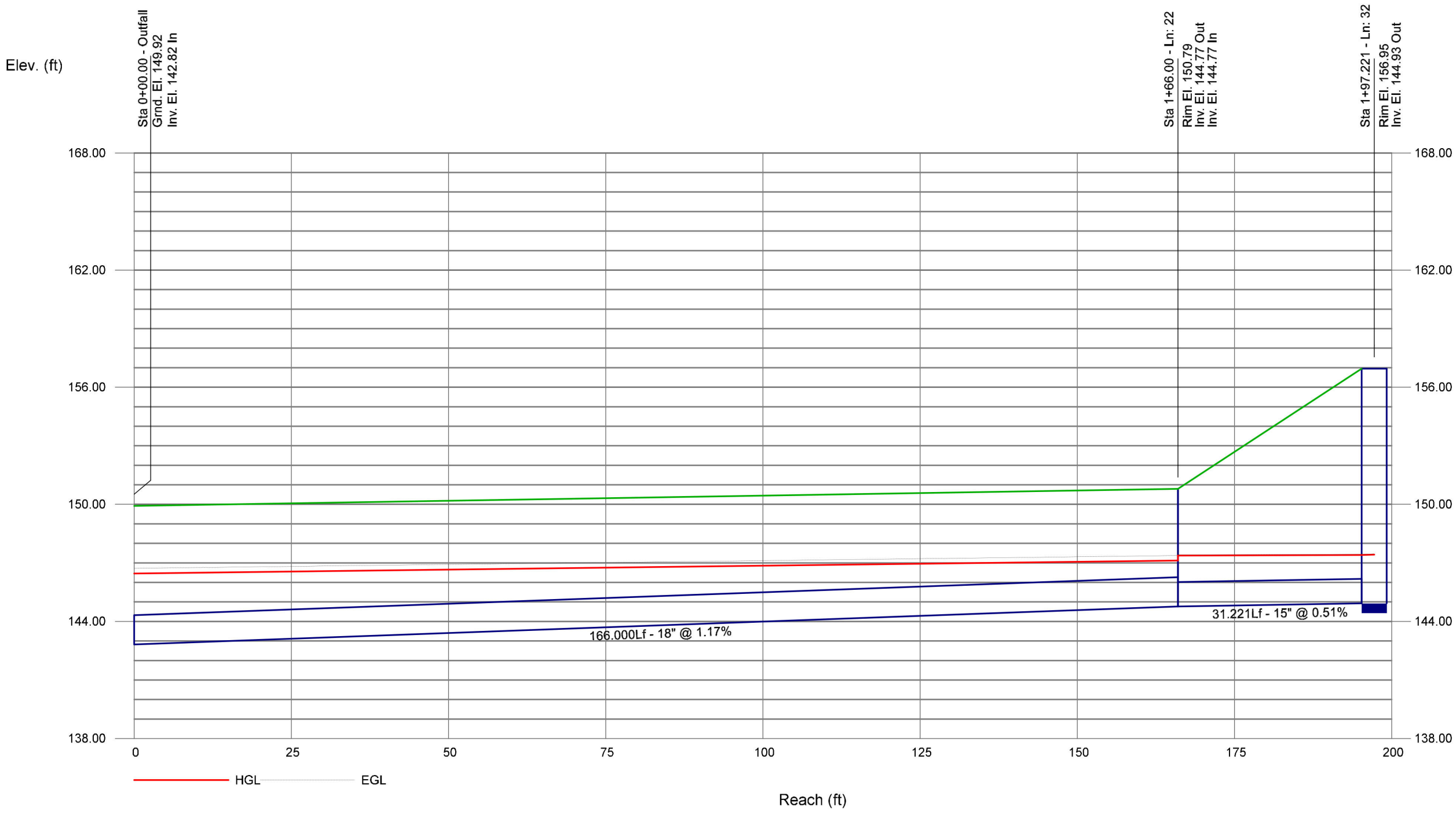
Proj. file: Jensen Lane 10 Yrs.stm



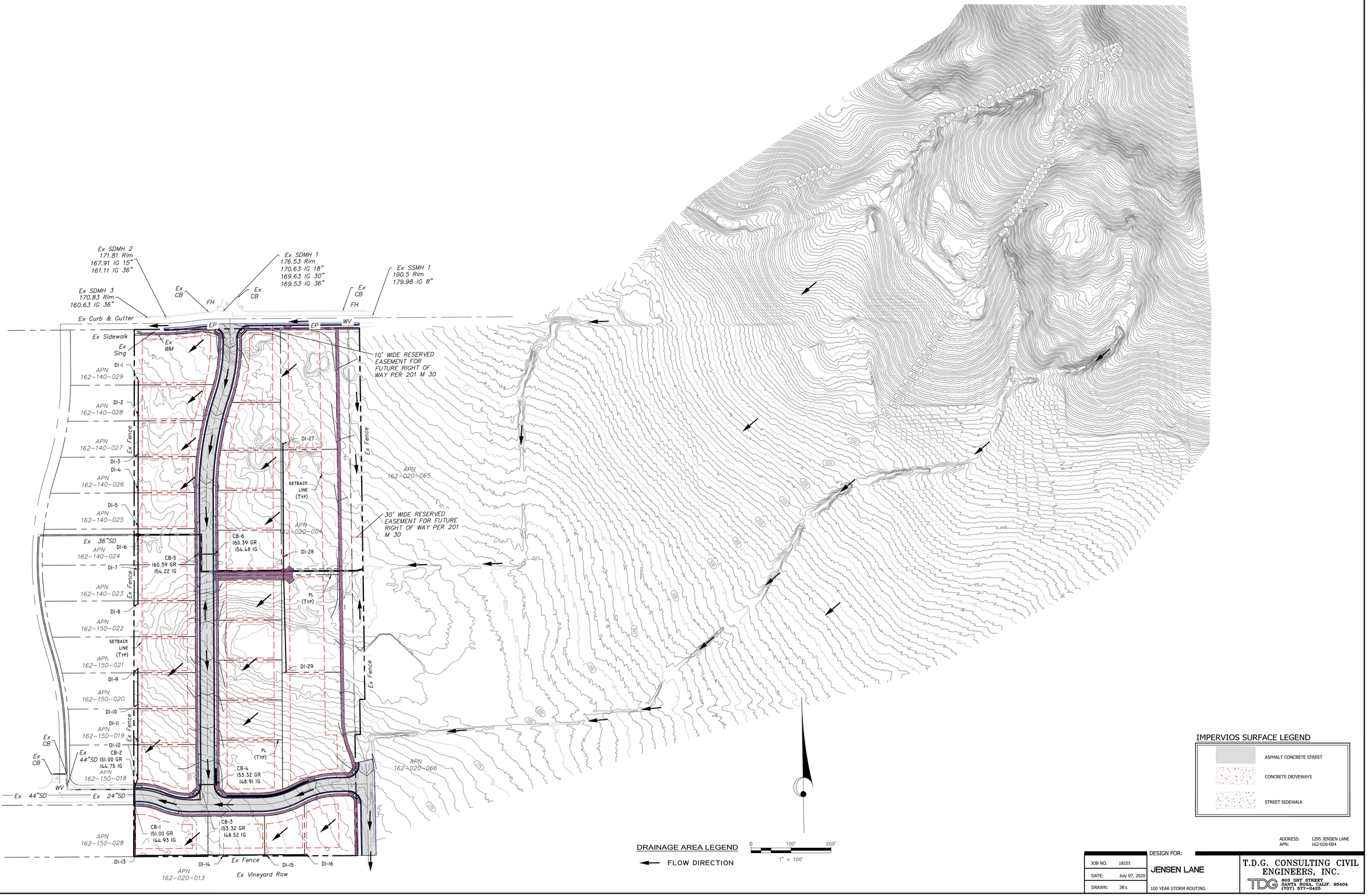
Attachment 2C

Storm Sewer Profile

Proj. file: Jensen Lane 10 Yrs.stm



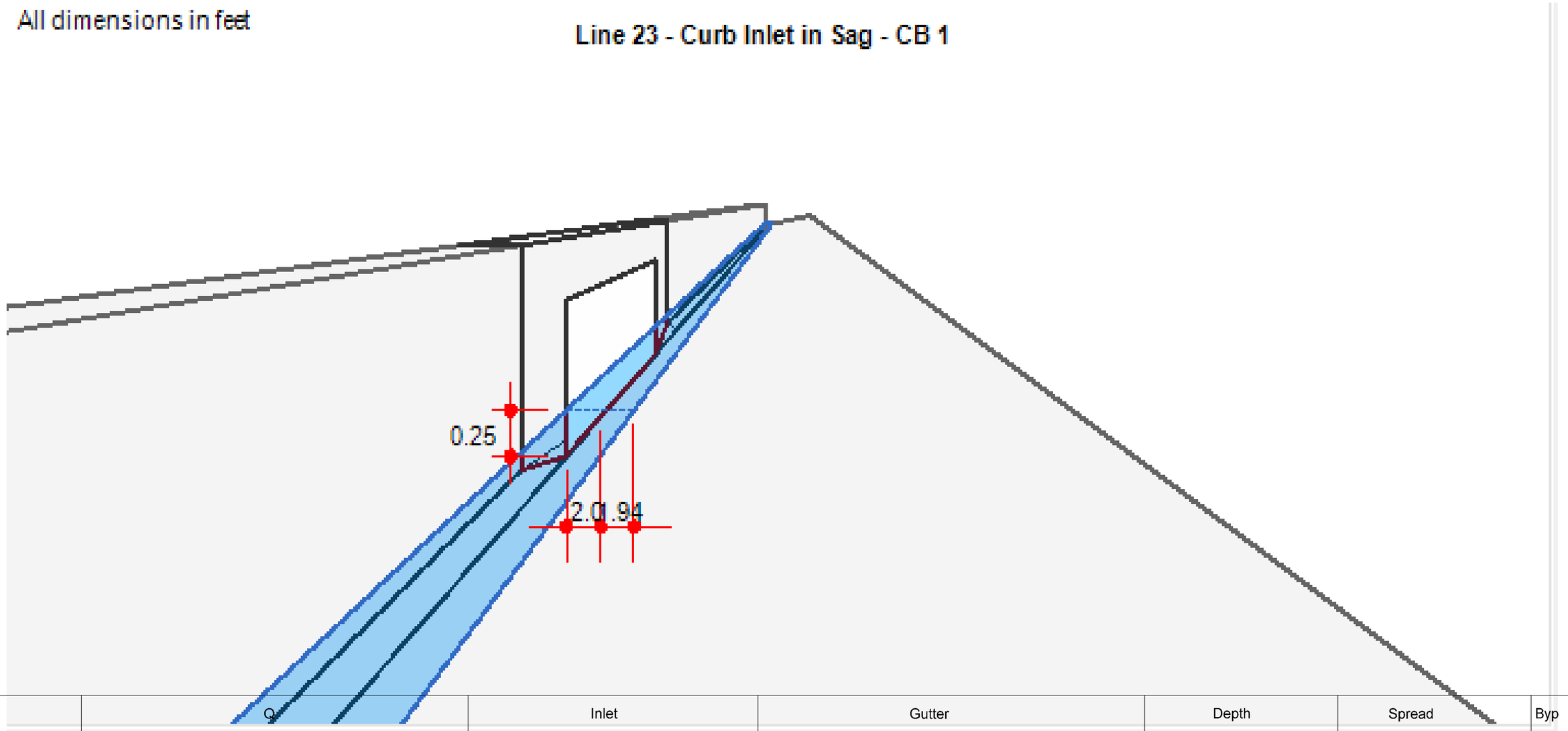
Attachment 2D



Attachment 3

Inlet Section (Line 23 - Curb Inlet) - CB 1

All dimensions in feet



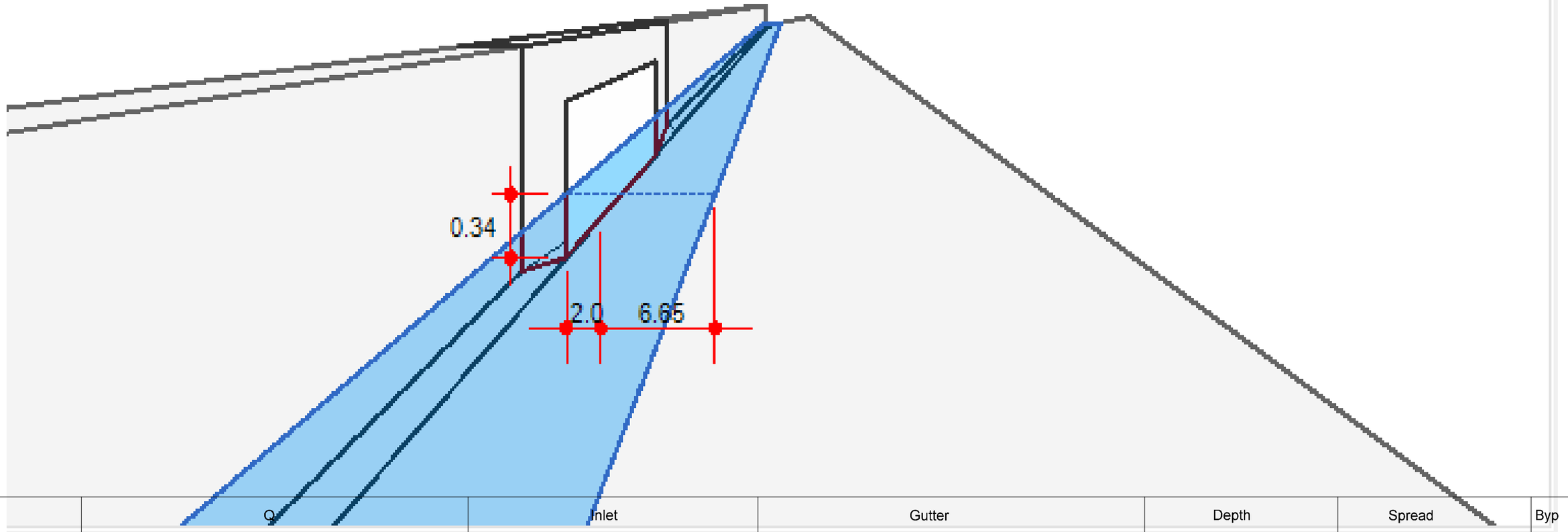
Line #	Q				Inlet			Gutter				Depth		Spread		Byp
	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
23	0.39	0.00	0.39	0.00	4.00	2.0	6.0	2.00	Sag	0.020	0.020	0.08	3.94	n/a	n/a	Sag

Project File: | No. Lines: 36 | Run Date: 7/7/2020

Inlet Section (Line 32 - Curb Inlet) - CB-2

All dimensions in feet

Line 32 - Curb Inlet in Sag - CB-2

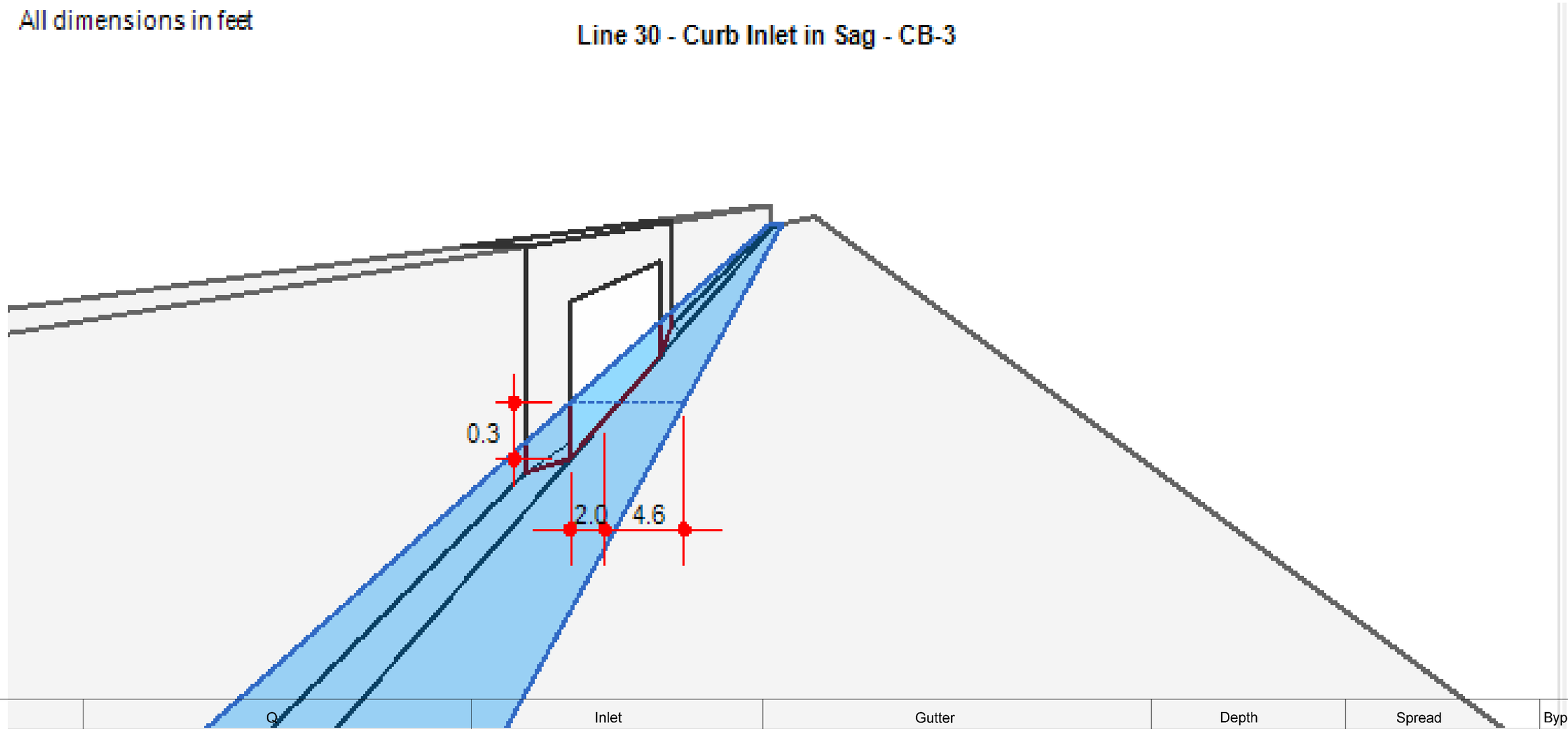


Line #	Q				Inlet			Gutter				Depth		Spread		Byp
	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
32	1.26	0.00	1.26	0.00	4.00	2.0	6.0	2.00	Sag	0.020	0.020	0.17	8.65	n/a	n/a	Sag

Project File: | No. Lines: 36 | Run Date: 7/7/2020

Inlet Section (Line 30 - Curb Inlet) - CB-3

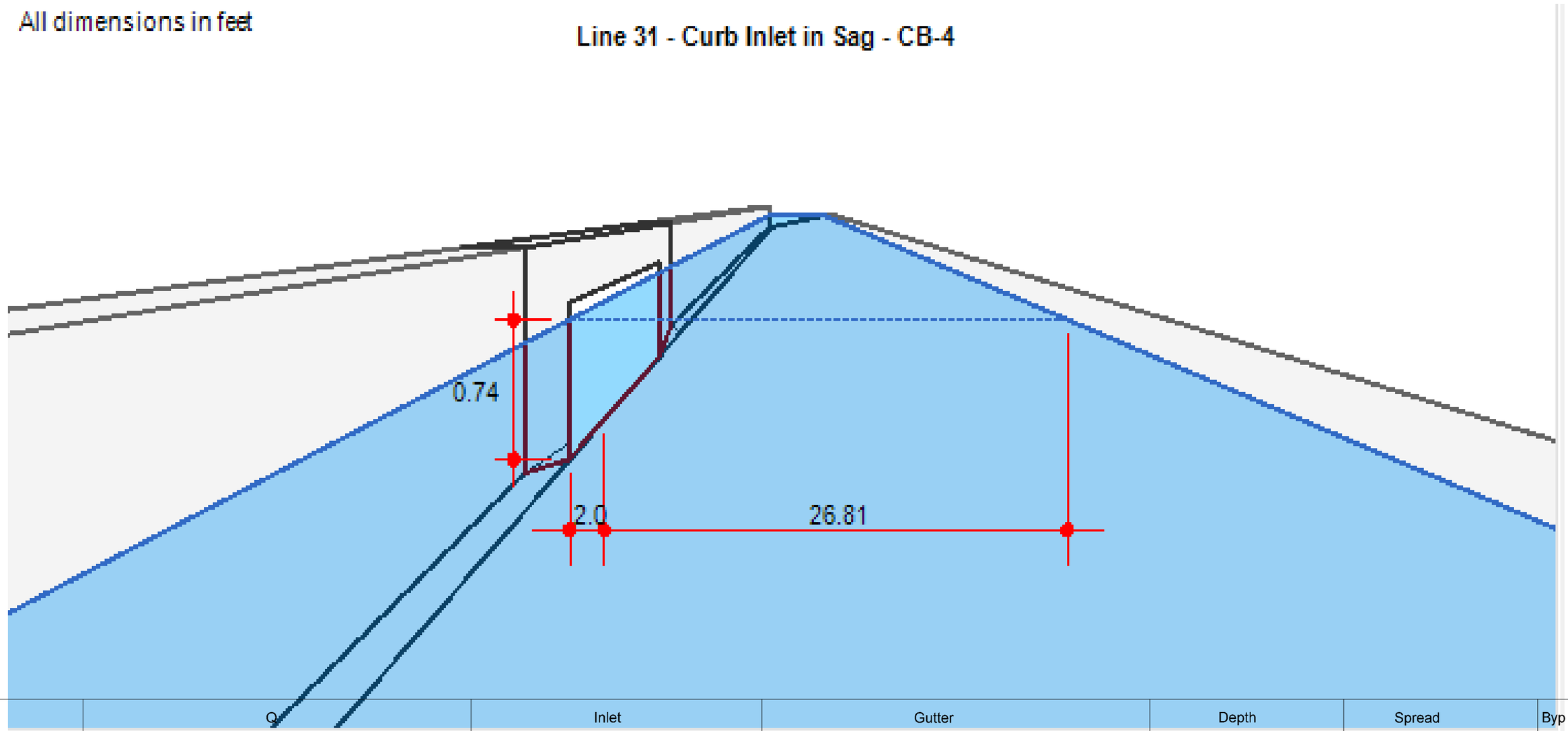
All dimensions in feet



Line #	Q				Inlet			Gutter				Depth		Spread		Byp
	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
30	0.84	0.00	0.84	0.00	4.00	2.0	6.0	2.00	Sag	0.020	0.020	0.13	6.60	n/a	n/a	Sag

Project File: | No. Lines: 36 | Run Date: 7/7/2020

Inlet Section (Line 31 - Curb Inlet) - CB-4

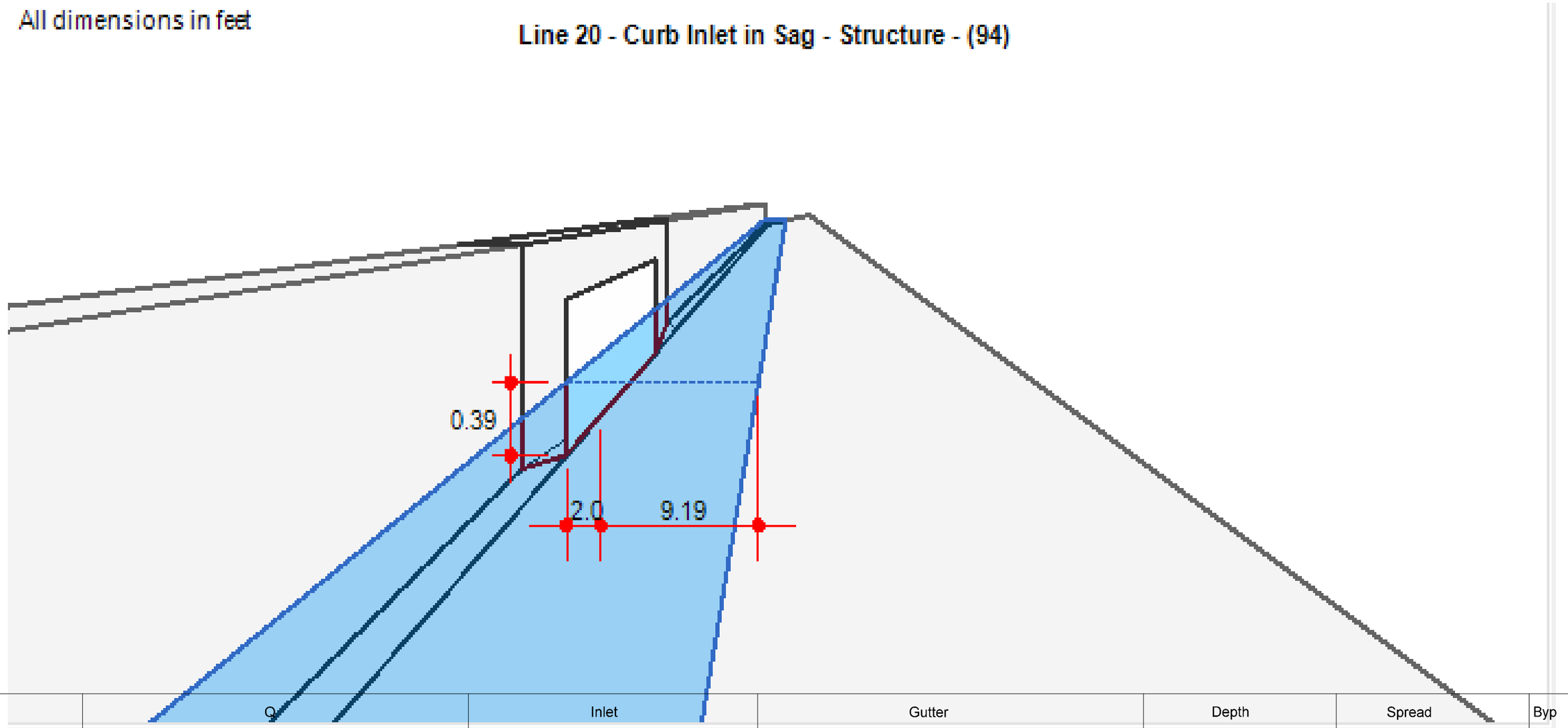


Line #	Q				Inlet			Gutter				Depth		Spread		Byp
	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
31	7.65	0.00	7.65	0.00	4.00	2.0	6.0	2.00	Sag	0.020	0.020	0.58	28.81	n/a	n/a	Sag

Project File: | No. Lines: 36 | Run Date: 7/7/2020

Inlet Section (Line 20 - Curb Inlet) - Structure - (94)

All dimensions in feet

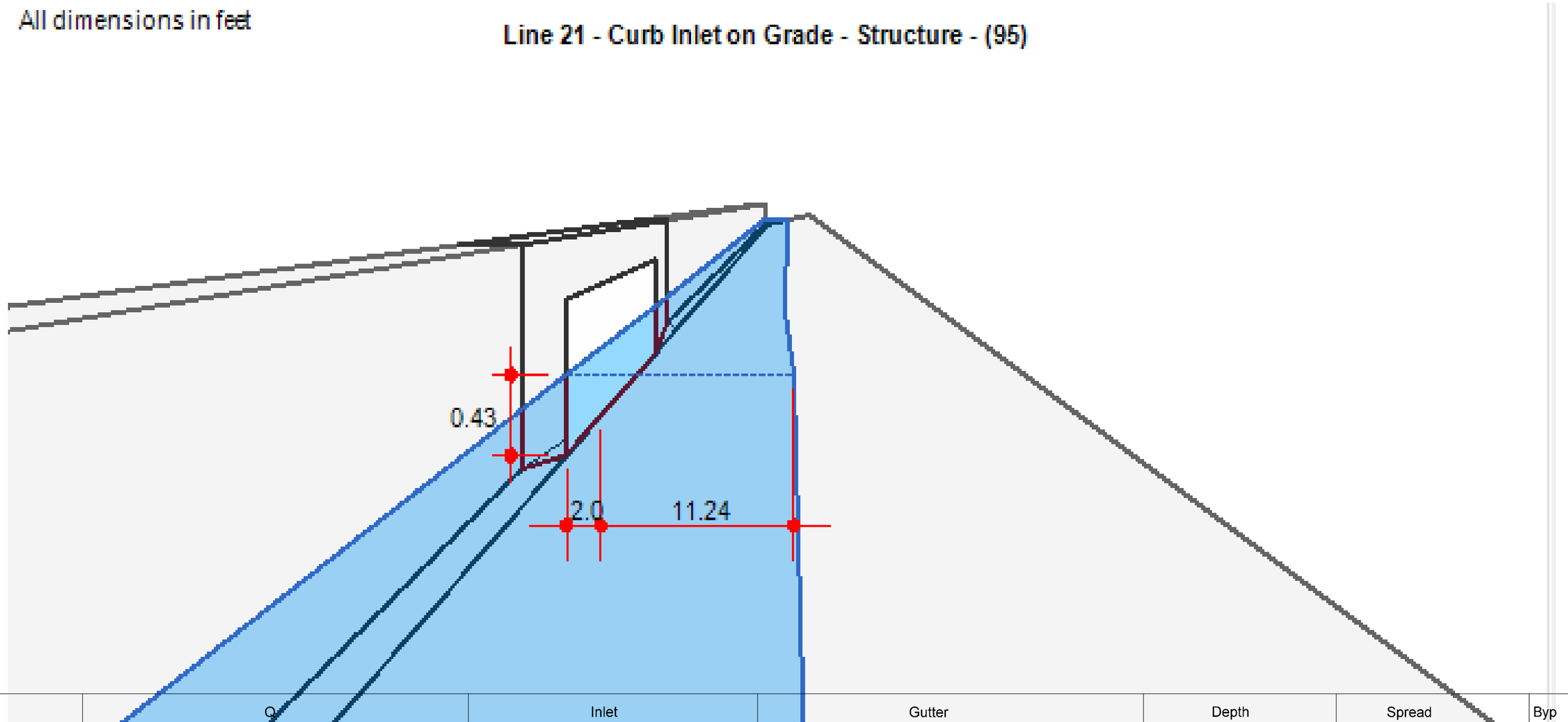


Line #	Q				Inlet			Gutter				Depth		Spread		Byp
	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
20	1.85	0.00	1.85	0.00	4.00	2.0	6.0	2.00	Sag	0.020	0.020	0.22	11.19	n/a	n/a	Sag

Project File: | No. Lines: 36 | Run Date: 7/7/2020

Inlet Section (Line 21 - Curb Inlet) - Structure - (95)

All dimensions in feet



	Q				Inlet			Gutter				Depth		Spread		Byp
Line #	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Length (ft)	Depr (in)	Throat (in)	Width (ft)	Slope (ft/ft)	Sw (ft/ft)	Sx (ft/ft)	Gutter (ft)	Inlet (ft)	Gutter (ft)	Inlet (ft)	Line (ft)
21	8.81	0.00	1.60	7.21	4.00	2.0	6.0	2.00	0.020	0.020	0.020	0.26	13.24	0.25	12.29	Offsite

Project File: | No. Lines: 36 | Run Date: 7/7/2020

DESIGN CRITERIA

1. GATE IS IN SUMP AREA (LOW POINT)

2. Q= 1/2 PERIMETER IN FEET (ASSUME 35→40 PERCENT OF THE PEREMETER IS BLOCKED WITH DEBRIS AND 10→15 PERCENT IS TAKEN UP BY THE GRATE BEARING BARS)

3. A=CI = AREA IN ACRES

WHERE
Q= WEIR DISCHARGE IN C.F.S
C= 0.9 FOR PAVED AREAS
I= 2.1 INCHES PER HOUR FOR FOR T = 10 MINUTES

S.R.C.P MODEL	INSIDE GRATE DIMENSION a" x b"	P=a+b IN FEET	H=0.1'		H=0.2'		H=0.3'		H=0.4'	
			Q cfs	Acres	Q cfs	Acres	Q cfs	Acres	Q cfs	Acres
EK	12X12	2.00	0.19	0.10	0.54	0.28	0.99	0.52	1.52	0.80
BK	16X16	2.67	0.25	0.13	0.72	0.38	1.32	0.70	2.03	1.07
IK	16X24	3.33	0.32	0.17	0.89	0.47	1.64	0.87	2.53	1.34
2K	24X24	4.00	0.38	0.20	1.00	0.57	1.97	1.04	3.04	1.61
3K	24X30	4.50	0.43	0.23	1.21	0.64	2.22	1.17	3.42	1.81
5K	30X30	5.00	0.47	0.25	1.34	0.71	2.46	1.30	3.79	2.01
IL	24X36	5.00	0.47	0.25	1.34	0.71	2.46	1.30	3.79	2.01
IM	36X36	6.00	0.57	0.30	1.61	0.85	2.96	1.56	4.55	2.41
3L	24X48	6.00	0.57	0.30	1.61	0.85	2.96	1.56	4.55	2.41
3M	36X48	7.00	0.66	0.35	1.88	0.99	3.45	1.83	5.31	2.81
IR	48X48	8.00	0.76	0.40	2.15	1.14	3.94	2.09	6.07	3.21

LOT 1 : 3K
LOT 2 : BK
LOT 3 : BK
LOT 4 : BK
LOT 5 : BK
LOT 6 : BK
LOT 7 : BK
LOT 8 : BK
LOT 9 : BK
LOT 10 : BK
LOT 11 : BK
LOT 12 : IK
LOT 13 : IK
LOT 14 : BK
LOT 15 : EK
LOT 16 : IK
LOT 27 : 2K
LOT 28 : 2K
LOT 29 : IK

COUNTY ASSESSOR'S PARCEL MAP

TAX RATE AREA
179-049 9-000
9-004

162-02

NOTE: This map was prepared for Assessment purposes only and does not indicate either parcel legality or a valid building site. No liability is assumed for the accuracy of the data delineated. The acreages are based on the information supplied to the Assessor (i.e. recorded survey maps recorded deeds, prior assessment maps, etc.)

NOTE: Assessor's parcels do not necessarily constitute legal lots. To verify legal parcel status, check with the appropriate city or county community development or planning division.

SCALE: 1"=600'

REVISED
02-09-09=Cor-NJF
11-10-09=AgPre-NJF
01-21-10=68-NJF
02-02-10=Cor-NJF
04-11-11=R/S-NJF
02-29-16=11-KB
03-01-17=CorInfo-KB

RIDGEVIEW ESTATES
VINTAGE HILLS
LANE (VINECREST ROAD)
JENSEN LANE
HEMBREE LANE
SHADETREE DRIVE
HIGHWAY 101
CHALK HILL ROAD
PLEASANT AVENUE
CENTER SEC 7
CENTER SEC 18
T.8N.,R.8W.
T.8N.,R.9W.

Lot 1
Lot 2
Pcl 1
Pcl 2
PM87-366
PM4082
PM4130
PM5549
PMMNS99-0016
PMMNS02-0013
PM3239
PM2904
PM3138

4 17.18 Ac.
5 20.6 Ac. Remainder
Ag Pre 1-519 09-086559
6 10.1 Ac.
7 37.0 Ac.
Ag Pre 2-222-78 3051-052
8 3
9 2
10 1
11 17.41 Ac.
12
13 30.79 Ac.
14 27.90 Ac.
23 4.83 Ac.
24
27 3.27Ac
28 3.2Ac.
44 3.26Ac
43 3.2Ac.
68 44.72 Ac
51 5.08Ac
42 4.19Ac
40 3.27Ac
48 16.87Ac
49 4.5Ac
50 3.5Ac
39 3.0Ac
64 10.27Ac
Lot 3
63 10.0Ac
62 10.02Ac.
Lot 1 (1222.59)
36 1.27Ac
31 2.5Ac.
32 1.47Ac
33 1.03Ac
34 2.5Ac
35 1.0Ac
37

179-049
9-000
9-004
R/S 706/17
R/S 651/3-4
R/S 466/39
R/S 120/30
R/S 370/22
R/S 740/25
R/S 134/33

Parcel Map No. 3239
REC. 10-27-72 IN BK. 181, MAPS, PGS. 35 - 00
Parcel Map No. 2904
REC. 02-05-73 IN BK. 186, MAPS, PGS. 35 - 00
Parcel Map No. 1858
REC. 05-08-70 IN BK. 144, MAPS, PGS. 27 - 00
Parcel Map No. 4130
REC. 11-01-73 IN BK. 199, MAPS, PGS. 20 - 00
Parcel Map No. 4082
REC. 12-11-73 IN BK. 201, MAPS, PGS. 30 - 00
Parcel Map No. 86-650
REC. 10-28-87 IN BK. 407, MAPS, PGS. 5 - 7
Parcel Map MNS 99-0016
REC. 10-29-02 IN BK. 641, MAPS, PGS. 35 - 37
Parcel Map MNS 02-0013
REC. 10-07-05 IN BK. 682, MAPS, PGS. 21 - 24
Parcel Map No. 87-366
REC. 09-23-88 IN BK. 425, MAPS, PGS. 14 - 16
Parcel Map No. 5549
REC. 02-16-78 IN BK. 265, MAPS, PGS. 28 - 00
Parcel Map No. 875-A
REC. 06-25-69 IN BK. 133, MAPS, PGS. 11 - 00
Parcel Map No. 3138
REC. 06-12-72 IN BK. 173, MAPS, PGS. 39 - 00

Assessor's Map Bk. 162, Pg. 02
Sonoma County, Calif. (ACAD)

KEY 4/14/09 NJF
0 50 100 200

Appendix D

Roadway Construction Noise Model Results

Roadway Construction Noise Model (RCNM),Version 1.1

Report date########
Case Descri1295 Jensen

			---- Receptor #1 ----
	Baselines (dBA)		
DescriptionLand Use	Daytime	Evening	Night
50 foot receptor	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	50	0
Front End Loader	No	40		79.1	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	81.7	77.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.7	79.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Appendix E

2040 General Plan Policies Referenced in Initial Study

2040 General Plan Policies Referenced

Element	Policy Number	Policy
Design to Protect Night Skies	LU-1.13	The Town shall protect dark/night skies by requiring outdoor lighting to be shielded and/or directed downward to limit overspill and glare, without compromising the safety and security of the community, through implementation of lighting standards in a "Dark Skies" ordinance with the Model Lighting Ordinance approved by the International Dark-Sky Association and the illuminating Engineering Society of North America.
Design for Livable Environments	LU-1.6	The Town shall maintain design standards and create form-based codes or form-based design standards for specific areas that promote walkable and livable environments.
Compatible Design	LU-1.7	The Town shall encourage new residential development within existing neighborhoods to include building designs that provide diversity while maintaining compatibility with the scale, massing, and heights of the existing homes. Criteria for determining compatible development are defined in design standards for the Town or in form-based codes for specific areas.
Transitions in Scale	LU-1.8	The Town shall require that the scale and massing of new development in higher-density areas provide appropriate transitions in building height and bulk and are sensitive to the physical and visual character of adjoining lower-density neighborhoods.
Recycled Water	PFS-2.5	The Town shall continue to support the beneficial reuse of recycled water and the joint use of facilities including reservoir, distribution mains, and pumping facilities for the use of recycled water when such joint use benefits the environment.
2020 Water Conservation Targets	PFS-2.6	The Town shall achieve a 20 percent reduction in per-capita water use by 2020 consistent with the State's 20x2020 Water Conservation Plan.
Conservation Efforts	PFS-2.8	The Town shall continue to require the use of water-conserving plumbing fixtures, such as low-flow toilets and showerheads, and water-efficient dishwashers and washing machines in all new development.
Water Efficient Landscaping	PFS-2.9	The Town shall require new development to incorporate and implement a whole systems approach to design, construction, installation and maintenance of the landscaping so as to result in water conserving, climate-appropriate landscapes, improved water quality and the minimization of natural resource inputs.
Stormwater Management Plan	PFS-4.1	The Town shall maintain and implement a Stormwater Management Plan, which is designed to protect water quality through implementation of best management practices for stormwater runoff from development.
Low Impact Development	PFS-4.3	The Town shall provide requirements for Low Impact Development (LID) techniques for reducing pollutants in stormwater from new development and reconstruction projects and implement LID in conjunction with the policies specified by the State Water Resources Control Board (SWRCB) and National Pollutant Discharge Elimination System (NPDES) Permit regarding stormwater runoff, treatment and collection.
Education on Stormwater Runoff Effects	PFS-4.4	The Town shall encourage educational opportunities for citizens regarding stormwater runoff, its impacts to water quality, and strategies to mitigate impacts.
Construction Activities and Grading Effects on Water Quality	PFS-4.5	The Town shall develop and implement policies that support erosion control and reduce water quality impacts resulting from grading and construction activities.
Waste Management	PFS-5.1	The Town shall continue to improve its solid waste management system through emphasis on waste prevention, reuse, recycling, composting, and disposal.

Recycling Collection	PFS-5.6	The Town shall require all projects, except for single family residential, to provide sufficient and accessible space for the storage and collection of recyclable materials and organic waste separate from, and in addition to, space for refuse storage and collection.
2020 Recycling Target	PFS-5.8	The Town shall support efforts to recycle at least 75 percent of solid waste by 2020 (AB 341) and shall work with the Town's franchise waste hauler and regional waste authorities toward a goal of 90 percent waste reduction.
New Library	PFS-10.4	The Town shall encourage the replacement of the existing Windsor Regional Library in Downtown adjacent to existing public facilities, parks, schools, and/or the government center through the Library JPA facilities maser planning process, in order to concentrate community activity and cultural attractions near the Civic Center and colocate uses for cost-effective and efficient use of parking and civic infrastructure.
Sensitive Habitat Preservation	ER-1.2	The Town shall encourage the preservation of sensitive environmental habitat areas, such as oak woodlands, productive farmlands, riparian (creekside) corridors, and important wildlife movement corridors through measures such as clustering development and conservation easements.
Reducing Development in Significant Threat Areas	ER-1.3	The Town shall ensure that areas that pose significant threats to public health and safety, such as steep slopes, regulatory floodways, and the Alquist-Priolo Special Study Zone, are pre-dominantly maintained as open space.
Agricultural Buffers.	ER-2.2	Proposed new development that would be adjacent to existing agricultural properties should include buffers onsite to protect the continued viability of the neighboring agriculture and to minimize adverse effects of agricultural operations. If the existing agricultural property lies outside the Urban Growth Boundary, then the onsite buffer should be permanent and composed of predominantly native and low water-using species, or other appropriate perimeter screening should be required. The Town should allow and encourage the productive use of buffers for appropriate uses, where legally permissible, such as bike trails, rather than requiring buffers to be idle open space. The size of the buffer will be determined by parcel specific review for all new development adjacent to agricultural property, with a width not to exceed 200 feet. If however, the existing agricultural property lies inside the Urban Growth Boundary and is anticipated to be converted to another non-agricultural use designation according to the General Plan, then the buffer would be temporary. When the interim agricultural area is converted to the nonagricultural use designation, the intermediate buffer area may convert to its underlying land use designation.
Development Along Creeks	ER-3.2	The Town shall protect, preserve, and improve creeks by requiring that development activities along creeks be conducted using Low Impact Development (LID) principles, appropriate creek setbacks, and Best Management Practices that seek to minimize the discharge of sediments and urban pollutants into the waterways and that are consistent with the NPDES permit.
State and Federal Water Quality Programs	ER-3.4	The Town shall actively support its stormwater NPDES permit by developing and implementing programs for improving and maintaining water quality.
Coordination of Water Standards and Management	ER-3.5	The Town should actively support Federal and State laws pertaining to the Clean Water Act, Porter-Cologne Water Quality Control Act, and Sustainable Groundwater Management Act in attainment of water quality standards and management of surface water and groundwater.
Reduced Emissions for Town Operations	ER-5.7	The Town shall promote reduced idling, trip reduction, routing for efficiency, carpooling, walking/biking and electric vehicle use for its transportation needs for Town operations.

Prohibition of Certain Activities in Riparian Habitats.	ER-6.6	The Town shall prohibit dumping or disposal of refuse; confinement of livestock; and structural improvements except necessary water supply projects, flood control projects, fish and wildlife enhancement projects, trail projects, road and bridge projects, and utility projects in significant riparian areas.
Development Guidelines along Scenic Corridors	ER-9.2	The Town shall ensure that development proposals along scenic corridors do not detract from public viewpoints, are protected, and are harmonious and subordinate to the natural features that comprise the scenic viewshed. The Town shall require developers include components of project design that shall be considered in making this assessment include building height, massing, orientation, color, building materials, rooftop appurtenances, storage areas, signage, lighting, and low-water landscaping. The purpose of detailed development review along these corridors is to ensure that development within the viewshed preserves and enhances attractive natural and man-made vistas.
Development Guidelines along Rural Lanes	ER-9.3	The Town shall require development along scenic public roadways, such as Rural Lanes, to preserve significant public views of the surrounding foothills as well as mature vegetation that contributes to the rural atmosphere.
Development on Steep Slopes	PHS-2.2	The Town shall discourage development in areas with slopes of 20 percent or greater to reduce the potential impacts of erosion and slope instability. New development proposed on slopes of 20 percent or greater shall provide an assessment of the site slope stability, susceptibility to landslide, and erodibility prepared by a certified engineering geologist. The Town shall require mitigation measures as necessary based on the site assessment.
Development Review for Hazards	PHS-2.3	The Town shall consider the potential danger to health, safety, and welfare of Windsor residents and businesses in its review of development applications and seek to have hazardous conditions mitigated to an acceptable level. When development is proposed in or near a known hazard area, a technical analysis (e.g., geotechnical report, flood analysis, structural engineering report) shall be completed.
Building Code Compliance	PHS-2.4	The Town shall continue to comply with the prevailing version of the California Code of Regulation.
Geotechnical Hazards Report	PHS-2.7	For parcels that partially lie within seismically active areas that are designated with the extreme or heavy ground shaking intensity areas shown in Figure PHS-1 or that are susceptible to liquefaction shown in Figure PHS-2, the Town shall require a geotechnical hazards report, prepared by a certified engineering geologist or geotechnical engineer, to identify the most appropriate building areas and corrective measures to minimize potential hazards. Recommendations from these investigations, or equivalent measures deemed acceptable by the Town, shall be incorporated as conditions of any project approval.
Proper Storage and Disposal of Hazardous Materials	PHS-5.1	The Town shall require proper storage and disposal of hazardous materials to prevent leakage, potential explosions, fires, or the escape of harmful gases, and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal.
Hazardous Waste Disposal	PHS-5.4	The Town shall encourage the community to dispose of toxic substances at the Central Disposal Site in Petaluma or through one of the Community Toxic Collection days.
Sensitive Uses	PHS-5.5	The Town shall require new developments that use or store hazardous materials and that are on sites in close proximity to creeks to include mitigation measures to prevent contamination of the creeks in the event of an accident or spill.
Onsite Contamination Constraints	PHS-5.9	In future land use decisions, the Town shall consider the constraints imposed by the potential for site contamination by present or past activities that used, stored, or disposed of hazardous materials or wastes. The Town shall restrict any use that could allow human exposure to such contamination or shall require remediation

		and/or mitigation efforts to reduce the health risks to acceptable levels prior to issuance of a building permit.
Rainwater Harvesting	PHS-7.10	The Town shall encourage rainwater harvesting design options in new development and retrofitting in existing development.

Appendix B

Biological Resources Studies

Charles A. Patterson
PLANT ECOLOGIST
1806 Ivanhoe Avenue, Lafayette, CA 94549
ph: (925) 938-5263 (925 'wetland')

September 10, 2021

Brian Flahavan, Managing Member
Pink Viking Returns LLC
400 College Ave.
Santa Rosa, CA 95401

Re: Biological assessment (*updated from 2018 report*) of proposed development at 1295 Jensen Lane, Windsor
Sonoma County A.P.N. 162-020-004

Dear Brian:

As requested, I have completed a series of site visits and surveys in each of the past several years (2017 - 2021) for the specific purposes of documenting onsite conditions, and looking for any features, habitats, or species of biological importance or regulatory significance, such as and specifically including jurisdictional "wetlands", "other waters", and listed plant species (or their preferred habitats). Figures 1 and 2 show the site in regional perspective, while Figure 3 shows the property in greater detail, including (approximate) wetlands and basic habitat types. This letter report summarizes my findings for the site.

Background, Setting, and Methods

The total property area is approximately 17.2 acres, and is located near the northeastern corner of the Town of Windsor. Most of the site is undeveloped and vacant, although there is an existing older home and associated outbuildings near the center of the site. Much of the site has been cultivated in the past as vineyard, and numerous eucalyptus, pines, and acacia trees that were planted years ago near the home are now quite large and locally domineering. At some times in the past, the site has also undoubtedly been grazed by livestock. The site is currently proposed for single family residential development as per Town of Windsor zoning and planning.

The overall property is situated on a gently sloping, generally southward facing hillside, with a slight high area in the middle where the home and other buildings are. With the generally southern exposure and typical Mediterranean climate, the site is relatively hot and dry, and most of the landscape is covered by regionally typical non-native annual grassland and common weeds. This grassland cover has been grazed by livestock, likely occasionally tilled, planted to grapes in places, and routinely mowed. It reflects a long history of disturbance and invasion by introduced species, especially the regionally naturalized non-native grasses (*Lolium, Hodeum, Bromus, Avena*, etc.) and the aggressive non-native Himalaya blackberry (*Rubus discolor*).

All land to the north and west of the site is already fully developed into urban neighborhoods with extensive pavement, curbs and gutters, manicured landscaping, and buried storm drains (see Figure 1). Parcels to the east and south contain open fields/pastures and vineyards, along with scattered residences on large lots. The site sits at the eastern edge of Windsor's 'town' limits, with numerous vineyards on the gentler lower slopes and fans immediately east and south, and slightly steeper hillsides of oak woodland and savanna farther east.



Figure 1. Regional Location

Proposed development at 1295 Jensen Lane Windsor, Calif.

NORTH ⇧	**Source/Prepared by:** C. Patterson; July, 2021	**Applicant:** Synergy Communities, Santa Rosa CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: 2021 Google Earth air photo **No Scale**		Approx. 17.2 ac

BIOLOGICAL BASELINE REPORT & IMPACT ASSESSMENT



Figure 2. Local Setting

Proposed development at 1295 Jensen Lane Windsor, Calif.

NORTH ⇧	**Source/Prepared by:** C. Patterson; July, 2021	**Applicant:** Synergy Communities, Santa Rosa CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: 2021 Google Earth air photo **No Scale**		Approx. 17.2 ac

BIOLOGICAL BASELINE REPORT & IMPACT ASSESSMENT

Numerous detailed site visits have been made over the past five years, conducting full protocol botanical surveys, and completing a detailed wetland map that has been submitted to, and confirmed by the U.S. Army Corps of Engineers. During each site visit, I walked the undeveloped parts of the property, carefully inspecting areas with potential wetland (or possible rare plant habitat) conditions, recording all plant species encountered, and trying to attain nearly 100 percent visual coverage. Areas of potential wetland conditions, unusual soils, or other features or habitats of interest were examined in closer detail. Primary (soil, vegetation, hydrology) data collection for the wetland mapping was conducted on April 2, 2017, and May 4, 2018, and confirmed by the Corps in the field on July 16, 2019. All plants encountered were identified to at least the level necessary to ascertain rarity or commonness, as well as their 'wetland' (National Wetland Inventory) status. Botanical taxonomy in the text (and on field data sheets) follows Munz and Keck (1968), "A California Flora", but for wetland status purposes and Appendix A (Plant Species List for the Site) has been converted to the newer names. The following are the specific dates of my field inspections and surveys:

2017: March 28
April 2
May 4
June 14
August 8

2018:
April (specific date unreadable in notes)
May 4, 23
June 13

2019:
March 26
April 23
May 14
July 16

2020:
March 26
April 13
May 27
June 17

2021:
March 23
April 15
May 13

During each site visit, I looked for any habitats that could be potentially suitable for regionally known sensitive plant or animal species. Each year's site visits were staggered over the course of the primary spring blooming period (March to May/June) for the region's rare plants, and were appropriate for determining the presence or absence of such species. I have worked with the rare plants of Sonoma County, and the Santa Rosa Plain (SRP) in particular, since 1984, and was lead author for the "Inventory of Rare Plant Locations and Sites Surveyed for Wetland Resources on the Santa Rosa Plain, Sonoma County" (1994) along with Betty Guggolz and Marco Waaland, under contract to (then) CDFG. For that project, and ever since, I began with, and have maintained an overall database of rare plants in Sonoma County and nearby (Napa, Lake, etc.) based on historic data bases, maps, and lists of sensitive species compiled by the California Natural Diversity Data Base (CNDDB), the California Native Plant Society (CNPS), U.S. Fish and Wildlife Service (USFWS), and the CDFW (sate lists). From this wider compilation, supplemented by subsequent agency/CNPS updates and personal experience (e.g.,

new rare plant discoveries), I have compiled (and adjust accordingly for each project) the target/search rare plant list provided here as Appendix B. This list was originally generated from older CNPS rare plant mapping on USGS quads (Healdsburg plus all adjoining), plus other rare species not having specific location data (e.g., CNPS List 4), but reported from "Sonoma County". This list has been updated with more recent (2003-2012) CNDDB reports and mapping for the SRP, covering a roughly 5 mile radius from the study area. The resulting list is fairly long, but includes numerous taxa not realistically expected here, simply for lack of viable habitat (serpentine, marsh, redwood forest).

Appendix B then, is a master list of rare plants known or expected in the region, and was used here as a 'search' list. It includes a brief assessment of the potential for each species to actually occur at the site. While there are numerous rare plants known from the region's serpentine, rockland, old growth forest, and chaparral habitats, the only potentially suitable habitats that occur here in or near this study area are the seasonal wetlands, and mostly just the 0.2 acre or so that actually ponds surficially in some years. Uncommon species of natural meadow and native grasslands are not expected here (a) because there aren't very many such species (most such open grasslands and meadows, even pristine, are composed of common species), and (b) because of the long history of disturbance (heavy grazing) and exotic species invasions.

I also specifically sought evidence for, and mapped potentially jurisdictional "Wetlands" (dominated by vegetation) and/or "Other Waters" (generally unvegetated), both of which are potentially subject to the jurisdiction of and/or regulation by the Corps of Engineers, as well as the State of California, potentially including the California Regional Water Quality Control Board (CRWQCB) and/or the California Department of Fish and Wildlife (CDFW). I applied the Army Corps' standard (1987) wetland delineation procedures (as amended by the "Arid West" update in 2008), examining the three pertinent parameters: soil, vegetation, and hydrology at more than 30 detailed data points across the site (see Figure 4).

While the Corps currently does not regulate activities in "ephemeral" waterways (i.e., creeks that flow less than 3 months per year) or isolated seasonal wetlands, the state agencies generally use the same technical Corps definitions for their (state) jurisdiction (which still includes seasonal waters). For purposes here (i.e., in order to meet all jurisdictions), the basic Corps of Engineers' technical definitions and mapping have been used to identify such features in this study area. The wetland mapping shown on Figure 3 reflects approximately where all three wetland criteria (soil, vegetation, hydrology) exhibit positive (i.e., qualifying) indicators. The final wetland map (with data points and field measurements) is reproduced here as "Figure 4" from the 2019 JD request package. A "PJD" was formally confirmed by the Corps via letter dated August 8, 2019, and as with all PJDs, does not expire. This formal Corps approved wetland map depicts a total wetland onsite of 1.43 acres.

While I am primarily a plant ecologist, I have worked extensively with wildlife biologists in the region, and have a first-hand familiarity with most sensitive wildlife species known from the region (with the exception of various songbirds). I was at one time licensed by CDFG to dipnet for CTS on the SRP, and am well versed in the preferred (and sometimes crucial) habitats of most such species. During my field surveys, I noted any significant wildlife sightings (e.g., hawks, owls, waterbirds, etc.), and assessed the various habitats present (as well as in the surrounding environs) for the potential to support any of the listed sensitive wildlife species (thick riparian, dead snags, old buildings, marshes, ponds). Appendix C is a brief listing and assessment of the sensitive wildlife species known or expected in the region that would be most likely to occur here (excluding many fishes, forest inhabitants, and some riparian species, as these habitats do not occur here). This list was generated in part from a 2010 CNDDB report for a ten mile radius of the project site, augmented by both more recent and a few older project by project assessments in the region, plus anectdotal feedback from agency biologists.

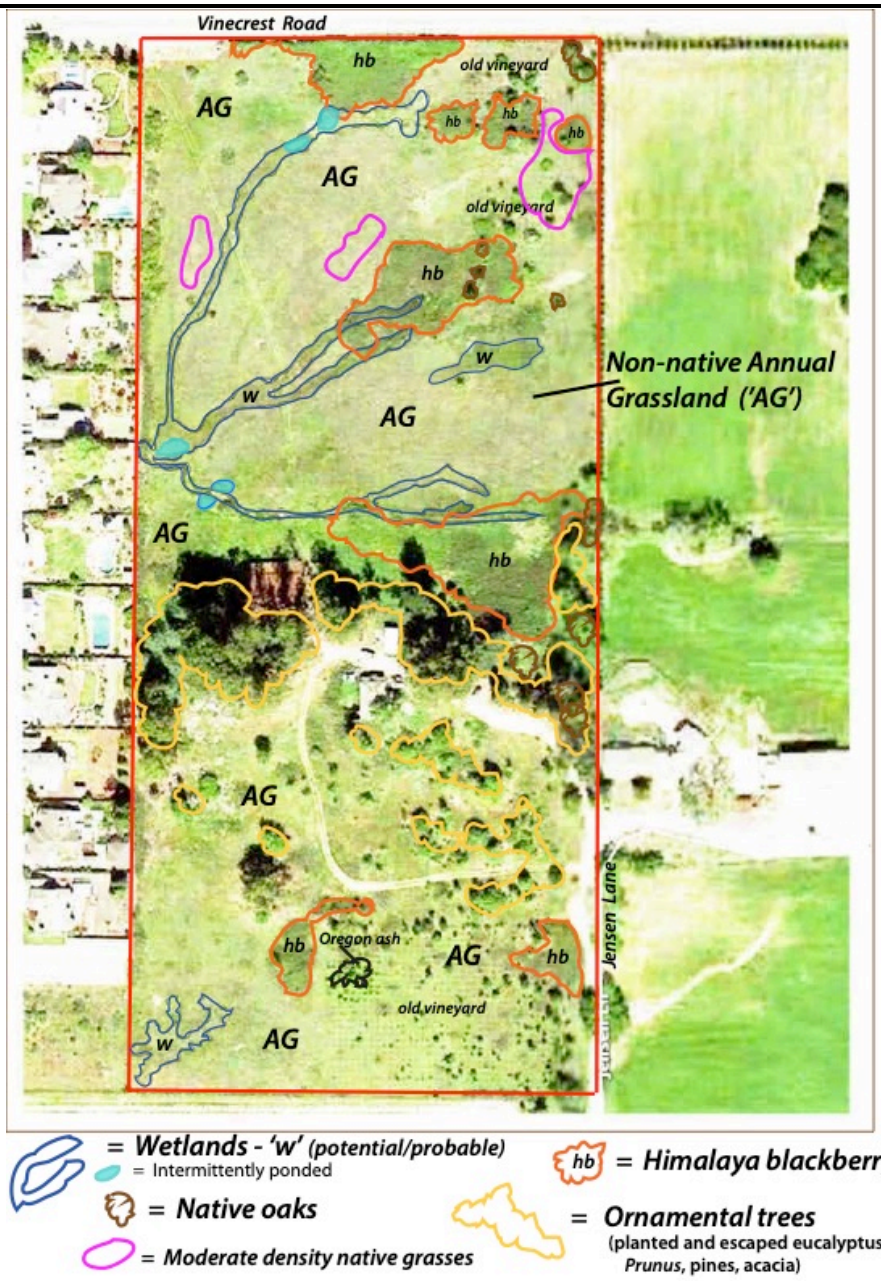


Figure 3. Site Detail

Proposed development at 1295 Jensen Lane Windsor, Calif.

NORTH ⇧	**Source/Prepared by:** C. Patterson; July, 2021	**Applicant:** Synergy Communities, Santa Rosa CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: 2021 Google Earth air photo **No Scale**		Approx. 17.2 ac

BIOLOGICAL BASELINE REPORT & IMPACT ASSESSMENT

Notes and photographs were taken during most site visits, with the extent of any apparent wetland conditions sketched each time on a recent air photo. More detailed support data (field notes, plant lists by survey date, wetland data forms, photos, reference site information) are available upon request. Figure 3 shows the site's vegetation cover, significant biotic elements, particularly the local extent (approximate) of wetlands.

I have also reviewed the applicant's projected development plans and tentative precautions (BMPs), as well as other pertinent topographic and soils maps, plus numerous historic air photos. Appendix D includes selected photos of the site, and Appendix E summarizes the professional qualifications of this investigator.

General Vegetation

The study area and its basic vegetation types are shown on Figure 3. The four primary categories include "Non-Native Annual Grassland", "Himalaya Blackberry", "Wetland Swale/Pool", and "Ornamental Trees". Major parts of the southern half of the site were historically planted in grapevines.

The site's more open grassland areas are generally dominated by a low-growing groundcover of regionally typical non-native annual grasses (*Avena, Lolium, Anthoxanthum, Phalaris, Briza, Vulpia, Bromus, Hordeum, Teniatherum*) and weeds (*Vicia, Carduus, Hypochaeris, Lactuca, Plantago, Erodium, Geranium, Anagallis, Parentucellia, Convolvulus*). Native plant species occur generally as few scattered individuals, although there are several pockets where native grasses, specifically California oatgrass (*Danthonia californica*), blue wildrye (*Elymus glaucus*), and purple needlegrass (*Stipa pulchra*) mix at a higher proportion with the dominant non-natives. Also observed more scattered in these grassland habitats are native brodiaeas (*Brodiaea pulchra, B. laxa, B. hyacinthina, B. terrestris*), Fitch's tarweed (*Hemizonia fitchii*), two lupines (*Lupinus bicolor, L. nanus*), and several other common native grassland species (*Lotus purshianus, Ranunculus californicus, Eschscholzia californica, Hemizonia lutescens, Bromus carinatus*).

Occurring across the site in large patches are dense thickets of the non-native Himalaya blackberry (*Rubus discolor*). These grow both in some swales and on dry upland plains. The abundance and actual footprints of these thickets can change dramatically year to year as clumps expand aggressively or are cut down and removed to keep grazing pasture open. This exotic blackberry is viewed by many resource agencies as a noxious weed, to be removed whenever feasible.

Woody vegetation onsite includes the planted ornamentals around the home, plus a few scattered native oaks (*Quercus lobata, Q. agrifolia, Q. Kelloggii*), and small amounts of the native coyote brush (*Baccharis pilularis consanguinea*), poison oak (*Toxicodendron diversilobum*), and a few scattered young volunteer *Prunus* saplings (typically from cast off plums, pears, etc.). Around the home and in other scattered pockets are numerous planted and/or escaped (or 'volunteer') eucalyptus, pines, acacias, and other ornamental trees, and remnant grapevines still occur in patches in the previously planted areas. The few native oaks that are present occur in very small numbers and not as any actual natural 'plant community'. While Figure 3 here shows approximate locations of oaks observed on the property, a more detailed tree inventory and evaluation is available separate from this report.

Figure 4. Wetland Mapping (final map) for PJD
1295 Jensen lane, Windsor

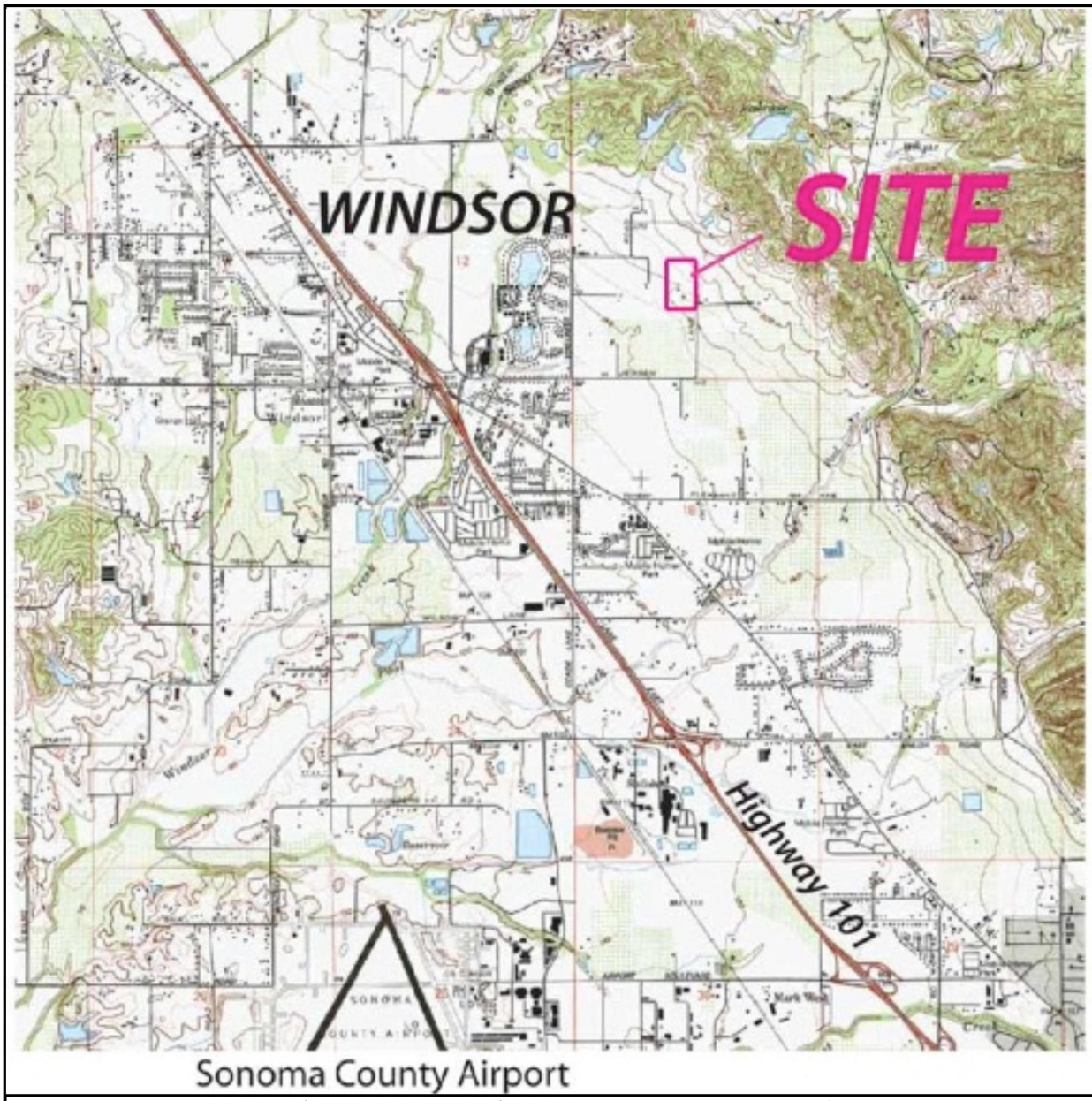


Figure 5. Site On USGS Quad

Proposed development at 1295 Jensen Lane Windsor, Calif.

NORTH ⇧	**Source/Prepared by:** C. Patterson; July, 2021	**Applicant:** Synergy Communities, Santa Rosa CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: USGS 1:24,000 scale topo map, Healdsburg quad **No Scale**		Approx. 17.2 ac

BIOLOGICAL BASELINE REPORT & IMPACT ASSESSMENT

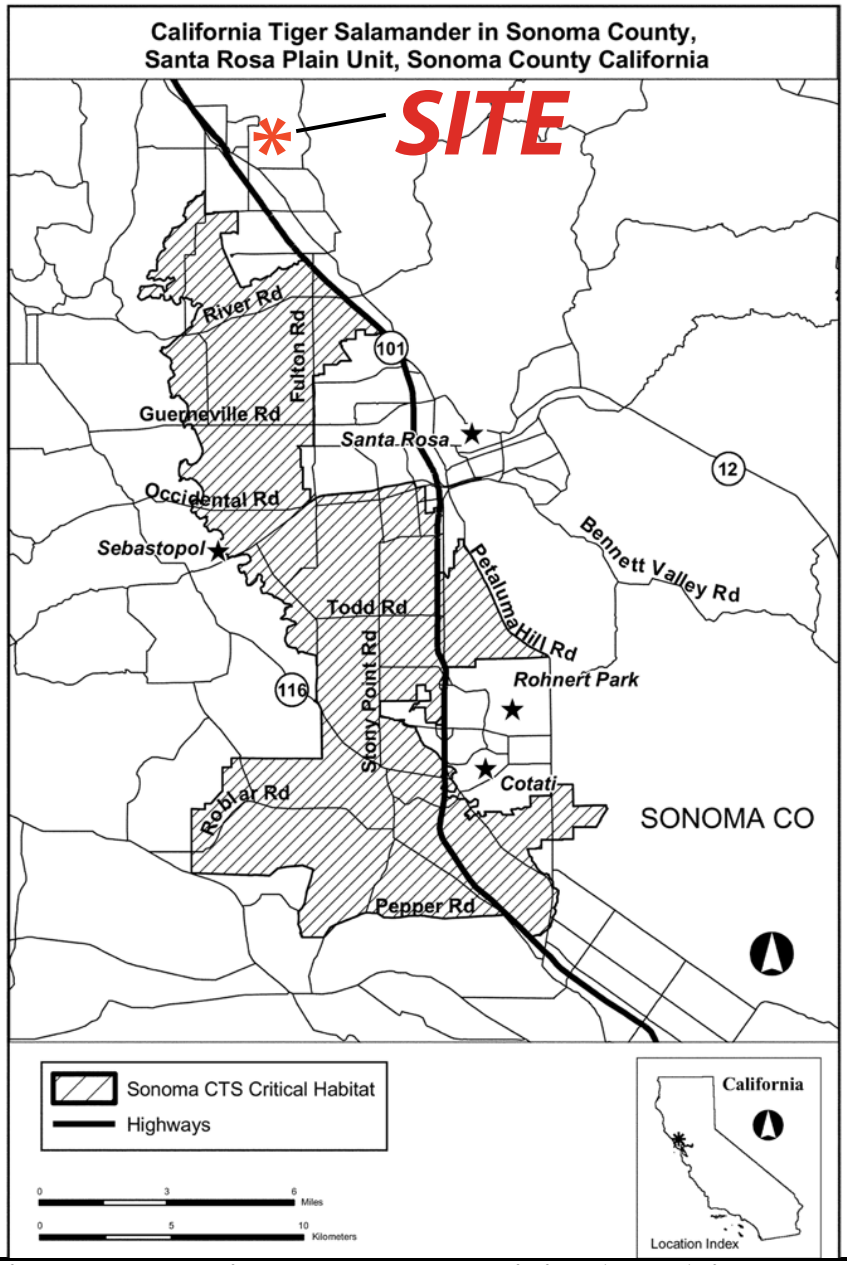


Figure 6. Site On CTS Critical Habitat Map

Proposed development at 1295 Jensen Lane Windsor, Calif.

NORTH ⇧	**Source/Prepared by:** C. Patterson; July, 2021	**Applicant:** Synergy Communities, Santa Rosa CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: Published by USFWS **No Scale**		Approx. 17.2 ac

BIOLOGICAL BASELINE REPORT & IMPACT ASSESSMENT

The slightly wetter swales (mapped as 'wetlands') support the same general grassland species as described earlier, plus a number of meadow species, including native rushes (*Juncus tenuis, J. patens, J. bufonius, J. phaeocephalus*), sedges (*Carex* spp.), occasional blue-eyed grass (*Sisyrinchium bellum*), clovers (*Trifolium depauperatum, T. tridentatum*), and buttercups (*Ranunculus*). None of these species are dominant here, as the native cover has been largely displaced by the well adapted European annual grasses and forbs.

There are no significant creeks onsite (hence no riparian habitats or vegetation), although there are several small ephemeral, seasonally wet swales that begin onsite (in the northeast). There are no significant springs onsite, although there are several spots in the seasonally wet swales that stay wet well into summer (supporting *Carex densa, Juncus, Pleuropogon*); most are completely dry, however, at least by August. Appendix A is a list of plant species observed in the study area.

Wetlands

The entire site has been altered (grazed, invaded by exotics, cultivated as vineyard) and disturbed such that there is very little remaining natural habitat, and little native vegetation over most of the acreage. Figures 3 and 4 show locations where "wetland" conditions were observed, mapped, and confirmed by the Corps (Figure 4). The ephemeral drainage swales all qualify as wetlands, as they are fully vegetated. While there is a short section of channel and minor scour near the lower part of the main drainage swale coalescence, there are no other distinct features in the study area that would be classified as "other waters" (e.g., no significant creeks or channels). The very headwaters of these small seasonal drainages occur directly onsite, and other than the actual site itself, has virtually no remaining upslope watershed; almost all upslope watershed and runoff has already been captured in the curb, gutter, and drain system of the adjacent urban neighborhood just north of Vinecrest Road.

The seasonal wetlands in the swales shown on Figure 3 are largely non-aquatic (except where shown), and are composed of relatively common meadow (and 'wet meadow') species, including native rushes (*Juncus phaeocephalus, J. tenuis, J. patens, J. mexicanus, J. bufonius*), sedges (*Carex densa, C. leptopoda*?), grasses (*Danthonia, Elymus, Pleuropogon californicus, Hordeum brachyantherum*), and a few common herbs (*Montia verna, Limnanthes douglasii* var. *nivea, Brodiaea hyacinthina*), in addition to the (generally) more abundant introduced weeds, such as dock, (*Rumex crispus, R. acetosella, R. conglomeratus*), thistles (*Sonchus, Picris, Carduus, Silybum*), and introduced grasses (*Lolium multiflorum, Poa annua, Briza, Hordeum hystrix, Holcus lanatus, Festuca arundinacea, Anthoxanthum, Phalaris*). While these swales are largely non-native in character and flora, there scattered native wildflowers such as the brodiaeas, blue-eyed grass, and buttercups, plus widespread California oatgrass (*Danthonia*).

These broad shallow swale features collect local sheet flow and convey this winter and spring runoff downslope to the west, coalescing in a small ephemeral channel (one foot deep by two to three feet wide, with minor scour) in the lowermost reach (about 200 feet). This collection area (Plates 1 and 2) also contains several small persistently ponded areas (totaling less than about 0.05 acre) that support meager representation by several regionally typical pool species, in addition to numerous weeds. These few wetter pockets (shown as "intermittently ponded" on Figure 3) contained in the swale collection network foster at least some prolonged surface ponding (to a maximum of about ten inches in depth) and support a smattering of regionally typical native and naturalized (i.e., introduced but well established) herbaceous wetland/pool species. Natives include small numbers (less than roughly 50 plants each) of coyote thistle (*Eryngium aristulatum, E. armatum*), hedge-hyssop (*Gratiola ebracteata*), buttercups (*Ranunculus pusilus, R. orthorynchus* var. *bloomeri, R. lobbii*), common monkeyflower (*Mimulus guttatus*), and a few others (*Isoetes, Boisduvalia, Callitriche*). Native spikerush (*Eleocharis palustris*) is a bit more abundant in the wetter depressions and portions of the swales.

Non-natives tend to be more abundant and dominant throughout, however, and include manna grass (*Glyceria declinata*), rabbit-foot grass (*Polypogon monspeliensis*), red-top (*Agrostis* sp.), Bermuda grass (*Cynodon dactylon*), and numerous introduced broad-leaf weeds (*Rumex, Mentha, Hypochaeris, Ranunculus muricatus, R. sceleratus, Trifloium repens, T. subterraneum, Lythrum hyssopifolia*). Combined, the small features mapped as "intermittently ponded" account for a total of approximately 0.1 acre.

One other small area (approximately 0.2 acre) of seasonally wet ground occurs in the study area, that being a stair-step seepage zone in the site's extreme southwestern corner (see Plates 3 and 4). Collected rainfall (sheet flow and shallow percolation) coming off the higher ground (around the homesite) in the middle of the property moves very slowly southward, and finds its way to the surface here in a series of very shallow, very ephemeral flats and micro-depressions. The surrounding annual grassland (*Lolium, Anthoxanthum, Teniatherum*, etc.) shifts in these flats and lower places to small ensembles (less than 50-100 plants each) of common wetland species (*Mentha, Juncus, Crassula aquatica, Boisduvalia, Downingia concolor, Isoetes, Gratiola, Eleocharis acicularis*) set as miniature wetland pockets (e.g., three feet by six) within the broader expanse of grassland.

In total, based on the recently confirmed PJD by the Corps (Figure 4), the site contains a total of 1.43 acres of wetland potentially subject to regulation by the Corps and/or the state. While it is unclear if the Corps will actually regulate these wetlands (some are highly ephemeral, but the wetter spots can stay wet for 4 to 6 months), they will certainly be subject to state regulations and permit requirements.

Sensitive Species

There are a number of rare, endangered, threatened, and/or otherwise sensitive plants that are known from this region, many of which grow in rocky, serpentine, chaparral, or wooded habitats (which are not present here), or in wetland habitats, ranging from perennial marshes to vernal pools and other seasonal wetlands. In particular, there are four state and federally listed plants that have (at least historically) been reported from seasonal wetlands in the region. These include Burke's goldfields (*Lashtenia burkei*), Sonoma sunshine or Baker's blennosperma (*Blennosperma bakeri*), Sebastopol meadowfoam (*Limnanthes vinculans*), and many-flowered navarretia (*Navarretia plieantha*). The meadowfoam typically/historically doesn't occur on this northern part of the SRP, while the other three do, or have in the past. The nearest rare plant locations are historic records for burke's goldfields along Airport Blvd., Herb Road and the north end of Starr Road in NW Windsor, and the SE quadrant of the intersection of Highway 101 and Shiloh Road (currently in vineyard), all of which are more than two miles away, with major urban barriers in between, and most of which are extirpated. The navarretia was reported (discovered by this investigator in 1984) at one parcel near the County Airport, but has not been seen elsewhere on the SRP, nor has it been seen at that unique location. All of these species grow in seasonal wetlands.

Most of the site has very low (or even negligible) potential for rare plants. Aside from the small slightly deeper or more well developed wetlands shown on Figure 3, there is no particularly suitable habitat for any regionally known listed plants, and the CNDDB does not have any historic records of any such species at this site or immediately nearby. The property has no serpentine, nor any other unusual soils, and no exposed rock occurrences were found. There are no natural chaparral or woodland habitats onsite, and as described, most of the grassland is also highly altered and non-native in character. The seasonally wet swales are generally too well drained (more than 1-2 % gradient and a somewhat porous soil) to foster surface ponding, and are thoroughly choked with introduced grasses and weeds. These features are highly ephemeral, and in drought years, probably do not even meet the basic definition of a 'wetland'. As such marginally 'wet' habitats, the site's long linear swales are primarily just minor runoff routes with somewhat persistently saturated bottoms (meadows), but without enough actual surface hydrology to support aquatic species (plants or animals). The

five small places shown on Figure 3 to be "intermittently ponded" are just that, and could be regarded as potential habitats for some of the region's wetland dependent rare species. However, these small habitat 'islands' are far removed from any intact ecosystem of wetlands and associated species, and have been directly trampled, driven through, farmed, and generally disturbed over the years, such that their current assemblages of plants are not the original natural wetland communities, but rather, an assortment of a few hardy/tolerant natives (*Pleuropogon, Eleocharis*) and a host of exotics (*Rumex, Mentha, Glyceria, Polypogon*, etc.). This site is also at the far extreme NE edge of the SRP landform, occurring just into the adjacent hillsides, and does not contain the type of nearly level topography that fosters the formation of vernal pools and swales (much lower gradient) out on the SRP proper (which is generally where the listed species occur). As such, the site's swales and even the small deeper places do not provide prime potential habitat for any of the species of concern (although they might be able to grow here indefinitely if rainfall was ample).

Five years of recent carefully staggered ("protocol") spring site surveys documented the flowering species present throughout the site (see Appendix A), and determined that only common species are, in fact, present.

Based on the relative commonness of the habitats and the high degree of disturbance of the subject property, there are only minor habitats, specifically seasonal wetlands, that are regarded as potentially suitable for rare or otherwise sensitive plants. Rare species of open natural grasslands are not likely as the local grasslands have been thoroughly degraded, invaded, and converted mostly to non-natives (including abundant Himalaya blackberry). Based on these factors, it is concluded here that no formally listed or protected plants occur here.

The one somewhat notable species (i.e., on the California Native Plant Society's 'Watch List', but with no state or federal status) is Lobb's aquatic buttercup (*Ranunculus lobbii*), which was seen in the lowermost ponded area near the confluence of the site's northern swale complex. This small intermittently ponded area (which remains completely dry in drought years) is less than about 500 square feet, and supports a very small colony (less than 50-100 plants) of this habitat-restricted buttercup (in the wetter years). This species has no formal status and impacts to it would not necessarily require mitigation.

The site provides no especially unique or high value habitats or critical resources for sensitive or uncommon wildlife species in the region, and no rare wildlife species are reported as being present. Appendix C is a list of sensitive wildlife species that could potentially be found in this general region, with assessments of the likelihood of each to actually occur on the project site. This list was generated from a CNDDB printout from 2010 that shows all the sensitive animal species occurrences within a ten mile radius not including species that live in fully aquatic habitats (e.g., salmonids, other fish), as there are no such habitats here). Most of these species are not expected here because of the lack of specific habitat requirements (e.g., perennial water, old trees, expansive riparian), although any of several protected birds and/or bats could potentially forage in the area.

The study area is used by common songbirds, small and large mammals (skunk, raccoon, deer, coyote), and numerous resident lizards, snakes, and ground burrowing rodents. Ground squirrels are not abundant however, and no large burrows (e.g., badger, fox, coyote) were seen onsite. The habitats here would be used for foraging and temporary resting by numerous songbirds, possible nesting by owls or bats, but the wetlands are not well developed enough to represent significant habitat for water birds or waterfowl. There is a small amount (0.1 acre or less) of persistently ponded habitat capable of supporting a small population of Pacific tree frogs (*Hyla*) that have a small population in the lowermost swale confluence. The site is outside the designated "Critical Habitat" area for the California tiger salamander (CTS, see Figure 6), and is designated as "not likely to affect" CTS by the US Fish and Wildlife Service. There could be some occasional foraging here by raptors or other

protected birds as certain birds move through the region, but no critical nesting or other prime habitat for such birds would be affected.

Other Potentially Significant Biotic Issues

The study area's primary biotic features of significance are the headwater swales (and other small features) that qualify as potentially "jurisdictional wetlands" (as shown on Figure 3). Aside from these, none of the rest of the site has any especially natural habitats, nor any appreciable potential to support sensitive species. A few native oaks are present, but in numbers enough or suitable context to constitute 'woodland' or any other oak 'community'. Individual trees, may, however, warrant consideration and/or compensation based on species and size.

Based on protocol botanical surveys in 2017 through 2021, plus CNDDB records, no listed or otherwise formally protected plant species are present or expected at this site (or reported or suspected from immediately nearby). Appendix B is a list of sensitive plants that could occur in the region and which were generally sought during the surveys. The onsite habitats with the most potential to support sensitive species are the four low intermittently ponded areas shown on Figure 3. These very small habitats support several typical pool endemics of the SRP (i.e., *Eleocharis, Downingia, Lasthenia, Eryngium, Gratiola, Isoetes*), but in extremely small numbers (generally less than 50 plants, except for *Eleocharis*) and of common species, except for Lobb's buttercup. The presence of this one somewhat uncommon wetland plant is notable, but without any official status or significant constraint. Likewise, the presence of scattered native grasses (*Stipa, Danthonia, Elymus*) in the northern grassland mosaic is, again, notable, but without real constraint. All of these species (the buttercup and grasses) are fairly common and widespread in the region and/or state, and as minor components of heavily disturbed habitats here, do not represent especially significant native occurrences worthy of protection or extensive consideration. Collection/salvage of seeds could be conducted (or allowed/facilitated for others) toward relocating these species, but no such effort should necessarily be required of the project.

The study area contains no natural forest or woodland cover, nor any riparian woodland or significant native shrub cover (e.g., no coastal scrub or chaparral). No rare or sensitive wildlife have been observed onsite.

Potential Impacts and Recommended Mitigation Measures

Based on the proposed development layout, essentially all of the site would be cleared of vegetation, graded for utilities and home pads, and ultimately fully developed for single family homes. This would result in most, if not all onsite vegetation being removed, and onsite drainage being captured and directed into the adjoining buried storm drain system (presumably according to current water quality treatment standards, details of which accompany the project design). All onsite wetlands (1.43 acres) would be filled and/or otherwise eliminated. Similarly, all grassland onsite (roughly ten acres) would be eliminated/removed, including small numbers of common native plant species (a relatively insignificant impact), as would approximately two acres of blackberry thickets and two to three acres of non-native trees. This vegetation loss would be relatively inconsequential with regard to actual direct ecological functions and resource values to be lost, as well as in the broader regional context (a very minor loss or impact). The loss of ruderal vegetation and habitats would contribute very slightly to the incremental reduction in these types of habitats around the urban areas, but this would not be considered significant. These vegetation types would be reduced by small amounts, but the lack of natural character throughout renders much of this insignificant (e.g., remove eucalyptus, cut out Himalaya blackberry).

Impacts to general vegetation (plant communities, natural physical habitats) would be relatively insignificant, owing to the non-native, degraded character and the immediately neighboring urban landscape. Loss of the

annual grassland, blackberry, and ornamental trees is not considered significant. While a small number of native plants would be lost, none have any protected status, and no actual 'native plant communities' would be lost.

The project's impacts to seasonal wetlands does pose a potentially "significant" impact, but several factors and specific measures can fully ameliorate or mitigate that. A total of 1.43 acres of jurisdictional wetland (largely non-aquatic, non-native seasonally wet swales) would be filled/lost, but most of which does not represent potentially suitable habitat for the region's rare wetland species. All but approximately 0.1 acre is essentially just saturated soil in swales that drain surficially and support almost exclusively non-native grasses. The project is located outside the designated "Critical Habitat" for CTS (designated as "Not likely to affect CTS" by the USFWS in the Programmatic Biological Opinion for the SRP, and CTS is not considered an issue here. None of the wetland features present onsite represent potentially suitable breeding habitat for CTS (all the deeper places are too small and ephemeral)

The site is right at the extreme northeastern corner of the Corps/FWS-designated (and 'special conditioned') SRP, where certain requirements for listed species surveys and mitigation can apply. However, five years of protocol botanical surveys have demonstrated the absence of any listed plant species. Without significant listed species issues, the project's wetland impacts can be compensated through the Corps of Engineers' established fill authorization ('404' permit) process. As long as the Corps' standard, and any project-specific, conditions are satisfied, and the provided compensatory mitigation(s) are accepted by the Corps and other partnering agencies, such authorization for fill of relatively small wetland acreage in generally urban areas is typically allowed and routinely "permitted". Such proposed fill on the site is currently the subject of Corps engagement, having completed the site's JD (wetland map), and with a ('404') fill permit application to be submitted in the near future. It is anticipated that a full "Individual Permit" may be required by the Corps, during which process, the procurement and agreement on suitable, acceptable mitigation will be completed. It is anticipated that regional wetland mitigation bank credits will be used to mitigate/compensate for the loss of 1.43 acres of wetlands, and an additional 1.5:1 in rare plant habitat preservation may be required with regard to the project's impacts to "potentially suitable habitat" for such species. Details of the actual credits (which bank, what type of credits) and quantities are still to be discussed and calculated in coordination with the Corps and potentially other agencies. Based on the Corps' established ratios, loss of the 1.33 acres of grassy swale 'wetlands', plus 0.1 acre of actually ponded habitat, the required wetland replacement/credit obligation is estimated to be approximately 1:1 or about 1.5 acres of "wetland creation" credits. Final acreage requirements will be determined in discussions with the Corps.

Loss of the site's wetland habitats would impact several common native wetland species, but would not adversely affect any state or federally listed or protected species, and would not represent a critical effect on any one species. The small colony of Lobb's buttercup (CNPS List 4) would be eliminated, but this is regarded as a relatively minor impact; this plant has no formal status or protection, other than being worthy of consideration under CEQA. The standard mitigation for the wetland impacts, mitigation bank credit purchase, could be augmented by a salvage effort to collect surface material (and presumably the seed bank) from the small deeper features onsite, and provide such material to a regional wetland bank or preserve for re-spreading/inoculation into wetlands in a protected setting.

In addition, wetland fill will require clearance/certification from the state RWQCB, as well as review and comments (and potential additional mitigation measures) by the CDFW.

As with the development of any open land, certain common wildlife species will be displaced, and the common ruderal habitats used by them here will be slightly reduced; this is judged here to be a very minor impact. Loss

of small increments of generic open grassland and blackberry habitats represents a relatively insignificant impact, both regionally and statewide, as such habitats are very common and widespread. Open lands to the east will likely accommodate displaced wildlife.

While most of the trees on the site are not native, pre-construction bird and/or nest surveys may be warranted (and should be conducted prior to tree removal) depending on the Town's specific requirements, and any native trees of significant size (greater than roughly six inches in diameter) that would be removed may be subject to compensatory replacement and/or fees, as per Town requirements. Surveys for bats roosting in either the barn/outbuildings or groves of trees should be completed prior to actual ground disturbance for the development. These measures plus other standard BMPs, along with the specific mitigation requirements to be set forth by the Corps, RWQCB, and/or CDFW should assure that the projected impacts to biotic resources will be residually insignificant.

Applicable CEQA Checklist Items

The following are brief assessments with regard to the most pertinent environmental issues typically included on a CEQA checklist:

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

No; no such listed or protected species are present here, nor would any such species be substantially adversely impacted by the project here. Protocol surveys for plants have demonstrated the absence of such species, and the site is outside the Critical Habitat designation for CTS. Approximately 0.1 acre of the onsite wetlands is potentially suitable (deep, ponded enough) for some of the region's rare wetland species, and this will likely require some specific rare plant mitigation, this typically being the purchase of habitat preservation credits, typically at a ratio (established by the USFWS) at 1.5:1. Finally any sensitive avian species that might use the area occasionally would not be seriously affected as they can easily move into other undeveloped areas nearby.

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community?

No; there is no riparian vegetation or habitat present on the project site, and no such habitat or vegetation would be lost or otherwise adversely affected.

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

No; there are no fish or fish-bearing streams onsite or anywhere nearby, and wildlife that may use the area now will be free to move into other undeveloped areas to the east upon development here. With extensive urban neighborhoods to the west, north, and south, plus US Highway 101 running north-south one mile to the west, there are no significant wildlife corridors through this area. The site is situated at the edge of the Town's urban growth boundary (see Figure 2), and lands to the east are (and will likely remain) essentially open and undeveloped, providing abundant land for wildlife to move into and/or through without needing the study area here to do so.

Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Approximately 1.43 acres of seasonal wetland would be filled/graded by the project, eliminating this amount of minor habitat, but affecting no protected species, nor any actually pristine habitats. While this impact could be considered significant just based on the acreage, the habitat value of the areas to be affected is relatively low, and adequate compensatory mitigation will be provided through mitigation bank credit purchase(s). As such, with compensatory mitigation, this fill action could be authorized by the Corps under the provisions of the Programmatic Biological Opinion of the USFWS.

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

No; the site is zoned for residential development within the Town of Windsor's general plan and long term goals, and has long been expected to be developed for such use. The site is not a part of any recognized natural area, preserve, or open space designation, and does not contain any resources that would warrant such designation. A number of native oak trees occur onsite which may be removed, and which meet the Town's criteria for being "protected" (i.e., over 6 inches dbh for oaks, 12 inches for California bay, etc.). These will be addressed through the Town's tree ordinance and its requirements (fees, replacement, etc.). Mitigation will be provided as per Town requirements for any trees that cannot be saved in place. No other onsite habitats, species, or resources are of such high value as to be recognized or protected for same. Standard mitigation (typically habitat replacement and/or preservation) will be provided for the loss of wetlands onsite.

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

No; there are no such designations here or nearby, and development of this site would not preclude such efforts nearby, although there are no recognized resources in this immediate area that would warrant such efforts or designations. Virtually all of the land/parcels immediately surrounding the study area have already been developed, either for urban residential neighborhoods or under intensive agriculture (vineyards), and none of these nearby areas are known to support or provide exceptional natural habitat values worthy of preservation efforts. Abundant land occurs east of the site that has high natural habitat values (i.e., the wooded hills and small valleys along Chalk Hill Road), but these areas are well outside the Town's area of influence (and eventual development) and would not be affected by this project.

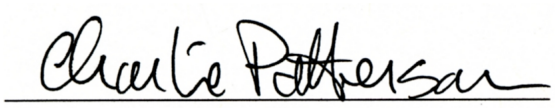
Permitting Considerations

The project will likely require both a '404' permit from the Corps, and '401 Certification' from the RWQCB. Without listed species, these processes should be relatively straightforward, requiring standard mitigations in regional bank credits or actual habitat creation or restoration (the details of which are yet to be ascertained with the appropriate agencies). Onsite wetland preservation or consolidation as mitigation might be feasible, but does not represent an especially valuable or viable means of compensating for the projected impacts to seasonal wetlands. Remaining wetlands would be fragmented, squeezed and crowded even more than now, with the ultimate value of any onsite preservation being rather low; trying to maintain a ruderal wetland community in the middle of a housing development would not be able to foster the full range of plants and wildlife that such habitats normally would support. Rather, offsite habitat (creation or restoration) efforts would be preferred and will be proposed as compensation (via bank credits) for the wetland impacts.

No further mitigation or compensation should be required with regard to sensitive plants or wildlife, as no such listed or protected species are known or expected here.

I hope this evaluation provides the information needed for this project. Please contact me if you (or the Town) have any questions or need additional information.

Sincerely,



Charles A. Patterson

APPENDIX A. Plant species observed at 1295 Jensen Lane, Windsor.

FAMILY	NAME ('Jepson')	COMMON NAME
Amaranthaceae	Amaranthus albus	tumbleweed
Anacardiaceae	Toxicodendron diversilobum	poison oak
Apiaceae	Conium maculatum	poison hemlock
	Daucus carota	Queen Anne's lace
	Daucus pusillus	wild carrot
	Eryngium aristulatum	coyote thistle
	Eryngium armatum	coyote thistle, button celery
	Foeniculum vulgare	fennel
	Osmorhiza chilensis	sweet cicely
	Sanicula crassicaulis	Gamble weed
	Sanicula tuberosa	sanicle
	Scandix pecten-veneris	shepherd's needle
	Torilis nodosa	hedge parsley
Apocynaceae	Vinca major	myrtle
Asteraceae	Achillea millefolium var. borealis	yarrow
	Achyrachaena mollis	blow-wives
	Agoseris retrorsa	annual agoseris
	Anthemis cotula	mayweed
	Artemisia douglasiana	mugwort
	Aster chilensis	Chilean aster
	Baccharis pilularis ssp. consanguinea	coyote brush
	Bellis perennis	English daisy
	Calendula arvensis	calendula
	Carduus pycnocephalus	Italian thistle
	Centaurea calcitrapa	purple star thistle
	Centaurea solstitialis	yellow star thistle
	Chamomilla suaveolens	pineapple weed, rayless chamomile
	Cichorum intybus	chicory
	Cirsium arvense	Canada thistle
	Cirsium vulgare	bull thistle
	Conyza canadensis	horseweed
	Filago gallica	filago
	Gnaphalium stramineum	everlasting
	Hemizonia congesta ssp. luzulifolia	hayfield tarweed
	Hemizonia fitchii	Fitch's tarplant
	Hypochaeris glabra	smooth cat's-ear
	Lactuca serriola	prickly lettuce
	Lasthenia glaberrima	smooth goldfields
	Madia elegans ssp. elegans	common madia
	Madia sativa	common madia, tarweed
	Psilocarphus brevissimus	dwarf wooly-heads
	Senecio vulgaris	common groundsel
	Silybum marianum	milk thistle
	Sonchus asper	prickly sow thistle

APPENDIX A. Plant species observed at 1295 Jensen Lane, Windsor.

	Taraxacum officinale	dandelion
	Tragopogon porrifolius	oyster plant
	Xanthium spinosum	spiney cocklebur
Boraginaceae	Amsinckia menziesii var. intermedia	fiddleneck, rancher's fireweed
Boraginaceae	Plagiobothrys bracteatus	popcorn flower
Brassicaceae	Athysanus pusillus	dwarf athysanus
	Brassica nigra	black mustard
	Capsella bursa-pastoris	shepherd's purse
	Cardamine oligosperma	bitter cress
	Hirschfeldia incana	Mediterranean mustard
	Lepidium nitidum	shining peppergrass
Brassicaceae	Raphanus sativus	wild radish
	Rorippa islandica	yellow cress
	Thysanocarpus curvipes	fringe-pod
Callitrichaceae	Callitriche marginata	water-starwort
Campanulaceae	Downingia concolor	downingia
Caryophyllaceae	Cerastium glomeratum	mouse-ear chickweed
	Silene gallica	windmill pink
	Spergula arvensis	spurrey, stickwort
	Spergularia rubra	red .sand-spurrey
	Stellaria nitens	shining chickweed
Chenopodiaceae	Atriplex patula ssp. hastata	fat-hen
	Chenopodium album	lamb's quarters
Convolvulaceae	Convolvulus arvensis	field morning-glory, bindweed
Crassulaceae	Crassula aquatica	water pygmy-weed
Cyperaceae	Carex barbarae	Santa Barbara sedge
	Carex densa	dense sedge
	Carex deweyana leptopoda	short scaled sedge
	Carex tumulicola	sedge
	Cyperus eragrostis	umbrella or flat sedge
	Eleocharis acicularis	spike-rush
	Eleocharis macrostachya	pale spikerush
	Scirpus cernuus	low club rush
Dipsacaceae	Dipsacus fullonum	teasel
Euphorbiaceae	Eremocarpus setigerus	dove weed
Fabaceae	Acacia melanoxylon	blackwood acacia
	Genista monspessulana	French broom
	Lotus corniculatus	common bird'sfoot trefoil
	Lotus purshianus	Spanish clover
	Lupinus bicolor	Lindley's annual lupine
	Lupinus nanus var. latifolius	sky lupine
	Medicago polymorpha	bur-clover
	Melilotus alba	white sweetclover
	Melilotus indica	yellow sweetclover
	Trifolium arvense	clover

APPENDIX A. Plant species observed at 1295 Jensen Lane, Windsor.

	Trifolium barbigerum	bearded clover
	Trifolium depauperatum var. depauperatum	dwarf-sac clover
	Trifolium fragiferum	strawberry clover
	Trifolium hirtum	rose clover
	Trifolium incarnatum	crimson clover
	Trifolium oliganthum	clover
	Trifolium repens	white clover
	Trifolium subterraneum	subterranean clover
	Trifolium variegatum	white-tipped clover
	Trifolium wildenovii	tomcat clover
	Vicia sativa ssp. sativa	spring vetch
Fagaceae	Quercus agrifolia	coast live oak
	Quercus chrysolepis var. chrysolepis	canyon live oak
	Quercus kelloggii	California black oak
	Quercus lobata	valley oak
Gentianaceae	Centaurium trichanthum	centaury
	Cicendia quadrangularis	timwort
Geraniaceae	Erodium cicutarium	cut-leaf filaree
	Erodium moschatum	white-stemmed filaree
	Geranium dissectum	cut-leaf geranium
	Geranium molle	dove's foot geranium
Iridaceae	Sisyrinchium bellum	blue-eyed grass
Isoetaceae	Isoetes howellii	Howell's quillwort
Juncaceae	Juncus bufonius ssp. bufonius	toad rush
	Juncus bufonius var. congdonii	toad rush
	Juncus capitatus	annual rush
	Juncus mexicanus	Mexican rush
	Juncus phaeocephalus var. paniculatus	iris-leaved rush
	Juncus tenuis	slender rush
	Juncus tenuis	slender rush
	Luzula comosa	wood rush
Juncaginaceae	Lilaea scilloides	flowering quillwort
Lamiaceae	Lamium amplexicaule	dead nettle
	Marrubium vulgare	horehound
	Mentha pulegium	common mint, pennyroyal
	Prunella vulgaris	selfheal
	Stachys ajugoides var. rigida	hedge-nettle
Liliaceae	Brodiaea terrestris ssp. terrestris	dwarf or ground brodiaea
	Calochortus luteus	yellow mariposa lily
	Chlorogalum pomeridianum	soap plant
	Dichelostemma capitatum	blue dicks
	Triteleia hyacinthina	white brodiaea
	Triteleia laxa	Ithuriel's spear
Limnanthaceae	Limnanthes douglasii var. nivea	meadowfoam
Lythraceae	Lythrum hyssopifolia	hyssop-leaved loosestrife

APPENDIX A. Plant species observed at 1295 Jensen Lane, Windsor.

Malvaceae	Malva neglecta	mallow
	Malvella leprosa	alkali mallow
Myrtaceae	Eucalyptus globulus	blue gum, eucalyptus
Oleaceae	Fraxinus latifolia	Oregon ash
Onagraceae	Camissonia ovata	sun cups
	Epilobium pygmaeum	boisduvalia
Oxalidaceae	Oxalis pes-caprae	oxalis, sorrel
Papaveraceae	Eschscholzia californica	California poppy
Pinaceae	Pinus radiata	Monterey pine
Plantaginaceae	Plantago lanceolata	narrow-leaved plantain, ribwort
	Plantago major	common plantain
Poaceae	Agrostis exarata	spike bent grass
	Agrostis stolonifera	creeping bent grass
	Aira caryophyllea	annual or European hairgrass
	Anthoxanthum aristatum	vernal grass
	Avena fatua	wild oat
	Briza maxima	quaking grass
	Briza media	quaking grass
	Briza minor	little quaking grass
	Bromus carinatus	California brome
	Bromus diandrus	ripgut
	Bromus hordeaceus	soft chess
	Crypsis schoenoides	swamp grass
	Cynodon dactylon	Bermuda grass
	Cynosurus echinatus	hedgehog dogtail
	Danthonia californica	California oatgrass
	Elymus glaucus	blue wildrye
	Festuca arundinacea	tall fescue
	Glyceria declinata	manna grass
	Holcus lanatus	velvet grass
	Hordeum brachyantherum	meadow barley
	Hordeum murinum ssp. gussoneanum	wild barley
	Hordeum murinum ssp. leporinum	mousetail barley
	Lolium multiflorum	Italian ryegrass
	Nassella pulchra	purple needlegrass
	Paspalum dilatatum	Dallis grass
	Phalaris aquatica	Harding grass
	Phalaris minor	annual canary grass
	Pleuropogon californicus	California semaphore grass
	Poa annua	annual bluegrass
	Polypogon monspeliensis	rabbit-foot grass
	Taeniatherum caput-medusae	Medusa-head
	Vulpia myuros	rattail fescue
Polemoniaceae	Navarretia intertexta	needle-leaved navarretia
Polygonaceae	Polygonum arenastrum	common knotweed, doorweed

Compiled from field notes by C. A. Patterson, 2017-2021

APPENDIX A. Plant species observed at 1295 Jensen Lane, Windsor.

	Rumex acetosella	sheep sorrel
	Rumex conglomeratus	clustered dock
	Rumex crispus	curly dock
	Rumex pulcher	fiddle dock
Portulacaceae	Calandrinia ciliata	red maids
	Claytonia perfoliata	miner's lettuce
	Montia fontana	water chickweed
	Montia fontana	water chickweed
Primulaceae	Anagallis arvensis	scarlet pimpernel
Ranunculaceae	Ranunculus californicus	California buttercup
	Ranunculus lobbii	Lobb's aquatic buttercup
	Ranunculus muricatus	roughseed buttercup
	Ranunculus orthorhynchus var. bloomeri	Bloomer's buttercup
	Ranunculus pusillus	dwarf spearwort
	Ranunculus sceleratus	spiny buttercup
Rosaceae	Heteromeles arbutifolia	toyon
	Prunus sp.	escaped ornamental
	Rubus discolor	Himalayan blackberry
	Rubus ursinus	California blackberry
Rubiaceae	Galium aparine	bedstraw, goose grass
Scrophulariaceae	Castilleja rubicundula ssp. lithospermoides	cream sacs
	Gratiola ebracteata	hedge hyssop
	Kickxia elatine	fluellin
	Mimulus guttatus	common monkeyflower
	Parentucellia viscosa	yellow parentucellia
	Triphysaria pusilla	dwarf owl's clover
	Triphysaria versicolor ssp. faucibarbata	owl's clover
	Veronica peregrina ssp. xalapensis	purslane speedwell
Verbenaceae	Phyla nodiflora	lippia

Compiled from field notes by C. A. Patterson, 2017-2021

Appendix B. Sensitve plants potentially at 'Jensen Lane'.

PLANT TAXON	COMMON NAME	LIST (CNPS)	HABITAT	Likely In Study Area ? (Jensen Lane)
SPECIES OF PRIMARY CONCERN:				
Castilleja uliginosa	Pitkin Marsh paintbrush	1A	marshes, wet meadow; Pitkin Marsh	No; no suitable habitat; ***presumed extinct*** ; none seen
Trifolium amoenum	showy Indian clover	1A	low rich fields, swales; clay, serpentine	No; no good habitat; ***presumed extinct*** ; none seen
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	1B	low wet places, marsh, riparian scrub	No; marginal habitat; none seen
Arctostaphylos bakeri ssp. bakeri	Baker's manzanita	1B	dry serp., near Occidental	No; no good habitat; none seen
Arctostaphylos canescens ssp. sonomensis	Sonoma manzanita	1B	chaparral	No; no good habitat; none seen
Arctostaphylos densiflora	Vine Hill manzanita	1B	dry slopes, chaparral	No; no good habitat; none seen
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	1B	chaparral, edge of woodland	No; no good habitat; none seen
Astragalus clarianus	Clara Hunt's milkvetch	1B	grassy hillsides, cismontane woodland	No; poor habitat quality onsite; none seen
Blennosperma bakeri	Baker's blennosperma or Sonoma sunshine	1B	low wet places; valley grassland, vernal pools	No; no good habitat; none seen
Campanula californica	swamp harebell	1B	freshwater marshes, bogs, closed cone pine, wet meadow, seeps	No; no good habitat; out of range?, none seen
Carex albida	white sedge	1B	open marshy places; Pitkin Marsh	No; marginal habitat; none seen; taxonomically reassigned - no longer listed?
Ceanothus confusus	Rincon Ridge ceanothus	1B	foothill woodland, chaparral	No; no good habitat; none seen

Compiled by C. Patterson, 8/2018

Appendix B. Sensitve plants potentially at 'Jensen Lane'.

Ceanothus divergens	Calistoga ceanothus	1B	chaparral, woodland; serpentine	No; no good habitat; none seen
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	1B	chaparral	No; no good habitat; none seen
Ceanothus sonomensis	Sonoma ceanothus	1B	chaparral, Hood Mountain region	No; no good habitat; none seen
Chlorogalum pomeridianum var. minus	dwarf soaproot	1B	chaparral; serpentine	No; no suitable habitat; none seen
Clarkia imbricata	Vine Hill clarkia	1B	chaparral near Pitkin Marsh	No; no good habitat; none seen
Delphinium bakeri	Baker's larkspur	1B	low brush and fencerows; coast'l prairie	No; no suitable habitat; out of range; none seen
Delphinium luteum	yellow larkspur	1B	sea bluffs, coastal scrub	No; no suitable habitat; out of range; none seen
Dirca occidentalis	western leatherwood	1B	wet rocky hills, coast. decid. forest, chaparral	No; no suitable habitat; none seen
Erigeron angustatus	narrow-leaved daisy	1B	chaparral; serpentine	No; no suitable habitat; none seen
Eriogonum nervulosum	Snow Mtn. buckwheat	1B	chaparral, barrens, rocks; serpentine	No; no suitable habitat; none seen
Fritillaria liliacea	fragrant fritillary	1B	heavy adobe soils, coastal grassland and scrub	No; poor habitat quality; none seen
Gratiola heterosepala	Bogg's Lake hedge-hyssop	1B	vernal pools, shallow marshy ground	No; marginal habitat; none seen
Hemizonia congesta ssp. Congesta	congested-headed hayfield tarplant	1B	grasslands, edges of marshes	No; marginal habitat; none seen
Hesperolinon bicarpellatum	two carpellate western flax	1B	chaparral, rockland, serpentine	No; no suitable habitat; none seen
Horkelia tenuiloba	thin-lobed horkelia	1B	mesic chaparral	No; no good habitat onsite; none seen; out of range?
Lasthenia burkei	Burke's goldfields	1B	vernal pools, wet swales	No; marginal habitat; none seen

Compiled by C. Patterson, 8/2018

Appendix B. Sensitve plants potentially at 'Jensen Lane'.

Layia septentrionalis	Colusa layia	1B	woodland, grassland; sandy, serpentine	No; marginal habitat; none seen
Legenere limosa	legenere	1B	vernal pools; valley grassland	No; marginal habitat; none seen
Lilium maritimum	coast lily	1B	coastal scrub, prairie, forest	No; no good habitat; none seen
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	1B	wet marshy ground, Pitkin Marsh	No; no suitable habitat; none seen
Limnanthes vinculans	Cunningham Marsh or Sebastopol meadowfoam	1B	vernal pools, wet meadows	No; marginal habitat; none seen
Lupinus sericatus	Cobb Mt. lupine	1B	chaparral, woodland, forest	No; poor habitat quality; none seen; out of range?
Monardella villosa ssp. globosa	robust monardella	1B	foothill woodland, clearings in chaparral	No; no good habitat; none seen
Navarretia leucocephala ssp. bakeri	Baker's navarretia	1B	vernal pools, wet swales, mesic grassland?	No; marginal habitat; none seen
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	1B	vernal pools; volcanic ash-flow	No; marginal habitat; none seen; out of range?
Navarretia leucocephala ssp. plieantha	many- flowered navarretia	1B	edges of vernal pools, meadows	No; marginal habitat; none seen
Parvisedum leiocarpum	Lake County stonecrop	1B	grass., woodland; shallow seas. pools on rocks	No; no suitable habitat; none seen; out of range?
Penstemon newberryi var. sonomensis	Sonoma beard tongue	1B	rocky chaparral	No; no suitable habitat; none seen
Pleuropogon hooverianus	Hoover's or No. Coast semaphore grass	1B	meadows, coastal decid. forest, wet places	No; no suitable habitat; out of range?; none seen
Potentilla hickmanii	Hickman's cinquefoil	1B	coastal and freshwater marsh	No; no suitable habitat; none seen
Rhynchospora californica	California beaked rush	1B	bogs, swamps, freshwater marsh	No; no suitable habitat; none seen

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Appendix B. Sensitve plants potentially at 'Jensen Lane'.

Sidalcea hickmanii ssp. viridis	Marin checkerbloom	1B	chaparral	No; no suitable habitat; none seen
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	1B	meadows, mesic riparian	No; no suitable habitat; none seen
Sidalcea oregana ssp. valida	Kenwood Marsh checkerbloom	1B	freshwater marsh	No; no suitable habitat; none seen
Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	1B	serpentine	No; no suitable habitat; none seen
Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	1B	serpentine	No; no suitable habitat; none seen
Streptanthus glandulosus ssp. hoffmanii	secund jewelflower	1B	chaparral, barrens; serpentine	No; no suitable habitat; none seen
Streptanthus morrisonii ssp. elatus	Three Peak's jewelflower	1B	chaparral, barrens; serpentine	No; no suitable habitat; none seen
Streptanthus morrisonii ssp. kruckebergii	Kruckeberg's jewelflower	1B	chaparral, barrens; serpentine	No; no suitable habitat; none seen
Streptanthus morrisonii ssp. morrisonii	Morrison's jewelflower	1B	chaparral, barrens; serpentine	No; no suitable habitat; none seen
Tracyina rostrata	beaked tracyina	1B	woodland, grassland	No; poor habitat quality; none seen
Calamagrostis crassiglumis	Thurber's reed grass	2	freshwater marsh, wet meadow, coast. scrub	No; no suitable habitat; none seen; out of range?
Downingia pusilla	dwarf downingia	2	vernal pools; valley grassland	No; marginal habitat; none seen
SPECIES OF SECONDARY CONCERN:				
Cardamine pachystigma var. dissectifolia	dissected-leaved toothwort	3	chaparral, meadow; serpentine	No; no suitable habitat; none seen
Erigeron biolettii	streamside daisy	3	riparian zone in woodland, broad- leaved forest	No; no suitable habitat; none seen
Lessingia hololeuca	woolly-headed lessingia	3	grassland, barrens, scrub; serpentine, clay	No; no suitable habitat

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Appendix B. Sensitve plants potentially at 'Jensen Lane'.

Pogogyne douglasii ssp. parviflora	Douglas' pogogyne	3	vernal pools, low seas. wet places	No; marginal habitat; none seen
Amsinckia lunaris	bent- flowered fiddleneck	4	valley and foothill grassland	No; poor habitat quality; none seen
Antirrhinum virga	tall snapdragon	4	chaparral	No; no suitable habitat; none seen
Arabis blepharophylla	coast rock cress	4	rocky places, cliffs, coastal scrub, prairie	No; no suitable habitat; none seen; out of range?
Asclepias solanoana	serpentine milkweed	4	serpentine rockland, chaparral	No; no suitable habitat; none seen
Astragalus breweri	Brewer's milkvetch	4	chaparral, woodland, grassland	No; no good habitat; none seen
Calamagrostis bolanderi	Bolander's reed grass	4	freshwater marsh, scrub, meadows	No; no good habitat; none seen
Calochortus umbellatus	Oakland star tulip	4	dry wooded or barren hills; serpentine; meadows	No; no suitable habitat; none seen; out of range?
Calyptridium quadripetalum	four-petaled pussy-paws	4	chaparral; sand/gravel, serpentine	No; no suitable habitat; none seen
Calystegia collina ssp. oxyphylla	Mt. St. Helena morning-glory	4	chaparral, serpentine	No; no suitable habitat; none seen
Cirsium andrewsii	Fransiscan thistle	4	broadleaved up. forest, coastal bluffs; serpentine	No; no suitable habitat; none seen
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	4	chaparral, woodland, rocks; serpentine	No; no suitable habitat; none seen
Cypripedium montanum	mountain lady's slipper	4	lower coniferous forest	No; no suitable habitat; none seen
Cypripedium fasciculatum	clustered lady's-slipper	4	open rocky woods, redwd. to yellow pine	No; no suitable habitat; none seen
Elymus californicus (Hystrix c.)	California bottlebrush grass	4	coastal, shaded woods and forest	No; no good habitat; none seen

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Appendix B. Sensitve plants potentially at 'Jensen Lane'.

Erythronium helenae	St. Helena fawn lily	4	chaparral, woodland, grass.; volc or serpentine	No; no good habitat; none seen
Lilium rubescens	redwood lily	4	mixed evergreen forest, chaparral	No; no suitable habitat; none seen
Linanthus acicularis	bristly linanthus	4	chaparral, woodland, prairie	No; poor habitat onsite; none seen
Lomatium repostum	Napa lomatium	4	shaded woods, chaparral	No; poor habitat onsite; none seen
Micropus amphibolus	Mt. Diablo cottonweed	4	foothill woodland, upland forest, rocky grassland	No; poor habitat onsite; none seen
Monardella undulata	curly-leaved monardella	4	coastal dunes, scrub, chaparral	No; no suitable habitat; none seen
Monardella viridis ssp. viridis	green monardella	4	chaparral, woodland, upland forest	No; no suitable habitat; none seen
Perideridia gairdneri ssp. gairdneri	Gairdner's yampah	4	moist places, marshes, woodland	No; marginal habitat; none seen
Pityopus californicus	California pinefoot	4	deep shade, mixed evergreen forest	No; no suitable habitat; none seen
Ranunculus lobbii	Lobb's aquatic buttercup		shallow vernal ponds & pools	YES; small colony (< 100 plants) found onsite
Rhynchospora alba	white beaked rush	4	bogs, freshwater marsh	No; no suitable habitat; none seen
Rhynchospora globularis var. globularis	round headed beaked rush	4	bogs, freshwater marsh	No; no suitable habitat; none seen
Ribes victoris	Victor's gooseberry	4	broadleaved up. forest, chaparral	No; no good habitat; none seen
Cirsium walkerianum	Alameda Co. thistle		dry slopes, mixed ever-green forest	No; no good habitat; none seen
Trifolium grayi	Gray's clover		meadows, mesic grassland	No longer listed; poor habitat quality; none seen

Compiled by C. Patterson, 8/2018

Appendix B. Sensitve plants potentially at 'Jensen Lane'.

OTHER SPECIES OF POSSIBLE CONCERN:				
Cuscuta howelliana	Bogg's Lake dodder		vernal pools	No longer listed; no good habitat; none seen
Hemizonia multicaulis ssp. multicaulis	seaside tarplant		coastal bluffs, scrub	No longer listed; poor habitat quality; none seen
Hemizonia multicaulis ssp. vernalis	Tiburon tarplant		coastal scrub prairie; serpentine	No longer listed; poor habitat quality; none seen

APPENDIX C. Sensitive wildlife potentially in central Sonoma County.

Animal Species	Status *	Habitat	Likely to occur onsite ?
MAMMALS			
Pallid bat *Antrozous pallida*	--/CSC	Roosts in cracks in cliffs, rock outcrops, old buildnings, under bridges	May forage onsite; not seen during prior surveys (LSA2011)
Townsend's big-eared bat *Corynorhinus townsendii*	--/CSC	Roosts in old buildings, caves	May forage onsite; not seen during prior surveys (LSA2011)
Western red bat *Lasiurus blossevillii*	--/CSC	Roosts in trees of forest, woodland	Not likely; only one historic report in Sonoma Co (Cloverdale)
American badger *Taxidea taxus*	--/CSC	Open habitats with friable soils	Could forgae onsite, but no burrows seen
BIRDS			
White-tailed kite *Elanus leucurus*	--/CFP	Forages in grasslands, meadows; nests in solitary trees	May forage onsite occasionally; none seen
Northern harrier (marsh hawk) *Circus cyaneus*	--/CSC	Forages and nests in grasslands, meadows, marshes	May forage onsite occasionally; none seen
Vaux's swift *Chaetura vauxi*	--/CSC	Nests in large hollow trees; forages primarily in riparian	May forage onsite; no swifts seen during prior surveys (LSA2011)
Purple martin *Progne subis*	--/CSC	Woodlands; nests in snags	May forage onsite; not seen during prior surveys (LSA2011)
Yellow warbler *Dendroica petechia*	--/CSC	Riparian woodlands, thickets	Not likely onsite; no suitable riparian habitat
Loggerhead shrike *Lanius ludovicianus*	--/CSC	Dense brush or trees; forages in scrub, grasslands	May forage onsite; not seen during prior (LSA2011) or recent surveys
Yellow-breasted chat *Icteria virens*	--/CSC	Riparian woodlands, thickets	Not likely onsite; no suitable riparian habitat
Tricolored blackbird *Agelaius tricolor*	--/CSC	Nests in dense vegetation near open water; forages in grasslands, ag land	May forage onsite; suitable nesting habitat present, but none seen during prior (LSA2011) or recent surveys
Short-eared owl *Asio flammeus*	--/CSC	Open treeless habitats; nests in dense vegetation	Could forage onsite in winter, but doesn't breed in this region
Western burrowing owl *Athene cunicularia hypugea*	--/CSC	Nests in ground burrows of other animals; grasslands	Could forage here on occasion, but doesn't breed in this region; no suitable burrows (or owls) seen

APPENDIX C. Sensitive wildlife potentially in central Sonoma County.

AMPHIBIANS			
California tiger salamander *Ambystoma californiense*	FE/CT	Breeds in vernal pools and other ponds	Not likely onsite; no suitable breeding habitat onsite or nearby; nearest known sighting 5+ miles to SW; outside of FWS designated 'Critical Habitat'
California red-legged frog *Rana draytonii*	FT/CSC	Pools in streams, ponds, marshes	Not likely; onsite habitats of marginal character (lack of sufficient ponding); no known records nearby
Foothill yellow-legged frog *Rana boylii*	--/CSC	Rocky banks of clean creeks; breeds in backwaters, pools	Not likely; onsite habitats of marginal character (lack of rocky substrates); no known records nearby
REPTILES			
Pacific pond turtle *Actinemys marmorata*	--/CSC	Ponds, perennial creeks; nests and forages in adjacent grasslands	No; no suitable ponded habitats onsite or nearby
Coast horned lizard *Phrynosoma coronatum*	--/CSC	Open sunny habitats; feeds on ants	No; not likely given the mesic and/or disturbed character of onsite grassland

* FE = federally listed as 'Endangered'
* CT = State listed as 'Threatened'
* CFP = State listed as 'Fully Protected'
* CSC = State species of 'Special Concern'

Appendix D

Selected Photos

Biological Assessment Prepared For
1295 Jensen Lane, Windsor



Plate 1. Looking NNE across northeastern quarter of site, drainage swales (white lines, approx.) feed to far left, March, 2018.



Plate 2. Small intermittently ponded section of lower swale (at confluence) .



Plate 3. Looking SW at southwestern corner of site, March, 2018; 0.2 acre 'stair-step' wetland is in the middle/left of the photo (arrow), but is not evident, as it is primarily saturated ground (meadow). Full urban neighborhoods to the west (right) and vineyard directly south (background, center/left).



Plate 4. Shallow rainpool just after a storm; this is the 'deepest' part (3-6 inches) of the same 'stair-step' wetland area that is shown from a distance above; with several weeks of no rain, these puddles draw down and dry out.



Plate 5. Ultimate exit point (drop inlet to buried storm drain system beneath Windsor) for all surface drainage from the northern half of the site; all the onsite swales coalesce and then, draining westward, follow a short, small channel (see Plate 2) to this drain capture point.

Appendix E

Investigator's Qualifications

Charles A. Patterson, Plant Ecologist

Biological Assessment Prepared For
1295 Jensen Lane, Windsor

Charles A. Patterson

1806 Ivanhoe Avenue, Lafayette, CA 94549

PLANT ECOLOGIST, WETLAND SPECIALIST, RESOURCE MANAGER, NATURALIST

Ph: (925) 938-5263 (925 'wetland') cell: (510) 414–7976 email: cpwetguy@sbcglobal.net

EDUCATION

M.S. in Range Management & Wildland Ecology, 1974, University of California at Davis
B.S. in Renewable Natural Resources, 1972, UC Davis
Undergraduate coursework in Mechanical Engineering, 1968-1970, UC Santa Barbara
American Graduate University, trained in Proposal Preparation and Source Selection, 1980

WORK HISTORY

Mr. Patterson is a professional plant ecologist and wetland specialist with 45 years of work experience, including 38 years as an independent consultant in California and other western states. He has participated in over 600 environmental assessments, EIRs/EISs, rare plant surveys, restoration plans, and related studies. He has completed rare plant surveys for the 19,000 acre Marin Municipal Water District, the 29,000 acre "Flying 'M' Ranch" in Merced County, and numerous smaller properties around northern California. With an emphasis on rare plant and wetland ecology, Mr. Patterson has designed, implemented, and monitored seven wetland and rare plant mitigation banks (and dozens of other wetland mitigation projects) in Sonoma County, and is a frequent contributor to California's Natural Diversity Data Base and CalFlora's photographic plant database.

1984 - present: Self-employed Consulting Ecologist. Conducted or participated in several hundred environmental studies, including numerous wetland delineations, sensitive species surveys, and development site evaluations; mitigation and revegetation design, implementation and monitoring; habitat (including wetland) restoration plans; specialized botanical and wetland related studies (e.g., listed species propagation, pest species treatments, violation investigations); and seven ongoing wetland mitigation banks on the Santa Rosa Plain. Congressional appointee (as a wetland and vernal pool expert) to the Sonoma County Vernal Pool Task Force, 1989-1994. Surveys and reports for numerous power transmission line, hydro-electric, and reservoir proposals in Kern, Merced, Sonoma, Ventura, and Riverside counties. Acted as fill-in technical specialist for six months reviewing mine reclamation plans for the Calif. Division of Mines and Geology.
1977 - 1982: Western Ecological Services Company (WESCO), Marin County. Associate and Senior Plant Ecologist. Directed vegetation, rare plant, and wetland studies for over 200 projects; prepared technical and cost proposals for both botanical and interdisciplinary studies; hired and supervised botanical subcontractors (including a team of ten botanists to survey the 'Geothermal Public Power Line' – Geysers to Williams); project management and staff supervision; technical (and full report) writing, editing, and production. Over 50 wetland delineations; expert witness for three court cases involving wetland JDs.
1974 - 1976: The Nature Conservancy, Western Regional Office, San Francisco. Research Ecologist. Prepared vegetation inventories for 10 nature preserves in California and Washington; hired and supervised interdisciplinary study teams for preparation of inventories and master plans for 15 preserves in Calif.; completed natural resources reference study of Santa Cruz Island (cover article in 'Fremontia' April, 1978); evaluated potential site acquisitions.
1973 - 1974: U.S. Forest Service, Riverside Fire Lab. Graduate Research Assistant. Studied the effectiveness of Angora goats in fuel break establishment and/or maintenance in the Sierra Nevada foothills.
1982 - 1985: ECHO - The Wilderness Company, Oakland, CA. After being laid off in the 1982 recession, I worked part time as a professional whitewater river guide and naturalist in California, Oregon, Idaho.
1971 - 1991: Northern California Volleyball Officials Association. Part time professional volleyball referee for collegiate and professional leagues in northern California.

CAPABILITIES AND WORK EXPERIENCE

Plant Taxonomy: Firsthand experience with the flora of most western states, including California, Nevada, Oregon, Washington, Arizona, New Mexico, Utah, Colorado, and Idaho. Taught informal wetland botany field classes to Army Corps of Engineers staff.
Vegetation Mapping: Plant community and habitat mapping utilizing topographic maps, air photos, stereoscope interpretation; soil-veg correlations and range site descriptions; delineation of 'wetlands and other waters'; wildlife habitat assessments; and physically demanding ground surveys. Have mapped the vegetation of the Desolation and Mokelumne Wilderness areas (USFS), conducted rare plant surveys and mapping of the 19,000 acre Marin Municipal Water District, cataloged and mapped the riparian vegetation of the Sacramento and San Joaquin riverbanks (Redding to Verona, Friant to Stockton), coordinated the vernal pool and rare plant surveys and mapping of the 15,000+ acre "Flying 'M' Ranch" in Merced County (1983), and surveyed and mapped numerous ranches

and development sites in Sonoma, Marin, Lake, Napa, Contra Costa, Alameda, San Mateo, Placer, Eldorado, and other California counties.

Quantitative Sampling: Documentation and descriptions of plant communities using transect, quadrat, releve, and/or permanent plot methods. Range condition and forage production estimates; technical wetland data (soil, vegetation, hydrology) collection and interpretation; restored vegetation and sensitive species monitoring; constructed wetland monitoring via fixed transects.

Rare and Endangered Plant Species: Literature/herbaria searches, 'ID' and historic mapping research, detailed field surveys, expert and agency coordination, management and recovery plans, habitat suitability determinations, rare plant impact assessments and mitigation plans, sensitive species use in revegetation, and preserve design. Firsthand experience with over 300 of California's rare and endangered plant taxa, familiarity with many of the state's centers of endemism. Frequent contributor to the California Native Plant Society, Natural Diversity Data Base, and CalPhotos data files; expert reviewer of proposed state and federal plant listings and status reports. Personally discovered many listed plant locations in Sonoma County. Lead author of "Inventory of Rare Plant Locations and Sites Surveyed for Wetland Resources on the Santa Rosa Plain", prepared for the Calif. Dept. of Fish and Game, 1994; with Betty Guggolz and Marco Waaland).

Wetlands: Wetland delineation and mapping, including full coordination with the U.S. Army Corps of Engineers (USACE); habitat evaluations; wetland management and restoration. Experience with salt and freshwater wetlands, coastal and estuarine, riparian and floodplains, wet meadows, alpine meadows, bogs and hot springs, vernal pools and other seasonal wetlands, ephemeral and perennial stream systems. Have completed over 400 wetland delineations and surveys throughout the state. Have worked closely with the USACE, San Francisco, Sacramento, Ventura districts. Preparation of wetland fill (Section 404) permit applications (including Pre-Discharge Notifications, Nationwide Permits, Individual Permits, Alternatives Analyses), State 401 Certification; wetland mitigation feasibility, design, implementation, and monitoring. I began mapping ("delineating") wetlands in 1978, prior to the USACE's now-standard 1987 delineation manual, and have spent several hundred person-hours in the field (and some classroom) in the 1980s, 1990s, and 2000s, with Mr. Dan Martel of the USACE, their (at the time) pre-eminent "Wetland Specialist" and nationally known wetland expert. Under his technical direction, I completed close to 100 JDs. I completed a training course in "The Unified Federal Method" in 1989, an attempt by the USACE to upgrade the 1987 manual, but which was never adopted.

Revegetation and Restoration: Basic revegetation planning and implementation; site evaluations and revegetation design; species palettes and planting specifications; range improvement, restoration, and conversion; weed assessment; specialty consignment growing (e.g., native grasses, rare species); wildlife habitat enhancement; riparian restoration.

Fire Ecology: Basic wildfire hazard assessment; botanical input for fire management plans; conceptual burning plans for habitat enhancement and fuel reduction.

Environmental Regulations: Interpretation and coordination with state and federal environmental regulations, CEQA, NEPA, Clean Water Act, state and federal Endangered Species Acts, Wild and Scenic Rivers Act, EIR and EIS requirements, FERC (small and large) hydro-electric projects, and Corps of Engineers (404) permits; coordination with city and county general plans and policies.

Other: Considerable experience with energy/utility facility siting and development (power plants, access roads, steam lines, penstocks, pipelines, reservoirs, transmission lines); 30+ small hydroelectric projects. Rare plant photography and propagation; urban landscaping with native plants.

REFERENCES

Charlie Traboulsi, TDG Engineers, Santa Rosa (707) 494-0425
Larry Wasem, Patrick Imbimbo, Airport Business Center, Santa Rosa, (707) 578-5344
Christopher Desmond, Mitigation Bank Owner, Sebastopol (415) 308-1000
Jean Kapolchok, Planner/Principal, J. Kapolchok & Associates, Santa Rosa (707) 526-8939

PARTIAL LIST OF CLIENTS

The Nature Conservancy; AT&T; California Coastal Conservancy; PG&E; Calif. Dept. of Fish and Wildlife; Jackson Family Wines; Chalk Hill Winery; U.S. Forest Service (Inyo, Eldorado, Toyabe, Stanislaus); Bureau of Land Management; East Bay Municipal Utility District; Sonoma County Dept. of Public Works; U.S. National Park Service; Marin Municipal Water District; Sacramento Municipal Utility District; Calif. Div. of Mines and Geology; Wetland Research Associates, San Rafael; LSA Associates, Point Richmond; QUESTA Engineers, Point Richmond; Sonoma County Water Agency; Sonoma Co. Ag. Preservation and Open Space District; Munselle Civil Engineering, Healdsburg

HORTICULTURAL
Associates

Consultants in Horticulture and Arboriculture

TREE PRESERVATION AND MITIGATION REPORT

The Estates at Ross Ranch
1295 Jensen Lane
Windsor, CA

Prepared For:

Synergy Communities
435 E Street
Santa Rosa, CA 95404

Prepared by:

John C. Meserve
Consulting Arborist and Horticulturist
ISA Certified Arborist, WE #0478A
ISA Qualified Tree Risk Assessor

January 31, 2019

HORTICULTURAL Associates

Consultants in Horticulture and Arboriculture
P.O Box 1261, Glen Ellen, CA 95442

January 31, 2019

Mr. Kent Byers
Synergy Communities
435 E Street
Santa Rosa, CA 95404

Re: Completed *Tree Preservation and Mitigation Report*, 1295 Jensen Lane, Windsor, California

Kent,

Attached you will find our completed *Tree Preservation and Mitigation Report* for the above noted site in Santa Rosa. A total of 62 trees were evaluated and this includes all native tree species that are present over 6 inches in trunk diameter per the Windsor Tree Ordinance. Many other trees are present at the site that are not protected by the Ordinance including Eucalyptus and Acacia.

Each tree is identified in the field with a numbered aluminum tag placed on the trunk at approximately eye level.

All trees in this report was evaluated and documented for species, size, health, and structural condition. The *Tree Inventory Chart* also includes information about expected impacts of the proposed development plan and recommendations for action based on the plan reviewed. The *Tree Location Plan* shows the location and numbering sequence of all evaluated trees.

EXISTING SITE CONDITION SUMMARY

The project site consists of an empty field with remnant structures, bordered on two sides by residential subdivisions, one side by an empty field, and one side by a vineyard.

EXISTING TREE SUMMARY

Native species at the site include Coast Live Oak, Valley Oak, Black Oak, and California Bay Laurel.

Non-native species that were not included in this study included Blue Gum Eucalyptus and Green Wattle Acacia.

CONSTRUCTION IMPACT SUMMARY

All trees at this site will require removal due to the specified grading.

Please feel free to contact me if you have questions regarding this report, or if further discussion would be helpful.

Regards,

John C. Meserve
Consulting Arborist and Horticulturist
ISA Certified Arborist, WE #0478A
ISA Qualified Tree Risk Assessor



TREE INVENTORY CHART

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
1	*Quercus lobata*	Valley Oak	8.5+6+5.5+6.5+4+3	32	18	4	3	1	2
2	*Quercus lobata*	Valley Oak	6.5+4+4+3+4+2+2.5	30	16	4	3	1	2
3	*Quercus agrifolia*	Coast Live Oak	7+4+7+6.5+4+4+5+6	25	20	4	3	1	2
4	*Quercus lobata*	Valley Oak	6+4+4+3+5+5	30	16	4	3	1	2
5	*Quercus lobata*	Valley Oak	10+12+4	30	16	4	3	1	2
6	*Quercus lobata*	Valley Oak	7	21	8	3	3	1	2
7	*Quercus lobata*	Valley Oak	8+4	22	14	4	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
8	*Quercus lobata*	Valley Oak	6.5+4.5+4+2	25	14	4	3	1	2
9	*Quercus lobata*	Valley Oak	6	20	9	4	3	1	2
10	*Quercus lobata*	Valley Oak	8	23	12	4	3	1	2
11	*Quercus lobata*	Valley Oak	6.5+5.5	22	12	3	3	1	2
12	*Quercus lobata*	Valley Oak	8+4.5+10+9	30	22	2	3	1	3, 2
13	*Quercus lobata*	Coast Live Oak	6+3.5	18	14	4	3	1	2
14	*Quercus lobata*	Valley Oak	10	22	12	4	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
15	*Quercus lobata*	Valley Oak	10.5	26	14	4	3	1	2
16	*Quercus lobata*	Valley Oak	3+8+5+4.5+5.5+6.5+7	28	16	4	3	1	2
17	*Quercus lobata*	Valley Oak	6+4+6+5.5+4.5+6+4.5	35	16	4	3	1	2
18	*Quercus lobata*	Valley Oak	7.5	26	12	4	3	1	2
19	*Quercus lobata*	Valley Oak	9+5+6+6+4+6+4	30	14	4	3	1	2
20	*Quercus lobata*	Valley Oak	6	20	12	4	3	1	2
21	*Quercus lobata*	Valley Oak	6+8+7+6	35	16	4	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
22	*Quercus keloggii*	Black Oak	19.5+22.5+26	38	28	3	2	1	3, 2
23	*Quercus lobata*	Valley Oak	20+16+12	40	30	3	2	1	3, 2
24	*Quercus lobata*	Valley Oak	10	25	12	3	4	1	2
25	*Quercus lobata*	Valley Oak	34	50	30	3	3-2	1	3, 2
26	*Quercus lobata*	Valley Oak	17	40	14	2	3	1	3, 2
27	*Quercus lobata*	Valley Oak	14.5	45	18	3	3	1	2
28	*Quercus lobata*	Valley Oak	8+2	28	12	3	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
29	*Quercus lobata*	Valley Oak	33	50	36	3	3	1	2
30	*Quercus lobata*	Coast Live Oak	6.5+10.5	30	16	3	3	1	2
31	*Quercus lobata*	Valley Oak	13.5+11.5	20	16	3	3	1	2
32	*Quercus agrifolia*	Coast Live Oak	3+2+6+3+4	20	14	4	3	1	2
33	*Quercus lobata*	Valley Oak	8	25	10	4	3	1	2
34	*Umbellularia californica*	California Bay	16+16+16	35	24	3	2	1	3, 2
35	*Quercus agrifolia*	Coast Live Oak	4+3+3+3+7+5+6+4	23	14	4	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
36	*Quercus lobata*	Valley Oak	7.5+4.5	25	14	4	3	1	2
37	*Quercus lobata*	Valley Oak	17+5+9+6+7+6+5.5	30	20	4	3	1	2
38	*Quercus lobata*	Valley Oak	6+6+5+6	20	16	4	3	1	2
39	*Quercus agrifolia*	Coast Live Oak	6.5+3+2+5	20	12	4	3	1	2
40	*Quercus lobata*	Valley Oak	8+8+4+4	30	16	4	3	1	2
41	*Quercus keloggii*	Black Oak	9+6+6+7+5+7	28	18	4	3	1	2
42	*Quercus lobata*	Valley Oak	6+5	25	14	4	3	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
43	*Quercus lobata*	Valley Oak	6+5.5	30	14	4	3	1	2
44	*Quercus agrifolia*	Coast Live Oak	3+2+4+6+8+9+7	25	16	4	3	1	2
45	*Quercus lobata*	Valley Oak	6.5	28	10	4	3	1	2
46	*Quercus agrifolia*	Coast Live Oak	9+6	20	14	4	3	1	2
47	*Quercus lobata*	Valley Oak	5.5+7	30	14	3	3	1	2
48	*Quercus lobata*	Valley Oak	6.5+7+6.5+6.5+6.5+7 +6	36	16	4	3	1	2
49	*Quercus lobata*	Valley Oak	9	32	12	3	4	1	2

TREE INVENTORY
1295 Jensen Lane
Windsor, CA

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
50	*Quercus lobata*	Valley Oak	8	30	12	3	3	1	2
51	*Quercus lobata*	Valley Oak	7.5	18	10	4	3	1	2
52	*Quercus keloggii*	Black Oak	6+6.5+5	18	10	4	3	1	2
53	*Quercus lobata*	Valley Oak	6	16	10	4	3	1	2
54	*Quercus agrifolia*	Coast Live Oak	5.5+6.5	14	8	4	3	1	2
55	*Quercus lobata*	Valley Oak	6	14	5	4	3	1	2
56	*Quercus lobata*	Valley Oak	8+4+4	28	14	4	3	1	2

Tree #	Species	Common Name	Trunk (dbh ± inches)	Height (± feet)	Radius (± feet)	Health (1 - 5)	Structure (1 - 4)	Expected Impact	Recommendations
57	*Quercus agrifolia*	Coast Live Oak	4+4+7+7+4	28	14	4	3	1	2
58	*Quercus agrifolia*	Coast Live Oak	6.5+4+4+2	12	6	3	3	1	2
59	*Quercus agrifolia*	Coast Live Oak	6+5+10+5	20	16	4	3	1	2
60	*Quercus lobata*	Valley Oak	8+8+4	30	14	4	3	1	2
61	*Quercus lobata*	Valley Oak	6+5+3+4+4+4.5	32	16	4	3	1	2
62	*Quercus lobata*	Valley Oak	6+5+5+5	30	14	4	3	1	2

KEY TO TREE INVENTORY CHART

KEY TO TREE INVENTORY CHART

Tree Number

Each tree has been identified in the field with an aluminum tag and reference number. Tags are attached to the trunk at approximately eye level. The *Tree Location Plan* illustrates the location of each numbered tree.

Species

Each tree has been identified by genus, species and cultivar if known.

Common Name

Each tree has been assigned a common name for easy reference. Many trees have more than one common name, and this sometimes creates confusion.

Trunk

Each trunk has been measured or estimated in inches, to document its diameter at 4.5 feet above adjacent grade. Trunk diameter is a good indicator of age, and is commonly used to determine mitigation replacement requirements.

Height

Height is estimated in feet, using visual assessment.

Radius

Radius is estimated in feet, using visual assessment. Since many canopies are asymmetrical, it is not uncommon for a radius estimate to be an average of the canopy size. Radius is not a measure of the area of root system which may extend well beyond the dripline depending on numerous variables.

Health

The following descriptions are used to rate the health of a tree. Trees with a rating of 4 or 5 are very good candidates for preservation and will tolerate more construction impacts than trees in poorer condition. Trees with a rating of 3 may or may not be good candidates for preservation, depending on the species and expected construction impacts. Trees with a rating of 1 or 2 are generally poor candidates for preservation.

(5) Excellent - health and vigor are exceptional, no pest, disease, or distress symptoms.

(4) Good - health and vigor are average, no significant or specific distress symptoms, no significant pest or disease.

(3) Fair - health and vigor are somewhat compromised, distress is visible, pest or disease may be present and affecting health, problems are generally correctable.

(2) Marginal - health and vigor are significantly compromised, distress is highly visible and present to the degree that survivability is in question.

(1) Poor - decline has progressed beyond the point of being able to return to a healthy condition again. Long-term survival is not expected. This designation includes dead trees.

Structure

The following descriptions are used to rate the structural integrity of a tree. Trees with a rating of 3 or 4 are generally stable, sound trees which do not require significant pruning, although cleaning, thinning, or raising the canopy might be desirable. Trees with a rating of 2 are generally poor candidates for preservation unless they are preserved well away from improvements or active use areas. Significant time and effort would be required to reconstruct the canopy and improve structural integrity. Trees with a rating of 1 are hazardous and should be removed.

(4) Good structure - minor structural problems may be present which do not require corrective action.

(3) Moderate structure - normal, typical structural issues which can be corrected with pruning.

(2) Marginal structure - serious structural problems are present which may or may not be correctable with pruning, cabling, bracing, etc.

(1) Poor structure - hazardous structural condition which cannot be effectively corrected with pruning or other measures, may require removal depending on location and the presence of targets.

Development Impacts

The expected impacts of development are predicted based on the species, health and vitality, structural characteristics, and location in relation to proposed grading, trenching, paving, or construction.

(1) A significant impact on long term tree integrity can be expected as a result of proposed development.

(2) A moderate impact on long term tree integrity can be expected as a result of proposed development.

(3) A minor impact on long term tree integrity can be expected as a result of proposed development.

Recommendations

Recommendations are included for removal or preservation. For those being preserved, protection measures and mitigation procedures to offset impacts and improve tree health are provided.

(1) Preservation appears to be possible.

(2) Removal is required due to significant development impacts.

(3) Removal is required due to poor health or hazardous structure.

(4) Removal is required due to significant development impacts and poor existing condition.

(5) Install temporary protective fencing at the edge of the dripline, or edge of approved construction, prior to beginning grading or construction. Maintain fencing in place for the duration of all construction activity in the area.

(6) Maintain existing grade within the fenced portion of the dripline. Route drainage swales and all underground work outside the dripline.

(7) Place a 4" layer of chipped bark mulch over the soil surface within the fenced dripline prior to installing temporary fencing. Maintain this layer of mulch throughout construction.

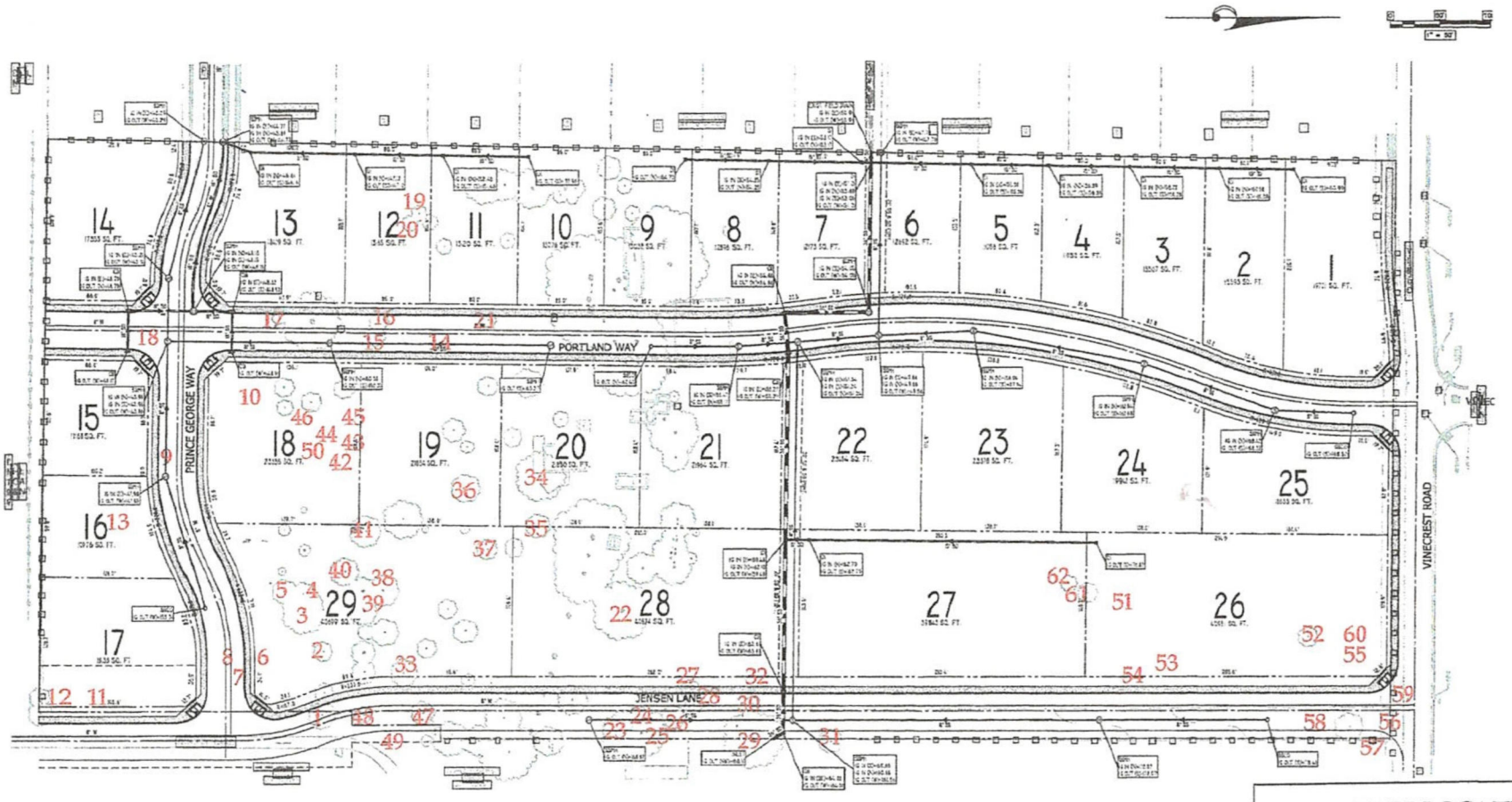
(8) Prune for access and equipment clearance, only as needed, prior to the start of construction. Utilize ANSI A300 pruning standards as the specification for any required pruning.

(9) To reduce development impacts to an acceptable level to preserve tree health incorporate specific mitigation measures for compaction, paving, and trenching within dripline areas.

(10) Exempt species, no mitigation required.

(11) Tree is located off project site, but canopy overhangs slightly.

TREE LOCATION PLAN



TREE LOCATION & NUMBERING PLAN

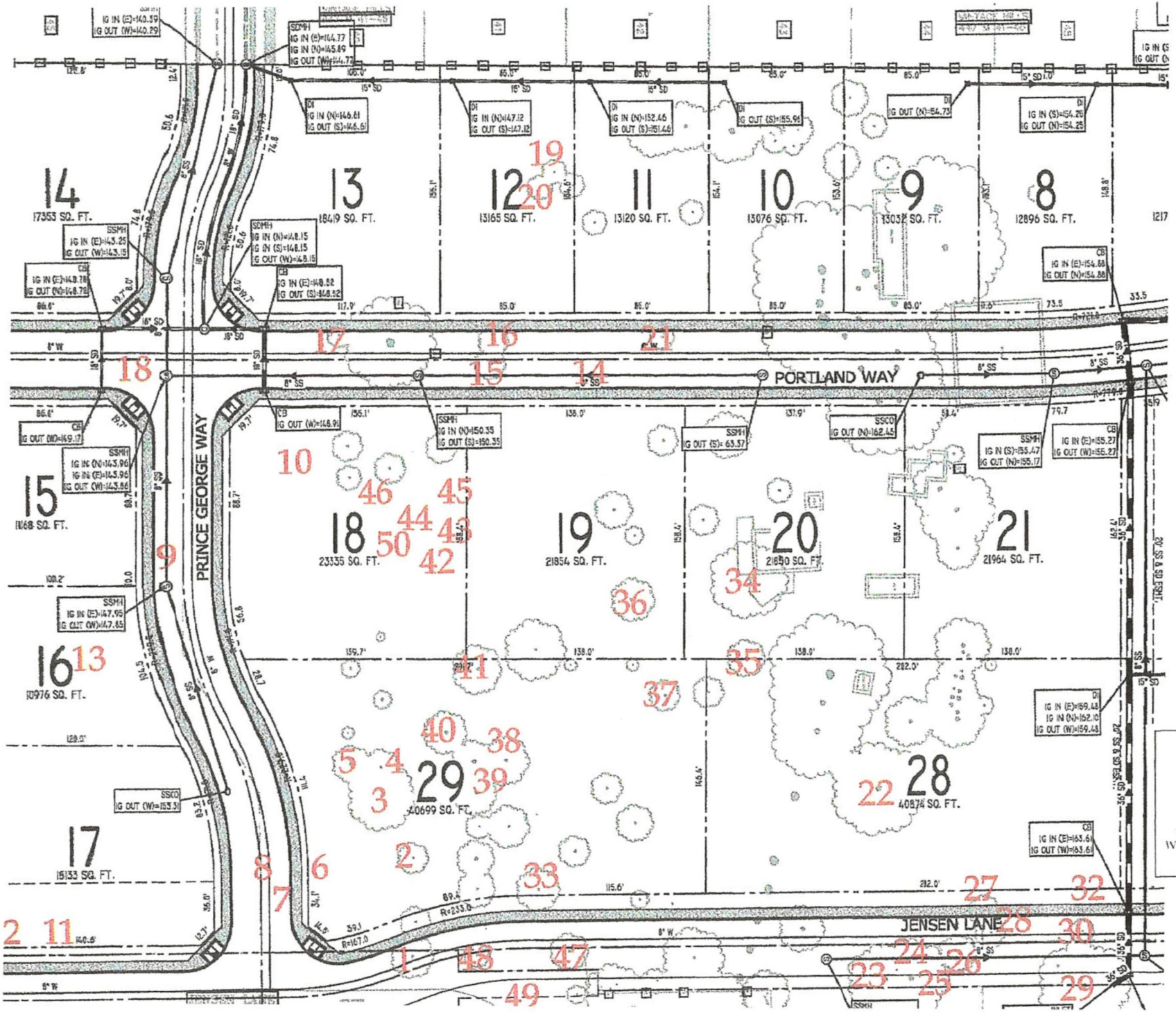
1295 Jensen Lane
Windsor, California

THIS PLAN TO BE USED IN CONJUNCTION WITH TREE MITIGATION AND PRESERVATION REPORT DATED 1/31/19

JOHN C. MESERVE

CONSULTING ARBORIST
International Society of Arboriculture,
Certified Arborist WE #0478A

HORTICULTURAL ASSOCIATES
P.O. BOX 1261 / GLEN ELLEN, CA 95442
707.935.3911



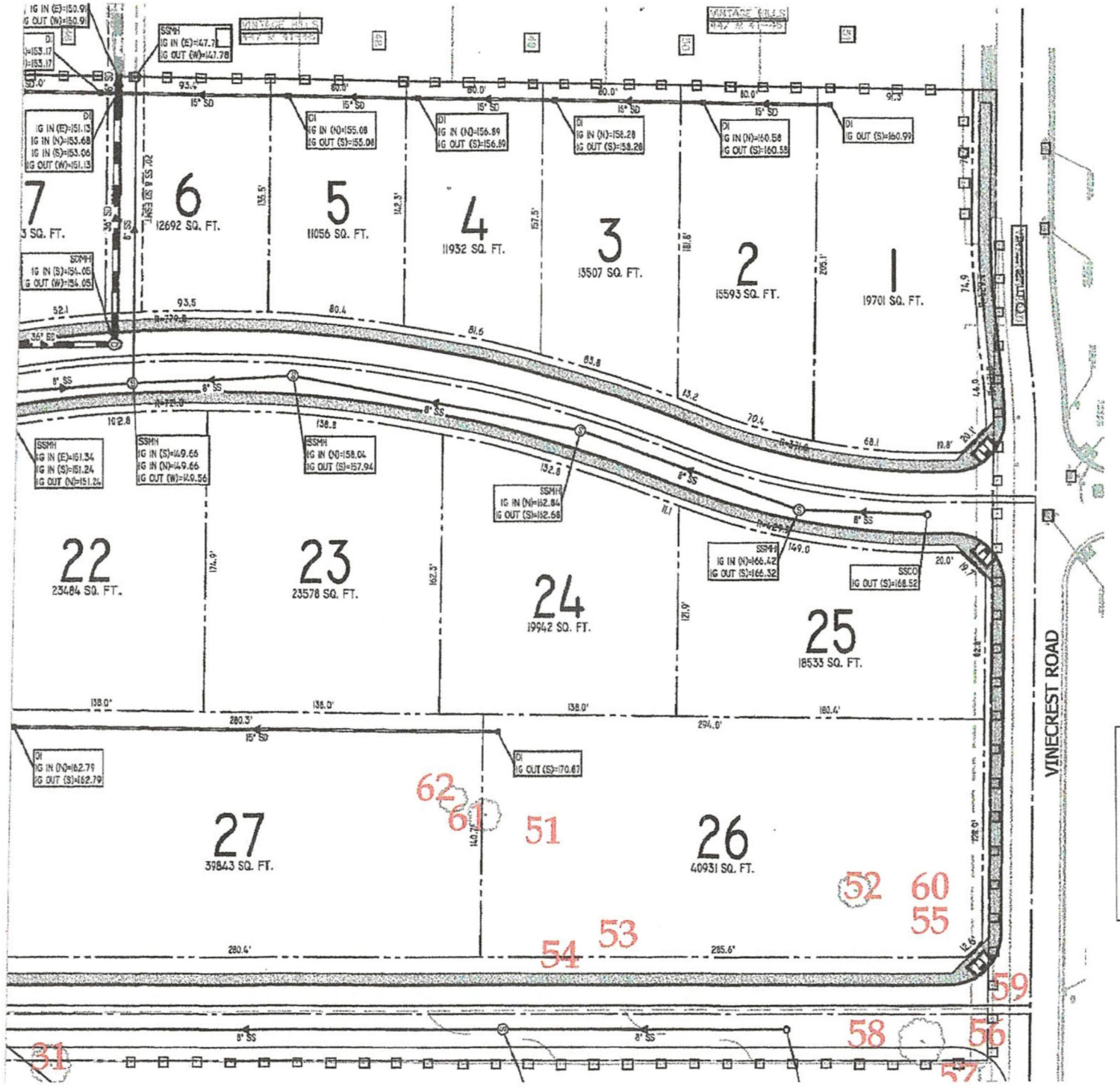
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DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

AUG - 8 2019

Regulatory Division

Subject: File No. 2011-00360N

Mr. Kent Byers
Synergy Communities of Santa Rosa
435 E Street, Santa Rosa, CA 95404

Dear Mr. Byers:

This correspondence is in reference to your submittal of May 24, 2019, requesting a preliminary jurisdictional determination of the extent of navigable waters of the United States and waters of the United States occurring on a parcel approximately 17.4 acres in size, located at 1295 Jensen Lane, near the northeastern corner of the Town of Windsor, Sonoma County, California (Lat. 38.553168, Long. -122.789508, APN 162-020-004).

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; and within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404 of the Clean Water Act of 1972, as amended, 33 U.S.C. § 1344 *et seq*.

The enclosed delineation map titled "Preliminary Jurisdictional Determination, Pursuant to Section 404 Clean Water Act, 1295 Jensen Lane, Windsor, Sonoma County, California," in 2 sheets and date certified July 29, 2019, depicts the extent and location of wetlands and other waters of the United States within the boundary area of the site that **may be** subject to U.S. Army Corps of Engineers' regulatory authority under Section 404 of the Clean Water Act. This preliminary jurisdictional determination is based on the current conditions of the site, as verified during a field investigation of July 16, 2019, a review of available digital photographic imagery, and a review of other data included in your submittal. While this preliminary jurisdictional determination was conducted pursuant to Regulatory Guidance Letter No. 16-01, *Jurisdictional Determinations*, it may be subject to future revision if new information or a change in field conditions becomes subsequently apparent. The basis for this preliminary jurisdictional determination is fully explained in the enclosed *Preliminary Jurisdictional Determination Form*. You are requested to sign and date this form and return it to this office within two weeks of receipt.

You are advised that the preliminary jurisdictional determination may **not** be appealed through the U.S. Army Corps of Engineers' *Administrative Appeal Process*, as described in 33 C.F.R. pt. 331 (65 Fed. Reg. 16,486; Mar. 28, 2000). Under the provisions of 33 C.F.R Section 331.5(b)(9), non-appealable actions include preliminary jurisdictional determinations since they

are considered to be only advisory in nature and make no definitive conclusions on the jurisdictional status of the water bodies in question. However, you may request this office to provide an approved jurisdictional determination that precisely identifies the scope of jurisdictional waters on the site; an approved jurisdictional determination may be appealed through the *Administrative Appeal Process*. If you anticipate requesting an approved jurisdictional determination at some future date, you are advised not to engage in any on-site grading or other construction activity in the interim to avoid potential violations and penalties under Section 404 of the Clean Water Act. Finally, you may provide this office new information for further consideration and request a reevaluation of this preliminary jurisdictional determination.

You may refer any questions on this matter to Sarah Firestone of the Regulatory staff by telephone at 415-503-6776 or by e-mail at sarah.m.firestone@usace.army.mil. All correspondence should be addressed to the Regulatory Division, North Branch, referencing the file number at the head of this letter.

The San Francisco District is committed to improving service to our customers. My Regulatory staff seeks to achieve the goals of the Regulatory Program in an efficient and cooperative manner while preserving and protecting our nation's aquatic resources. If you would like to provide comments on our Regulatory Program, please complete the Customer Service Survey Form available on our website: http://www.spn.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

CONNOR.WILLIAM.MATTHEW.1149355045
2019.08.08 13:15:50 -07'00'

William M. Connor
Senior Project Manager
Regulatory Division

Enclosures

Copy Furnished (w/ encls):

Mr. Charles Patterson
North Coast RWQCB, Santa Rosa, CA

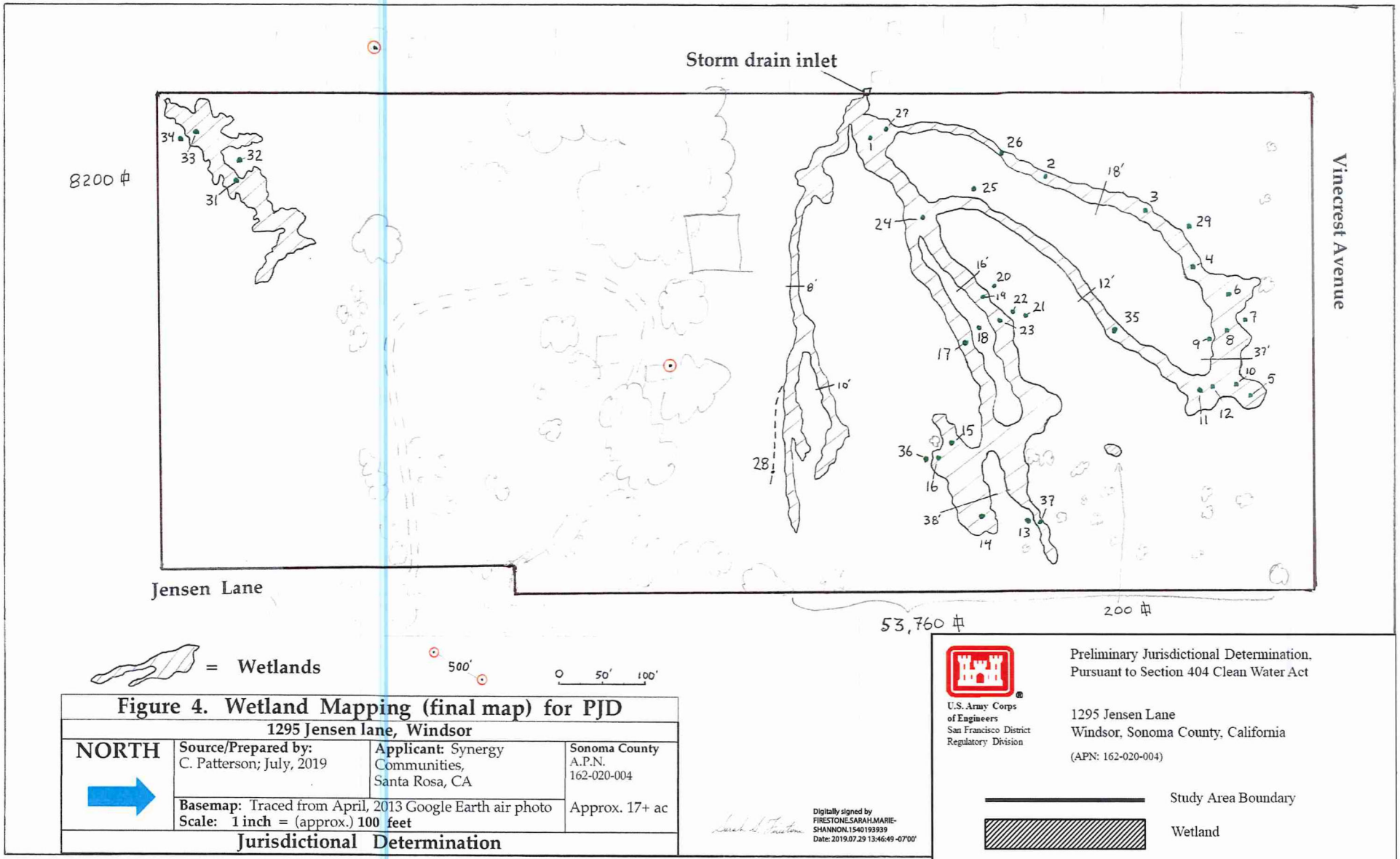


Figure 4. Wetland Mapping (final map) for PJD		
1295 Jensen lane, Windsor		
NORTH	**Source/Prepared by:** C. Patterson; July, 2019	**Applicant:** Synergy Communities, Santa Rosa, CA — **Sonoma County** A.P.N. 162-020-004
	Basemap: Traced from April, 2013 Google Earth air photo **Scale:** 1 inch = (approx.) 100 feet	Approx. 17+ ac
Jurisdictional Determination		

Digitally signed by FIRESTONE.SARAH.MARIE-SHANNON.1540193939
Date: 2019.07.29 13:46:49 -07'00'

U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Preliminary Jurisdictional Determination,
Pursuant to Section 404 Clean Water Act

1295 Jensen Lane
Windsor, Sonoma County, California
(APN: 162-020-004)

Study Area Boundary

Wetland

Other Potential Water of the U.S.

File ID. **2011-00360N** Date: **July 29, 2019** Sheet 1 of 2



Figure 5. Wetland Mapping On Air Photo			
1295 Jensen lane, Windsor			
NORTH	**Source/Prepared by:** C. Patterson; July, 2019	**Applicant:** Synergy Communities, Santa Rosa, CA	**Sonoma County** A.P.N. 162-020-004
	Basemap: April, 2013 Google Earth air photo **Scale:** 1 inch = (approx.) 100 feet		Approx. 17+ ac
Jurisdictional Determination			

U.S. Army Corps of Engineers
San Francisco District
Regulatory Division

Preliminary Jurisdictional Determination,
Pursuant to Section 404 Clean Water Act

1295 Jensen Lane
Windsor, Sonoma County, California

(APN: 162-020-004)

Study Area Boundary

Wetland

Other Potential Water of the U.S.

File ID. **2011-00360N** Date: **July 29, 2019** Sheet 2 of 2

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: San Francisco District | File/ORM #: 2011-00360N | PJD Date: Aug 8, 2019

State: CA | City/County: Windsor, Sonoma County

Nearest Waterbody: Windsor Creek

Location: TRS, LatLong or UTM: Lat. 38.553168, Long. -122.789508, APN 162-020-004

Name/ Address of Person Requesting PJD: Mr. Kent Byers, Synergy Communities of Santa Rosa, 435 'E' Street, Santa Rosa, CA 95404

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: 200 linear ft | width | acres | Stream Flow: Ephemeral

Wetlands: 1.427 acre(s) | Cowardin Class: Palustrine, emergent

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: | Non-Tidal:

☐ Office (Desk) Determination
☑ Field Determination: Date of Field Trip: Jul 16, 2019

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: revised delineation map July 2019
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☑ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: Healdsburg
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is:
- ☑ Photographs: ☑ Aerial (Name & Date): Google Earth historical aerials
  - ☑ Other (Name & Date): 2009 Santa Rosa plain LIDAR
- ☑ Previous determination(s). File no. and date of response letter: November 18, 2011
- ☐ Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

Appendix A - Sites

District Office	San Francisco District	File/ORM #	2011-00360N	PJD Date:	Aug 8, 2019
State	CA	City/County	Windsor, Sonoma County	Person Requestinq PJD	Mr. Kent Byers

Site Number	Latitude	Longitude	Cowardin Class	Est. Amount of Aquatic Resource in Review Area	Class of Aquatic Resource
wet1	38.5516	-122.79023	Palustrine, emergent	.188 ACRES	Non-Section 10 wetland
wet2	38.55397	-122.78959	Palustrine, emergent	1.234 ACRES	Non-Section 10 wetland
wet3	38.55441	-122.78905	Palustrine, emergent	.005 ACRES	Non-Section 10 wetland
ow1	38.55327	-122.78902	n/a	0.009	Non-Section 10 non-wetlanc

Notes:

Special-Status Plant Species in the Regional Vicinity (Nine Quad) of the Project Site

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Alopecurus aequalis var. *sonomensis* Sonoma alopecurus	FE/None G5T1/S1 1B.1	Freshwater marshes and swamps, riparian scrub. Wet areas, marshes, and riparian banks, with other wetland species. Perennial herb. 3-360 m. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site.
Amorpha californica var. *napensis* Napa false indigo	None/None G4T2/S2 1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. Perennial deciduous shrub. 30-735 m. Blooms Apr-Jul.	Not Expected	No suitable habitat present within the project site.
Amsinckia lunaris bent-flowered fiddleneck	None/None G3/S3 1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. Annual herb. 3-795 m. Blooms Mar-Jun.	Not Expected	The project site represents poor quality habitat for this species due to its level of disturbance and prior use. Additionally, this species was not observed during the floristic surveys.
Arctostaphylos bakeri ssp. *bakeri* Baker's manzanita	None/SR G2T1/S1 1B.1	Broadleafed upland forest, chaparral. Often on serpentine. 75-245 m. Perennial evergreen shrub. Blooms Feb-Apr.	Not Expected	No suitable habitat present within the project site.
Arctostaphylos bakeri ssp. *sublaevis* Cedars manzanita	None/SR G2T2/S2 1B.2	Chaparral, closed-cone coniferous forest. In serpentine chaparral and Sargent cypress woodland; typically, in canyons and on slopes. 300-365 m. Perennial evergreen shrub. Blooms Feb-May.	Not Expected	No suitable habitat present within the project site.
Arctostaphylos densiflora Vine Hill manzanita	None/SE G1/S1 1B.1	Chaparral. Acid marine sand. 60-75 m. Perennial evergreen shrub. Blooms Feb-Apr.	Not Expected	No suitable habitat present within the project site.
Arctostaphylos manzanita ssp. *elegans* Konocti manzanita	None/None G5T3/S3 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils. 225-1830 m. Perennial evergreen shrub. Blooms (Jan)Mar-May (Jul).	Not Expected	No suitable habitat present within the project site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Arctostaphylos stanfordiana ssp. *decumbens* Rincon Ridge manzanita	None/None G3T1/S1 1B.1	Chaparral, cismontane woodland. Highly restricted endemic to red rhyolites in Sonoma County. 90-375 m. Perennial evergreen shrub. Blooms Feb-Apr (May).	Not Expected	No suitable habitat present within the project site.
Astragalus claranus Clara Hunt's milk-vetch	FE/ST G1/S1 1B.1	Cismontane woodland, valley and foothill grassland, chaparral. Open grassy hillsides, especially on exposed shoulders in thin, volcanic or serpentine clay soil moist in spring. 95-355 m. Annual herb. Blooms Mar-May.	Not Expected	No suitable habitat present within the project site.
Astragalus rattanii var. *jepsonianus* Jepson's milk-vetch	None/None G4T3/S3 1B.2	Cismontane woodland, valley and foothill grassland, chaparral. Commonly on serpentine in grassland or openings in chaparral. 175-1005 m. Annual herb. Blooms Mar-Jun.	Not Expected	No suitable habitat present within the project site.
Balsamorhiza macrolepis big-scale balsamroot	None/None G2/S2 1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 90-1555 m. Perennial herb. Blooms Mar-June.	Not Expected	No suitable habitat present within the project site.
Blennosperma bakeri Sonoma sunshine	FE/SE G1/S1 1B.1	Vernal pools, valley and foothill grassland. Vernal pools and swales. 10-290 m. Annual herb. Blooms Mar-May.	Low Potential	Potential marginal wetland habitat is present within the project site. The project site is highly disturbed and this species was not observed during the floristic surveys.
Brodiaea leptandra narrow-anthered brodiaea	None/None G3?/S3? 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Volcanic substrates. 30-590 m. Perennial bulbiferous herb. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site.
Calamagrostis crassiglumis Thurber's reed grass	None/None G3Q/S2 2B.1	Coastal scrub, marshes and swamps. Usually in marshy swales surrounded by grassland or coastal scrub. 5-50 m. Perennial rhizomatous herb. Blooms May-Aug.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Calochortus raichei Cedars fairy-lantern	None/None G2/S2 1B.2	Closed-cone coniferous forest, chaparral. On serpentine. Usually on shaded slopes, but also on barrens and talus. 255-430 m. Perennial bulbiferous herb. Blooms May-Aug.	Not Expected	No suitable habitat present within the project site.
Campanula californica swamp harebell	None/None G3/S3 1B.2	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows and seeps, freshwater marsh, north coast coniferous forest. Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-520 m. Perennial rhizomatous herb. Blooms Jun-Oct.	Not Expected	No suitable habitat present within the project site.
Carex comosa bristly sedge	None/None G5/S2 2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta island. -5-1010 m. Perennial rhizomatous herb. Blooms May-Sept.	Not Expected	No suitable habitat present within the project site.
Castilleja uliginosa Pitkin Marsh paintbrush	None/SE GXQ/SX 1A	Freshwater marsh. Last known remaining plant died in 1987; was known from overgrown freshwater marsh. 60 m. Perennial herb (hemiparasitic). Blooms Jun-Jul.	Not Expected	No suitable habitat present within the project site.
Ceanothus confusus Rincon Ridge ceanothus	None/None G1/S1 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from volcanic or serpentine soils, dry shrubby slopes. 150-1280 m. Perennial evergreen shrub. Blooms Feb-Jun.	Not Expected	No suitable habitat present within the project site.
Ceanothus divergens Calistoga ceanothus	None/None G2/S2 1B.2	Chaparral. Rocky, serpentine or volcanic sites. 100-950 m. Perennial evergreen shrub. Blooms Feb-Apr.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Ceanothus foliosus var. *vineatus* Vine Hill ceanothus	None/None G3T1/S1 1B.1	Chaparral. Sandy, acidic soil in chaparral. 45-305 m. Perennial evergreen shrub. Blooms Mar-May.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Ceanothus purpureus holly-leaved ceanothus	None/None G2/S2 1B.2	Chaparral, cismontane woodland. Rocky, volcanic slopes. 140-720 m. Perennial evergreen shrub. Blooms Feb-Jun.	Not Expected	No suitable habitat present within the project site.
Ceanothus sonomensis Sonoma ceanothus	None/None G2/S2 1B.2	Chaparral. Sandy, serpentine or volcanic soils. 140-795 m. Perennial evergreen shrub. Blooms Feb-Apr.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Centromadia parryi ssp. *parryi* pappose tarplant	None/None G3T2/S2 1B.2	Chaparral, coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernally mesic, often alkaline sites. 1-500 m. Annual herb. Blooms May-Nov.	Moderate Potential	No suitable habitat present within the project site.
Chorizanthe valida Sonoma spineflower	FE/SE G1/S1 1B.1	Coastal prairie. Sandy soil. 5-50 m. Annual herb. Blooms Jun-Aug.	Not Expected	No suitable habitat present within the project site.
Clarkia imbricata Vine Hill clarkia	FE/SE G1/S1 1B.1	Chaparral, valley and foothill grassland. Acidic, sandy soil. 60-80 m. Annual herb. Blooms Jun-Aug.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Cordylanthus tenuis ssp. *capillaris* Pennell's bird's-beak	FE/SR G4G5T1/S1 1B.2	Closed-cone coniferous forest, chaparral. In open or disturbed areas on serpentine within forest or chaparral. 90-215 m. Annual herb (hemiparasitic). Blooms Jul-Aug.	Not Expected	No suitable habitat present within the project site.
Cryptantha dissita serpentine cryptantha	None/None G3/S3 1B.2	Chaparral. Serpentine outcrops. 135-735 m. Annual herb. Blooms Apr-Jun.	Not Expected	No suitable habitat present within the project site.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	None/None G5T4?/SH 2B.2	Marshes and swamps (freshwater). Freshwater marsh. 15-280 m. Annua vine (parasitic). Blooms Jul-Oct.	Not Expected	No suitable habitat present within the project site.
Delphinium bakeri Baker's larkspur	FE/SE G1/S1 1B.1	Cismontane woodland, chaparral. In wet, boggy meadows, openings in chaparral and in canyons. 225-1060m (740-3480ft). Perennial herb. Blooms April-June.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys. The project site is outside of this species' known range.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Delphinium luteum golden larkspur	FE/SR G1/S1 1B.1	Chaparral, coastal prairie, coastal scrub. North-facing rocky slopes. 5-100 m. Perennial herb. Blooms Mar-May.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys. The project site is outside of this species' known range.
Downingia pusilla dwarf downingia	None/None GU/S2 2B.2	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-490 m. Annual herb. Blooms Mar-May.	Low Potential	Potential marginal wetland habitat is present within the project site. The project site is highly disturbed and this species was not observed during the floristic surveys.
Erigeron greenei Greene's narrow-leaved daisy	None/None G3/S3 1B.2	Chaparral. Serpentine and volcanic substrates, generally in shrubby vegetation. 90-835 m. Perennial herb. Blooms May-Sept.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Erigeron serpentinus serpentine daisy	None/None G2/S2 1B.3	Chaparral. Serpentine seeps. 120-400 m. Perennial herb. Blooms May-Aug.	Low Potential	No suitable habitat present within the project site.
Eriogonum nervulosum Snow Mountain buckwheat	None/None G2/S2 1B.2	Chaparral. Dry serpentine outcrops, balds, and barrens. 445-2105 m. Perennial rhizomatous herb. Blooms Jun-Sept.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Fritillaria liliacea fragrant fritillary	None/None G2/S2 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 3-385 m. Perennial bulbiferous herb. Blooms Feb-Aug.	Not Expected	The project site represents poor quality habitat for this species due to its level of disturbance and prior use. Additionally, this species was not observed during the floristic surveys.
Gilia capitata ssp. *tomentosa* woolly-headed gilia	None/None G5T2/S2 1B.1	Coastal bluff scrub, valley and foothill grassland, riparian woodland. Rocky outcrops, sometimes serpentine. 6-290 m. Annual herb. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Gratiola heterosepala Boggs Lake hedge-hyssop	None/SE G2/S2 1B.2	Marshes and swamps (freshwater), vernal pools. Clay soils; usually in vernal pools, sometimes on lake margins. 4-2410 m. Annual herb. Blooms Apr-Aug.	Low Potential	Some marginal habitat is present within the project site; however, this species was not observed during the floristic surveys.
Hemizonia congesta ssp. *congesta* congested-headed hayfield tarplant	None/None G5T2/S2 1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5-520 m. Annual herb. Blooms Apr-Nov.	Low Potential	Some marginal habitat is present within the project site; however, this species was not observed during the floristic surveys.
Hesperolinon bicarpellatum two-carpellate western flax	None/None G2/S2 1B.2	Chaparral. Serpentine barrens at edge of chaparral. 175-825 m. Annual herb. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Horkelia parryi Parry's horkelia	None/None G2/S2 1B.2	Chaparral, Cismontane woodland. Openings in chaparral or woodland; especially known from the Ione formation in Amador County. 80-1070m. Blooms Apr-Sep.	Not Expected	No suitable habitat or soils present within the project site.
Horkelia tenuiloba thin-lobed horkelia	None/None G2/S2 1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland. Sandy soils; mesic openings. 45-640 m. Perennial herb. Blooms May-Jul (Aug).	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Kopsiopsis hookeri small groundcone	None/None G4?/S1S2 2B.3	North coast coniferous forest. Open woods, shrubby places, generally on Gaultheria shallon. 120-1435 m.	Not Expected	No suitable habitat present within the project site.
Lasthenia burkei Burke's goldfields	FE/SE G1/S1 1B.1	Vernal pools, meadows and seeps. Most often in vernal pools and swales. 15-580 m. Annual herb. Blooms Apr-Jun.	Low Potential	Some marginal habitat is present within the project site; however, this species was not observed during the floristic surveys.
Lasthenia californica ssp. *bakeri* Baker's goldfields	None/None G3T1/S1 1B.2	Closed-cone coniferous forest, coastal scrub, meadows and seeps, marshes and swamps. Openings. 60-520 m. Perennial herb. Blooms Apr-Oct.	Not Expected	No suitable habitat present within the project site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Layia septentrionalis Colusa layia	None/None G2/S2 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 15-1100 m. Annual herb. Blooms Apr-May.	Low Potential	Some marginal habitat is present within the project site; however, this species was not observed during the floristic surveys.
Legenere limosa legenere	None/None G2/S2 1B.1	Vernal pools. In beds of vernal pools. 1-1005 m. Annual herb. Blooms Apr-Jun.	Not Expected	No suitable habitat is present within the project site.
Leptosiphon jepsonii Jepson's leptosiphon	None/None G2G3/S2S3 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Open to partially shaded grassy slopes. On volcanic soils or the periphery of serpentine substrates. 55-855 m. Annual herb. Blooms Mar-May.	Not Expected	No suitable habitat is present within the project site.
Lessingia arachnoidea Crystal Springs lessingia	None/None G2/S2 1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland. Grassy slopes on serpentine; sometimes on roadsides. 90-200 m. Annual herb. Blooms Jul-Oct.	Not Expected	No suitable habitat is present within the project site.
Lilium pardalinum ssp. *pitkinense* Pitkin Marsh lily	FE/SE G5T1/S1 1B.1	Cismontane woodland, meadows and seeps, marshes and swamps. Saturated, sandy soils with grasses and shrubs. 45-65 m. Perennial bulbiferous herb. Blooms Jun-Jul.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Limnanthes vinculans Sebastopol meadowfoam	FE/SE G1/S1 1B.1	Meadows and seeps, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115 m. Annual herb. Blooms Apr-May.	Low Potential	Marginal potential wetland habitat is present within the project site; however, this species was not observed during the floristic surveys.
Lomatium repostum Napa lomatium	None/None G3/S3 1B.2	Chaparral, Cismontane woodland. Rocky areas in volcanic and serpentine soils with mixed chaparral and black oak woodland communities. 90-1030m. Blooms Mar-Jun.	Not Expected	The project site represents poor quality habitat for this species due to its level of disturbance and prior use. Additionally, this species was not observed during the floristic surveys.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Lupinus sericatus Cobb Mountain lupine	None/None G2?/S2? 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, broadleafed upland forest. In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 120-1390 m. Perennial herb. Blooms Mar-Jun.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Microseris paludosa marsh microseris	None/None G2/S2 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 3-610 m. Perennial herb. Blooms Apr-Jun(Jul).	Not Expected	No suitable habitat present within the project site.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	None/None G4T2/S2 1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils. 3-1680 m. Annual herb. Blooms Apr-Jul.	Low Potential	Marginal potential wetland habitat is present within the project site; however, this species was not observed during the floristic surveys.
Navarretia leucocephala ssp. *plieantha* many-flowered navarretia	FE/SE G4T1/S1 1B.2	Vernal pools. Volcanic ash flow vernal pools. 30-915 m. Annual herb. Blooms May-Jun.	Low Potential	Marginal potential wetland habitat is present within the project site; however, this species was not observed during the floristic surveys.
Penstemon newberryi var. *sonomensis* Sonoma beardtongue	None/None G4T3/S3 1B.3	Chaparral. Crevices in rock outcrops and talus slopes. 425-1405 m. Perennial herb. Blooms Apr-Aug.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Piperia candida white-flowered rein orchid	None/None G3/S3 1B.2	North Coast coniferous forest, lower montane coniferous forest, broadleafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 20-1615 m. Perennial herb. Blooms (Mar)May-Sept.	Not Expected	No suitable habitat present within the project site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Pleuropogon hooverianus North Coast semaphore grass	None/ST G2/S2 1B.1	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 45-1160 m. Perennial rhizomatous herb. Blooms Jun-Aug.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Rhynchospora alba white beaked-rush	None/None G5/S2 2B.2	Bogs and fens, meadows and seeps, marshes and swamps. Freshwater marshes and sphagnum bogs. 60-1875 m. Perennial rhizomatous herb. Blooms Jun-Aug.	Not Expected	No suitable habitat present within the project site.
Rhynchospora californica California beaked-rush	None/None G1/S1 1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-270 m. Perennial rhizomatous herb. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Rhynchospora capitellata brownish beaked-rush	None/None G5/S1 2B.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest. Mesic sites. 45-1710 m. Perennial herb. Blooms Jul-Aug.	Not Expected	No suitable habitat present within the project site.
Rhynchospora globularis round-headed beaked-rush	None/None G4/S1 2B.1	Marshes and swamps. Freshwater marsh. 45-60 m. Perennial rhizomatous herb. Blooms Jul-Aug.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Sidalcea oregana ssp. *valida* Kenwood Marsh checkerbloom	FE/SE G5T1/S1 1B.1	Marshes and swamps. Edges of freshwater marshes. 115-125 m. Perennial rhizomatous herb. Blooms Jun-Sept.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Streptanthus brachiatus ssp. *hoffmanii* Freed's jewelflower	None/None G2T2/S2 1B.2	Chaparral, cismontane woodland. Serpentine rock outcrops, primarily in geothermal development areas. 485-1040 m. Perennial herb. Blooms May-Jul.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale
Streptanthus glandulosus ssp. hoffmanii Hoffman's bristly jewelflower	None/None G4T2/S2 1B.3	Chaparral, Cismontane woodland, valley and foothill grassland. Moist, steep rocky banks, in serpentine and non-serpentine soil. 120-475m. Blooms Mar-Jul.	Not Expected	No suitable habitat present within the project site, and this species was not observed during the floristic surveys.
Stuckenia filiformis ssp. *alpina* northern slender pondweed	None/None G5T5/S2S3 2B.2	Marshes and swamps. Shallow, clear water of lakes and drainage channels. 5-2325 m. Perennial rhizomatous herb (aquatic). Blooms May-Jul.	Not Expected	No suitable habitat present within the project site.
Trifolium amoenum two-fork clover	FE/None G1/S1 1B.1	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m. Annual herb. Blooms Apr-Jun.	Not Expected	No suitable habitat present within the project site.
Trifolium buckwestiorum Santa Cruz clover	None/None G2/S2 1B.1	Coastal prairie, broadleafed upland forest, cismontane woodland. Moist grassland. Gravelly margins. 30-805 m. Annual herb. Blooms Apr-Oct.	Not Expected	No suitable habitat present within the project site.
Trifolium hydrophilum saline clover	None/None G2/S2 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 1-335 m. Annual herb. Blooms Apr-Jun.	Not Expected	No suitable habitat present within the project site.
Triquetrella californica coastal triquetrella	None/None G2/S2 1B.2	Coastal bluff scrub, coastal scrub. Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. 20-1175 m. Moss.	Not Expected	No suitable habitat present within the project site.
Viburnum ellipticum oval-leaved viburnum	None/None G4G5/S3? 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1400 m. Perennial deciduous shrub. Blooms May-Jun.	Not Expected	No suitable habitat present within the project site.

Scientific Name Common Name	Status Fed/State ESA CRPR	Habitat Requirements	Potential to Occur	Rationale

Regional Vicinity refers to within a 9-quad search radius of site.

FE = Federally Endangered FT = Federally Threatened FC = Federal Candidate Species

SE = State Endangered ST = State Threatened SC = State Candidate SR = State Rare

CRPR (CNPS California Rare Plant Rank):

1A=Presumed Extinct in California

1B=Rare, Threatened, or Endangered in California and elsewhere

2A=Plants presumed extirpated in California, but more common elsewhere

2B=Plants Rare, Threatened, or Endangered in California, but more common elsewhere

CRPR Threat Code Extension:

.1=Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2=Fairly endangered in California (20-80% occurrences threatened)

.3=Not very endangered in California (<20% of occurrences threatened)

Special-Status Animal Species in the Regional Vicinity (Nine Quad) of the Project Site

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Invertebrates				
Syncaris pacifica California freshwater shrimp	FE/SE G2/S2	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main streamflow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	Not Expected	No suitable stream habitat present within the project site.
Fish				
Hysterocarpus traskii pomo Russian River tule perch	None/None G5T4/S4 SSC	Low elevation streams of the Russian River system. Requires clear, flowing water with abundant cover. They also require deep (> 1 m) pool habitat.	Not Expected	No suitable aquatic habitat present within the project site.
Mylopharodon conocephalus hardhead	None/None G3/S3 SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	Not Expected	No suitable aquatic habitat present within the project site.
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	FE/SE G5T2T3Q/S2	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	Not Expected	No suitable aquatic habitat present within the project site.
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	FT/None G5T2T3Q/S2S3	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	Not Expected	No suitable aquatic habitat present within the project site.
Amphibians				

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Ambystoma californiense pop. 3 California tiger salamander	FE/ST G2G3/S2S3 WL	Central California DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Low Potential	There is no suitable breeding habitat within the project site or within the immediate vicinity. The nearest known recorded observation is over five miles away from the project site to the southwest (CDFW 2021a). The project site is also outside of federally designated critical habitat for this species.
Dicamptodon ensatus California giant salamander	None/None G3/S2S3 SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	Not Expected	No suitable aquatic stream or seep habitat is present for breeding within the project site. The nearest occurrence of this species is recorded along Mark West Creek approximately four miles to the east of the project site and is not contiguous with the project site (CDFW 2021a).
Rana boylii foothill yellow-legged frog	None/SE G3/S3 SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Low Potential	The project site lacks sufficient ponding or aquatic habitat suitable for breeding. Known records within five miles of the project site are all associated with permanent riverine features (i.e., Mark West Creek and Russian River).
Rana draytonii California red-legged frog	FT/None G2G3/S2S3 SSC	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 estivation habitat.	Not Expected	The project site lacks sufficient ponding or aquatic habitat suitable for breeding. There are no recorded occurrences within five miles of the project site.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Taricha rivularis red-bellied newt	None/None G2/S2 SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	Low Potential	The project site lacks appropriate streams with moderate flow suitable for breeding habitat. Individuals may use this site for dispersal to breeding habitat, although the project site is not within one km of stream habitat so this is unlikely. Nearby occurrences are associated with aquatic habitats located within the foothills to the east of the project site over four miles away (CDFW 2021a).
Reptiles				
Emys marmorata western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not Expected	No suitable ponded habitat is present within the project site or in the immediate surrounding area.
Birds				
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Low Potential	No suitable nesting habitat near rivers is present within the project site. Suitable foraging habitat may be present within the project site, however, this species was not observed during biological site visits.
Agelaius tricolor tricolored blackbird	None/ST G1G2/S1S2 SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Low Potential	Suitable nesting and foraging habitat may be present within the project site as there is dense vegetative cover. However, this species was not observed during biological site visits.
Athene cunicularia burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low Potential	Suitable foraging habitat may be present within the project site, however no suitable burrows or sign of this species was detected during biological site visits.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Coturnicops noveboracensis yellow rail	None/None G4/S1S2 SSC	Summer resident in eastern Sierra Nevada in Mono County. Freshwater marshlands.	Not Expected	No suitable habitat present within the project site and the project site is outside of this species known range.
Elanus leucurus white-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low Potential	Suitable foraging habitat may be present within the project site, however this species was not detected during biological site visits.
Pandion haliaetus osprey	None/None G5/S4 WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Not Expected	No suitable nesting or foraging habitat present within the project site.
Mammals				
Antrozous pallidus pallid bat	None/None G4/S3 SSC	Found in a variety of habitats including deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in crevices of rock outcrops, caves, mine tunnels, buildings, bridges, and hollows of live and dead trees which must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential	Mature native trees present within the project site may provide suitable roosting habitat.
Arborimus pomo Sonoma tree vole	None/None G3/S3 SSC	Occurs in the North coast fog belt from Oregon border to Sonoma County. Habitats include Douglas-fir, redwood and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock, or spruce. Nests in trees and may use old nests of birds, squirrels, or woodrats.	Not Expected	No suitable Douglas-fir or redwood and montane hardwood-conifer forest habitat present at the project site. Primary food source, the Douglas-fir, is likewise not present within the project site or surrounding area.
Corynorhinus townsendii Townsend's big-eared bat	None/None G4/S2 SSC	Occurs throughout California in a wide variety of habitats. Most common in mesic sites, typically coniferous or deciduous forests. Roosts in the open, hanging from walls lamp; ceilings in caves, lava tubes, bridges, and buildings. This species is extremely sensitive to human disturbance.	Moderate Potential	Mature native trees present within the project site may provide suitable roosting habitat.

Scientific Name Common Name	Status Fed/State ESA CDFW	Habitat Requirements	Potential to Occur	Rationale
Lasiurus blossevillii western red bat	None/None G4/S3 SSC	Roosts in trees in forests and woodlands of varying elevations. Forages in grasslands, shrublands, open woodlands and forests, and agriculture. Typically found in riparian habitats, does not occur in deserts.	Moderate Potential	Mature native trees present within the project site may provide suitable roosting habitat.
Pekania pennanti Fisher	None/None G5/S2S3 SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Not Expected	No suitable coniferous forest or deciduous-riparian habitat with high canopy cover is present within the project site. No suitable denning habitat is present, and trees onsite are mainly ornamental and do not represent appropriately dense forest structure required by this species.
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Low Potential	This species may use the project site to forage; however, no burrows or other sign were observed on site during several biological site visits.

Regional Vicinity refers to within a 9-quad search radius of site.

FE = Federally Endangered FT = Federally Threatened FC = Federal Candidate Species FS=Federally Sensitive

SE = State Endangered ST = State Threatened SC = State Candidate SS=State Sensitive

SSC = CDFW Species of Special Concern SFP = State Fully Protected

Appendix C

Cultural Resources Study



Estates at Ross Ranch

Cultural Resources Study

prepared for

Town of Windsor
9291 Old Redwood Highway
Windsor, California 95492
Contact: Kimberly Jordan, Planner II

prepared by

Rincon Consultants, Inc.
4825 J Street, Suite 200
Sacramento, California 95819

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RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
rinconconsultants.com

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Executive Summary

The Town of Windsor (Windsor) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Estates at Ross Ranch Project (Project) in Windsor, Sonoma County, California. Rincon understands the Project is a subdivision of a vacant 17.17-acre parcel (Assessor's Parcel Number 162-020-004) located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor. The Project site would be subdivided into 30 new lots ranging in size from approximately 10,976 to 43,186 square feet. The Project site has a land use and zoning designation of Estate Residential (ER), as identified in the 2040 General Plan, and was analyzed as such in the 2040 General Plan EIR. The Project is subject to the California Environmental Quality Act (CEQA), with Windsor serving as the lead agency.

This cultural resources study was conducted after a peer review of the Jones (2010, 2018) technical studies identified the need for additional survey coverage and background data to support the significance evaluation of the recorded farmstead within the Project site. This study was prepared to support compliance with CEQA, and includes searches of the California Historical Resources Information System (CHRIS) and Native American Heritage Commission (NAHC) Sacred Lands File (SLF); a field survey; extended background and archival research; and preparation of this report.

The CHRIS search identified one resource (P-49-004535) recorded within the current Project site at 1295 Jensen Lane. Resource P-49-004535 is recorded as a former farmstead and comprising a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c. 1950 prune dryer; fences and gates; and a Eucalyptus grove. P-49-004535 was described by Greene (2005), who stated that ". . . the house and main barn were in poor shape and did not appear to be architecturally or historically significant. The remaining sheds were mostly dilapidated and not of any historical significance." However, the report did not include a detailed analysis of the evaluation criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). P-49-004535 was formally recorded and evaluated in 2010 by LSA Associates, Inc. (LSA), who concluded that it was not eligible for listing in the NRHP or the CRHR under any criteria (Jones 2010). LSA prepared a supplemental cultural resources study of the Project site in 2018, in which they noted that the condition of P-49-004535 had not changed since 2010, and concluded it still did not qualify as a historical resource due to its compromised integrity (Jones 2018).

Previous surveys identified culturally modified prehistoric artifacts throughout the Project site, consisting of obsidian flakes and chert fragments. Both Greene (2005) and Jones (2010, 2018) recommended archaeological monitoring for ground disturbance associated with Project construction. No previous Extended Phase I or Phase II Testing has been conducted within the current Project site.

On August 12, 2021, Rincon conducted a pedestrian survey of those portions of the Project site that were not previously subjected to survey. The survey identified one isolated culturally modified obsidian flake (Jensen-ISO-1) in the Project site, and noted naturally occurring chert and obsidian were evidenced throughout the Project site, consistent with the observations made by Green (2005) and Jones (2010, 2018). Isolates are typically ineligible for National Register of Historic Places and California Register of Historical Resources listing, as their data potential is exhausted during the initial recording (Criterion D/4).

During the survey, Rincon also examined the overall condition of P-49-004535 to assess its integrity, construction characteristics, and alterations. As part of this study, Rincon conducted additional historical and archival research to reexamine the basis for the previous significance evaluation of P-49-004535. Based on additional research, Rincon affirms the previous conclusion that P-49-004535 does not appear eligible for inclusion in the NRHP or CRHR; it does not appear to qualify as a historical resource as defined at Public Resources Code Section 21084.1.

Because P-49-004535 does not qualify as historical resource, its demolition would not constitute an impact pursuant to CEQA. Therefore, Rincon recommends a finding of ***no impact to historical resources*** under CEQA.

Based on the findings of this study, the historic use of the Project site, the isolated flake from the current pedestrian survey, and previous findings within the Project area, Rincon concurs with previous studies by Greene (2005) and Jones (2010, 2018). Based on the presence of both prehistoric and historic archaeological resources nearby, the Project site is considered sensitive for archaeological resources and the following best practices were recommended: Worker's Environmental Awareness Program training, archaeological and local Native American monitoring, and an unanticipated discovery measure. With adherence to these measures, Rincon recommends a finding of ***less than significant impact to archaeological resources with mitigation*** under CEQA. The Project is also required to adhere to State regulations regarding the unanticipated discovery of human remains. See Section 6 for mitigation measure details.

1 Introduction

The Town of Windsor (Windsor) retained Rincon Consultants, Inc. (Rincon) to conduct a cultural resources study for the Estates at Ross Ranch Development Project (Project) in Windsor, Sonoma County, California. Rincon understands the Project is a subdivision of a vacant 17.17-acre parcel located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor. The Project site would be subdivided into 30 new lots ranging in size from approximately 10,976 to 43,186 square feet. The proposed Project is subject to the California Environmental Quality Act (CEQA), with the Town of Windsor serving as the lead agency.

This cultural resources study was conducted after a peer review of the Jones (2010, 2018) technical studies identified the need for additional survey coverage and background data to support the significance evaluation of the recorded farmstead within the Project site. This study was prepared to support compliance with CEQA, and includes searches of the California Historical Resources Information System (CHRIS) and Native American Heritage Commission (NAHC) Sacred Lands File (SLF); a field survey; extended background and archival research; and preparation of this report.

1.1 Project Location

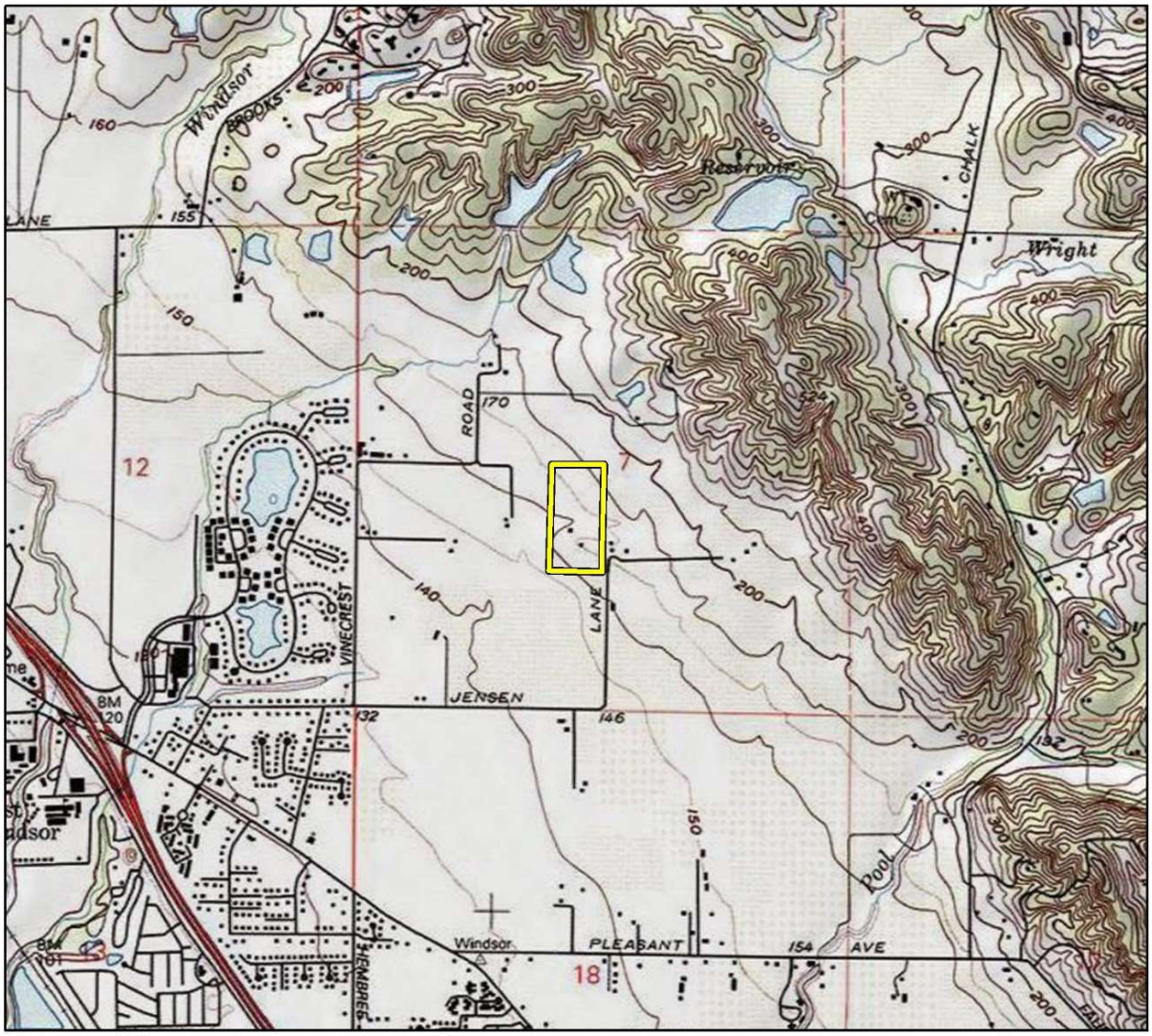
The proposed Project site totals 17.17 acres on Assessor's Parcel No. APN 162-020-004, located at 1295 Jensen Lane in Windsor, Sonoma County, California (Figure 1). The proposed Project site lies within Section 7 of Township 8 North, Range 8 West of the *Healdsburg, Calif. (USGS 2021)* United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 2). The proposed Project site is south of Vinecrest Road and is bounded by residential neighborhoods to the north and west, and agricultural fields and associated homes to the east and south. Project Description

The Project would subdivide the parcel into 30 single family lots. Subdivided lots would range in size from approximately 10,976 to 43,186 square feet. The average lot size would be approximately 19,370 square feet. Water and sewer for the site would be provided by the Town of Windsor, and all utilities would be underground. All structures, wells, septic tanks, and fences (with exception of the westerly fence along the Vintage Hills lots) on the site would be removed as part of the Project.

The Project would include a 100-foot agricultural buffer along the southern and eastern boundaries of the Project site. The Town of Windsor Zoning Ordinance requires an agricultural buffer of 200 feet, but allows the width of the buffer to be reduced to a minimum of 100 feet in certain circumstances with Town Council approval. Lots 13, 14, 15, and 16, along the southern portion of the Project site and near the existing vineyard, would not be developed until agricultural uses on the parcel to the south cease.

The Project site has a land use and zoning designation of Estate Residential (ER) as identified in the 2040 General Plan, and was analyzed as such in the 2040 General Plan EIR.

Figure 1 Project Vicinity Map

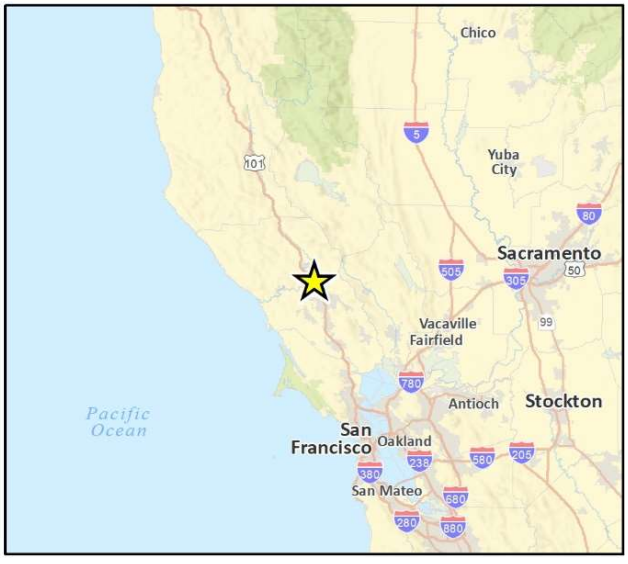


Basemap provided by National Geographic Society, Esri and their licensors © 2021. Healdsburg Quadrangle. T08N R08W S07. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may havechanged since the original topographic map was assembled.

Project Location

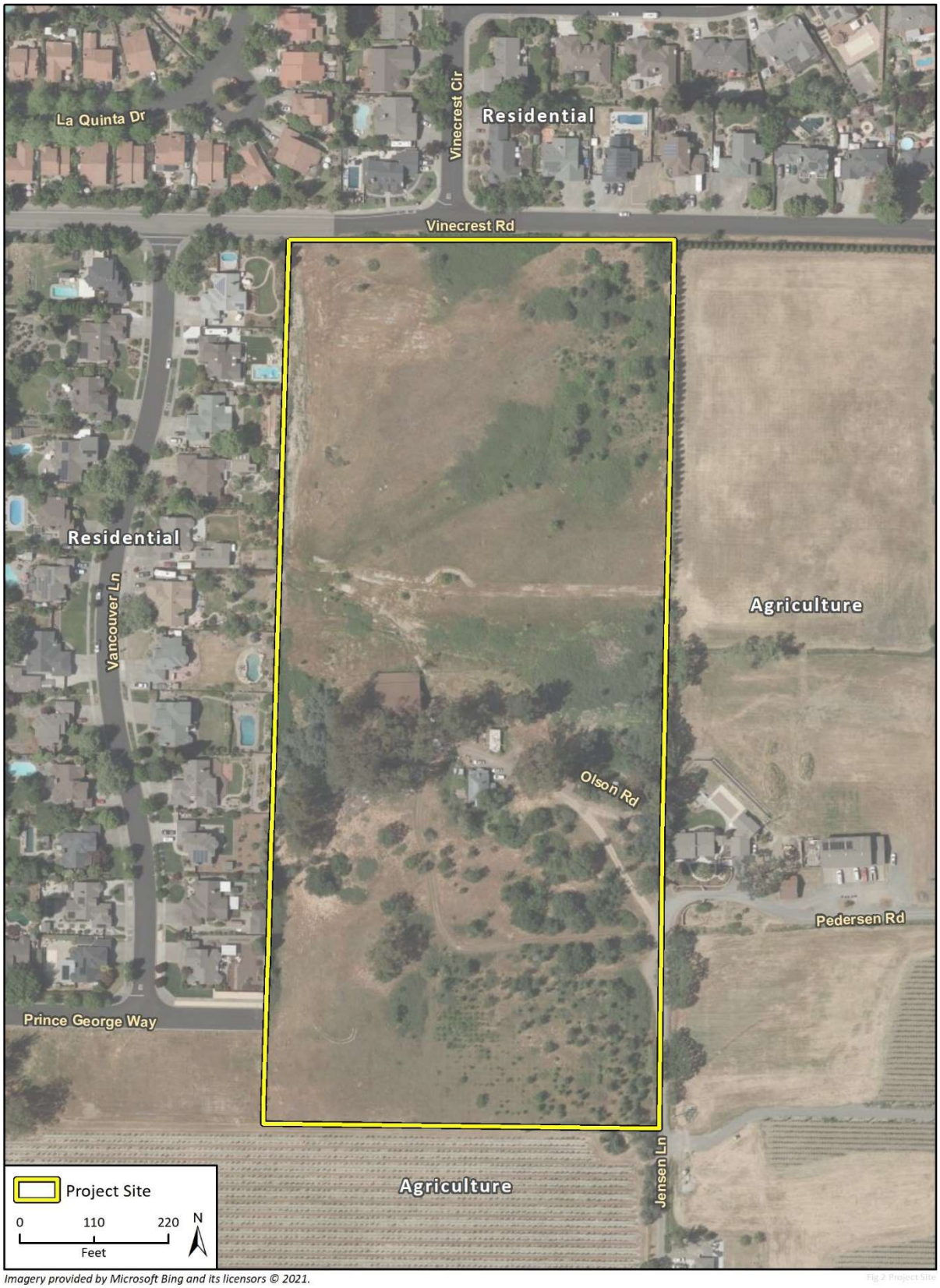
0 1,000 2,000 Feet

N



CRFig 1 Proj Locn Map

Figure 2 Project Location Map



Imagery provided by Microsoft Bing and its licensors © 2021.

1.2 Personnel

Rincon Cultural Resources Project Manager Amanda Harvey, Ph.D., Registered Professional Archaeologist (RPA) provided management oversight for this cultural resources study. Dr. Harvey meets the Secretary of the Interior's Professional Qualifications Standards (SOI PQS) for prehistoric and historic archeology (NPS 1983). Archaeologist Courtney Montgomery, MA, conducted the records search and Sacred Lands File requests, and is a contributing author of this report. Archaeologist Derek Reaux, Ph.D., RPA, is a contributing author of this report. Rincon Architectural Historian JulieAnn Murphy, MS, conducted the built environmental analysis for the Project, and is a contributing author of this report. Cultural resources specialist Allison Wilson conducted the pedestrian survey. Geographic Information Systems Analysts Josh Patterson, MA, and Annette Tran, MESM, prepared the figures found in this report. Senior Architectural Historian Steven Treffers, MHP, and Principal Andrew Pulcheon, MA, RPA, AICP, CEP, reviewed this report for quality control; both meet SOI PQS.

2 Regulatory Setting

This section includes a discussion of the applicable state and local laws, ordinances, regulations, and standards governing cultural resources to which the Project should adhere before and during implementation.

2.1 State Regulations

2.1.1 The California Environmental Quality Act

CEQA requires a lead agency to determine whether a project may have a significant effect on historical resources (Public Resources Code [PRC], Section 21084.1) or tribal cultural resources (PRC Section 21074[a][1][A]-[B]). A historical resource is a resource listed, or determined to be eligible for listing in the CRHR; a resource included in a local register of historical resources; or an object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be *historically significant* (State CEQA Guidelines, Section 15064.5[a][1-3]).

A resource shall be considered *historically significant* if it meets any of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
2) Is associated with the lives of persons important to our past
3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
4) Has yielded, or may be likely to yield, information important in prehistory or history

Generally, a cultural resource must be at least 50 years of age to be considered for listing on the CRHR. Resources that have achieved significance within the past 50 years may also be eligible for inclusion in the CRHR, provided that enough time has lapsed to obtain a scholarly perspective on the events or individuals associated with the resource (Office of Historic Preservation N.d.:3).

In addition, if it can be demonstrated that a project will cause damage to a *unique archaeological resource*, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b]).

PRC Section 21083.2(g) defines a *unique archaeological resource* as an artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
2) Has a special and particular quality such as being the oldest of its type or the best available example of its type
3) Is directly associated with a scientifically recognized important prehistoric or historic event or person

2.1.2 Assembly Bill 52

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expands CEQA by defining a new resource category called Tribal Cultural Resources (TCR). AB 52 establishes that "a project with an effect that may cause a substantial adverse change in the significance of a TCR is a project that may have a significant effect on the environment" (PRC §21084.2). It further states that the lead agency shall establish measures to avoid impacts that would alter the significant characteristics of a TCR, when feasible (PRC §21084.3).

PRC §§21074(a)(1)(A), (B) define TCRs as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that meet either of the following criteria:

1) Listed or eligible for listing in the CRHR, or in a local register of historical resources, as defined in PRC §5020.1(k)
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC §5024.1.

In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe.

AB 52 also establishes a formal consultation process for California tribes regarding TCRs. The consultation process must be completed before a CEQA document can be certified. Under AB 52, lead agencies are required to "begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project." Native American tribes to be included in the process are those that have requested notice of projects subject to CEQA and proposed within the jurisdiction of the lead agency.

2.1.3 Codes Governing Human Remains

The disposition of human remains is governed by Health and Safety Code Section 7050.5 and PRC Sections 5097.94 and 5097.98 and falls within the jurisdiction of the NAHC. If human remains are discovered, the County Coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the remains are determined by the coroner to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to PRC Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native Americans so they can inspect the burial site and make recommendations for treatment of the remains and associated grave goods.

2.2 Local Regulations

Section 27.20.060 of the Town of Windsor Zoning Ordinance pertains to historic preservation and conservation. The standards therein are intended to protect sites and structures identified by the community as historically significant, that contribute to Windsor's character and identity, and that should be preserved and/or restored. The Council may designate an improvement, natural feature, or site as an historic landmark and any area within the Town as an historic district in compliance with Section 27.20.060, based on the Council's evaluation of the age of the structure, distinguishing characteristics, location in a geographically definable area, familiarity as a visual feature, or associations with significant achievements or significant geographical patterns, and/or similarity to other distinctive areas. The ordinance does not explicitly identify designation criteria, but states that

the nominated district, site, or structure shall be placed on the Town's Historic Register after being officially accepted by the Council.

In addition, Section 27.16.050 of the Town of Windsor Zoning Ordinance provides for the establishment of historic overlay zones, applied to protect structures, sites and areas that are reminders of past eras, events, and people important to the history of the Town. These areas provide significant examples of architecture and styles of the past, which are irreplaceable assets to the Town. These cultural resources are reminders of the Town's unique heritage and its place in the development of the state and nation. Although the ordinance does not specify designation criteria, it establishes that a historic overlay may be applied to areas that have been identified as having special historical, architectural, or aesthetic interest or value.

3 Setting

The Project site lies in the Town of Windsor, Sonoma County, at an approximate elevation of 43 to 49 meters (140 to 160 feet) above mean sea level, approximately 28 miles east of the California Coast, and 35 miles south of Clear Lake. While the Project site is largely undeveloped, there are four existing buildings clustered in the south-central portion of the Project site, and foundation remains and evidence of previous land use throughout. Vegetation consists of dense grasses, shrubs, various ornamental tree types, and blackberry bushes.

3.1 Cultural Setting

3.1.1 Prehistoric Setting

The Project site lies in the southern portion of the Northwest California archaeological region, known as the Russian River subregion (Moratto 1984). According to Hildebrandt (2007), the prehistoric cultural chronology for the area can be generally divided into four periods: The Pleistocene-Holocene Transition (ca. 11,500-8,000 B.C.) the Early Holocene (8,000-5,000 B.C.), Middle Holocene (5,000-2,000 B.C.), and the Late Holocene (2,000 B.C. - Contact).

Pleistocene-Holocene Transition

The earliest known archaeological finds in Northwest California are fluted-points, similar to the Clovis style, and chipped stone crescents, which are indicative of the Post Pattern. Finds dating to this time period are limited, including sites near Clear Lake and Cache Creek in Lake County and isolated finds in Mendocino County and at Bodega Head (Hildebrandt et al. 2007). The earliest represented site in the Russian River subregion is LAK-36, dating to approximately 10,000 B.C, and lies approximately 27 miles northeast of the Project site (Moratto 1984).

Early Holocene

In Northwest California, the Early Holocene is characterized by the Borax Lake Pattern and the Berkeley Pattern. The Borax Lake Pattern is typically represented by large wide-stemmed projectile points, serrated bifaces, ovoid flake tools, hand stones, and millingslabs, though no faunal or floral remains have been identified at these sites, so diet composition remains unclear (Hildebrandt 2007). Borax Lake Pattern sites are found throughout the Northwest region and among several environmental contexts, including ridge tops (HUM-573, HUM-367), terraces (TRI-1008), the Clear Lake Basin (MEN-1711), and the Santa Rosa Plain (SON-20) (Hildebrandt 2007). Changes moving toward the Berkeley Pattern take place around 6500 B.C. The Berkeley Pattern is characterized by long-term settlements, contracting and square-stem points, and the use of pestles for acorn processing (Hildebrandt 2007).

Middle Holocene

In the Northwest Coast, the Mendocino Pattern is commonly found throughout the area and is categorized by side-notched, corner-notched, and concave-base points, as well as a variety of other stone tools. The Berkeley Pattern has also been recognized for this period, characterized by elaborate points, bone tools, baked clay items, and mortars and pestles. Most sites dating to this period are hunting camps or short-term forager residential areas, several of which were found along

the Russian River (SON-572, SON-568, and SON-547), within the Santa Rosa Plain (SON-456 and SON-960), or within the Clear Lake Basin (LAK-72, LAK-261, and LAK-510) (Hildebrandt 2007).

Late Holocene

During the Late Holocene, the Northwest Coast Russian River subregion includes sites representative of the Augustine Pattern, with some sites showing a revival of the Berkeley Pattern. The Augustine Pattern is characterized by corner-notched projectile points and ornate ceremonial and decorative objects (Hildebrandt 2007). The archaeological record exhibits a high degree of diversity in material culture patterns, site types, and degrees of sedentism. Seasonal Augustine pattern sites have been identified along the Sonoma County Coast, though researchers have argued for a more sedentary settlement system inland (Hildebrandt 2007).

3.2 Ethnographic Overview

The Project site lies within the traditional territory of the Southern Pomo. Southern Pomo territory extends roughly from Gualala south to Duncan's Point, and east to the Russian River (McLendon and Oswalt 1978). Southern Pomo is one of several Pomo dialect groups.

The Pomo were organized into a series of independent tribelets ranging in size from 100 to 2,000 people, with the most significant social unit being the kin group (Bean and Theodoratus 1978: 293). The Pomo participated in a clamshell disk bead exchange system internally and among other groups (Bean and Theodoratus 1978: 298).

Pomo subsistence was based on hunting, gathering, and fishing, with acorns as a primary staple (Bean and Theodoratus 1978: 293). Other important plant resources included Buckeye nuts, berries, and seeds from approximately 15 types of grasses, roots, and bulbs. Big game included deer, elk, and antelope. Material culture included obsidian and chert tools, intricate basketry, and bone and shell implements (Bean and Theodoratus 1978: 291).

3.3 Historic Context

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769 – 1822)

Spanish explorers made sailing expeditions along the coast of what was then known as Alta (upper) California between the mid-1500s and mid-1700s. In 1542, while in search of the legendary Northwest Passage, Juan Rodríquez Cabríllo recorded a visit to the Santa Barbara area. Sebastian Vizcaíno also conducted exploration of the coast in 1602 and named the Santa Barbara Channel when his ship entered it on the feast day of Saint Barbara (Kyle 2002). The Spanish crown laid claim

to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

By the 18th century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá that same year, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823. The Santa Barbara presidio was established in 1782, and the Santa Barbara Mission was founded four years later (Graffy 2010).

The mission and presidio relied on Chumash labor; eventually, the majority of the native population lived at the mission complex (Cole 1999). Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822 – 1848)

The Mexican Period commenced when news of the success of the Mexican War of Independence (1810 – 1821) against the Spanish crown reached California in 1822. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955). This period saw the privatization of mission lands in California with the passage of the Secularization Act of 1833.

This act federalized mission lands and enabled Mexican governors in California to distribute former mission lands to individuals in the form of land grants. Successive Mexican governors made approximately 700 land grants between 1833 and 1846, putting most of the state's lands into private ownership for the first time (Shumway 2007). During this era, a class of wealthy landowners known as rancheros worked large ranches based on cattle hide and tallow production. During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

Land grants marked the beginning of a profitable trade in cattle hide and tallow exports and (?) opened the way for larger, commercially driven farms. Land owned by the Spanish crown and clergy were distributed to mostly Mexican settlers born in California, or the "Californios." The ranchos these families operated were largely self-sufficient enterprises (partly out of necessity, given

California's geographic isolation), producing goods to maintain their households and operations. The rancho system "dominate[d] California life for nearly half a century" (Poole 2002).

In 1846, the Mexican-American War was initiated following the annexation of Texas by the United States and a dispute over the boundary between the United States and Mexico. Governor Pío de Jesús Pico, the last governor of Alta California, began selling off 12 million acres of public land to fund the war. Mexican forces fought and lost to combined United States Army and Navy forces in the Battle of the San Gabriel River on January 8 and in the Battle of La Mesa on January 9 of 1947. On January 10, leaders of the pueblo of Los Angeles surrendered peacefully after Mexican General José María Flores withdrew his forces (Nevin 1978). On June 14, Lieutenant Colonel John C. Frémont captured Sonoma and raised the California Republic's Bear Flag over the town's plaza (Kyle 2002). Shortly thereafter, newly appointed Mexican Military Commander of California Andrés Pico surrendered all of Alta California to Frémont in the Treaty of Cahuenga (Nevin 1978).

American Period (1848 – Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore Stockton, and evaded Californian soldiers in Santa Barbara's Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as US territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom.

The influx of settlers in the mid-nineteenth century set in motion a variety of political, legal, and economic factors that began to erode the rancho system. A severe drought in the 1860s decimated cattle herds and drastically affected rancheros' source of income. The creation of the U.S. Land Commission in 1851 required that property owners prove the validity of their property titles, many of which had been granted relatively informally and without the benefit of formal survey. Property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

Local History

Settlement of the region that would become the Town of Windsor began around 1851 with the arrival of residents relocating from the Eastern United States and from Europe. One of the region's earliest prominent residents, Henry Bell arrived in 1852 and purchased 160 acres of land in the area, on which Windsor was later developed. Bell was a skilled carpenter, dairyman, farmer and was the area's first undertaker, offering embalming services out of his home (Ray 2004). The town was said to have been given its name in 1855 by Hiram Lewis, who compared the area's pastoral beauty to

the grounds surrounding Windsor Castle in his native country of England. That year, a post office was established in the town, and Lewis became the first acting postmaster (Town of Windsor, n.d.).

The commercial core of the town was first located on the east side of the main road between Santa Rosa and Healdsburg. In 1856 the town center consisted of blacksmiths' shops, a dry goods store, a grocery and meat market, a saloon, a hotel and barroom, a boarding house, confectionary shops, and a shoe shop. The railroad arrived in the area in 1872, passing through the west end of town. Local farmers benefitted from the new mode of transportation and new markets opened to them, thus increasing the amount of crops cultivated (Town of Windsor, n.d.). However, the arrival of the railroad also created a schism in the community as some of the townspeople wanted to relocate the town center to the west to be near the railroad line, while others wanted it to remain on the east side. The community split into East Windsor and West Windsor, and it would be many years before the community reunited (Ray 2004).

Early in the 20th century, some of Windsor's buildings were damaged or lost in two separate disasters: a fire in 1905, followed by the San Francisco earthquake the next year. A telephone system and electricity were brought to the town by 1911. The Old Redwood Highway, one of the area's dirt roads, was paved in 1915 using horse-drawn equipment and teams of laborers, who camped in Windsor (The Town of Windsor, n.d.)

In 1942 the United States Army took over a property on which Sonoma County had developed a runway and expanded it to become the Santa Rosa Army Airfield, which was used primarily to train fighter groups and squadrons. At its peak, 300 to 500 aircraft and 10,000 personnel were based at the army airfield. The property converted back to a civil facility with the county resuming its operation in 1946 (Charles M. Schulz Sonoma County Airport 2011). Also during World War II, a prisoner-of-war (POW) camp was established west of downtown Windsor and was reported to hold German POWs captured from submarine crews and members of the Afrika Korps. The POWs were put to work on local farms and were under lax surveillance, as the men were known to venture into local bars and towns such as Santa Rosa for the day. The camp closed shortly after the war ended (The Town of Windsor, n.d.).

The Town of Windsor remained mostly agricultural until approximately 1980 when it experienced dramatic economic and population growth, as well as increased residential development. The Town of Windsor formally incorporated in 1992 (The Town of Windsor, n.d.). Today, the Town of Windsor has approximately 27,000 residents and encompasses approximately 7.3 square miles of land (United States Census Bureau, 2016).

4 Background Research

Background research for the cultural resource assessment included a peer review of the previous technical studies by Jones (2010, 2018), a records search, a review of historic maps, aerial photographs, Sonoma County assessor data, local newspapers, and a Sacred Lands File search request from the Native American Heritage Commission. A summary of each of these efforts follows.

4.1 Cultural Resources Records Search

On July 9, 2021, Rincon requested a records search of the Project site and a 0.5-mile radius from the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC) located at Sonoma State University. On August 5, 2021, Rincon received the results of the records search for the proposed Project. The purpose of the records search was to identify previously conducted cultural resources studies and previously recorded cultural resources located within the existing Project site and a 0.5-mile radius. In addition to the NWIC records search, a review of the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the Office of Historic Preservation Historic Properties Directory, the California Inventory of Historic Resources, the Built Environment Resource Directory, and the Archaeological Determinations of Eligibility list was conducted. A non-confidential list of these studies and resources is included in Appendix A.

4.2 Previous Studies and Recorded Resources

The NWIC records search identified 21 previously conducted cultural resources studies within a 0.5-mile radius of the Project site (Table 1). Of the 21 previously conducted cultural resources studies, two (S-030462 and S-041287) include portions of the current Project site boundaries. The studies within the current Project site are described in more detail below Table 1.

Table 1 Previously Conducted Cultural Resources Studies within a 0.5-mile Radius of the Project Site

Report Number	Author(s)	Year	Title	Relationship to Project Site
S-000975	S. A. Dietz and M. P. Holman	1973	An Archeological Impact Survey of the Proposed Lakewood Hills Property Development in the Vicinity of East Windsor, Sonoma County, California.	Outside
S-008844	R. Peron	1986	An Archaeological Investigation of a 123 Acre Parcel at Pleasant Ave. and Old Redwood Highway, Windsor, California	Outside
S-008930	T. M. Origer	1987	Archaeological Survey Within the Conde Assessment District and the Brooks Assessment District, Windsor, Sonoma County, California	Outside
S-009807	T. M. Origer	1988	An Archaeological Survey for the Vinecrest Road Assessment District, Windsor, Sonoma County, California	Outside

Report Number	Author(s)	Year	Title	Relationship to Project Site
S-010020	D. G. Bieling	1988	An Archaeological Investigation of 48.5 Acres of Land Located at 1296 Jensen Lane, Windsor, Sonoma County, California	Outside
S-010396	T. M. Origer	1988	An Archaeological Survey of the Proposed Route of Artemis Drive, Windsor, Sonoma County, California	Outside
S-010396	T. M. Origer	1988	An Archaeological Survey of Approximately 26 Acres Adjacent to the Route of Proposed Artemis Drive, Windsor, Sonoma County, California	Outside
S-010500	N. L. French	1989	An Archaeological Survey of 17 Acres at Vinecrest Road and Jensen Lane, Windsor, Sonoma County, California	Outside
S-011157	D. G. Bieling and A. G. Bramlette	1989	Archaeological Investigations at Prehistoric Site CA-SON-1212, within A.P. Nos. 65-151-41, -42, -43, &-44, Sonoma County, California	Outside
S-015975	J. Anderson and T. M. Origer	1994	An Archaeological Survey for a Proposed Two Lot Minor Subdivision at 651 Jensen Lane, Windsor, Sonoma County, California	Outside
S-017727	T. M. Origer	1995	A Cultural Resources Study for Cellular One's Antenna Site #320 Near Windsor, Sonoma County, California	Outside
S-021840	T. M. Origer	1999	A Cultural Resources Study of The Pedersen Property at 595 Jensen Lane, Windsor, Sonoma County, California	Outside
S-027404	J. M. Loyd and T. M. Origer	2003	A Cultural Resources Survey for the Chalk Ridge Subdivision, 385 Pleasant Avenue, Windsor, Sonoma County, California	Outside
S-029203	S. Schroder and V. Beard	2004	A Cultural Resources Study of the Property at 657 Jensen Lane Windsor, Sonoma County, California	Outside
S-030462	R. Greene	2005	A Cultural Resources Evaluation of the Property at 1295 Jensen Lane, Windsor, Sonoma County, California (APN 162-020-004)	**Within**
S-038987	V. R. Beard	2011	Historical Evaluation of the Fulton-Hopland 60kV Transmission Line, Sonoma and Mendocino Counties, California	Outside
S-038995	A. DeGeorgey	2011	Archaeological Resources Survey for the Fulton-Fitch Mountain 60 KV Reconductoring Project, Sonoma County, California	Outside
S-038995	K. Tremaine	2017	Additional Cultural Resources Survey Report: PG&E Fulton Fitch Reconductoring Project (letter report)	Outside
S-038995	K. Tremaine	2015	PG&E Fulton Fitch 60 kV Reconductoring Project, Southern Windsor to Fulton Substation Extension, Updated Cultural Resources Addendum Report (letter report)	Outside

Report Number	Author(s)	Year	Title	Relationship to Project Site
S-041287	E. T. Jones	2010	Cultural Resources Study for the Jensen Lane Elementary School Project EIR, Windsor, Sonoma County, California (Letter Report)	**Within**
S-051519	S. A. Dietz and M. P. Holman	1984	Historic Property Survey Report, Windsor Redevelopment Project	Outside

Source: NWIC 2021

S-030462

Richard Greene of Archaeological Resource Service prepared study S-030462, *A Cultural Resources Evaluation of the Property at 1295 Jensen Lane, Windsor, Sonoma County, California (APN 162-020-004*), in 2005. The study included a records review of NWIC records, a SLF request, historical reference review, and a pedestrian survey of the 15.2-acre study site. The study was conducted to determine the if the development of 62 single family homes would impact cultural resources. Greene (2005) stated that, prior to the study, the Project site had not been previously studied for cultural resources. The pedestrian survey for the study consisted of linear transects spaced five to ten meters apart across the study area, identifying six isolated prehistoric artifacts on the surface (an obsidian flake and five modified stones). Greene's (2005) personal communication with the landowner noted that multiple projectile points has been previously collected on the property throughout the years. However, the number, types, and location of the artifacts collected by the landowner is unknown. Greene did not record the artifacts as a prehistoric archaeological site. Five of the six identified artifacts were collected for examination at the Archaeological Resource Service Lab. As surficial artifacts were identified, Greene (2005) recommended that spot checks be performed during initial ground disturbance as a subsurface archaeological resource may be present. Additionally, Greene (2005) noted a farm complex, stating that many of the buildings and structures were dilapidated and falling apart, recommended that the complex is not historically significant. Although it was included in the study, the farm complex was not formally recorded or evaluated. The study included the entirety of the Project site as it was proposed in 2005.

S-041287

E. Timothy Jones of LSA Associates, Inc., prepared study S-041287, *Cultural Resources Study for the Jensen Lane Elementary School Project EIR, Windsor, Sonoma County, California (LSA Project #WUS1001,* in 2010. The study included a cultural and paleontological resources review of the Project site, and included records search review of NWIC records, a SLF request, literature review, a review of formation maps, an archaeological field survey, and a historical architectural resources survey. The study included "the acquisition of a 12-acre portion of a 17-acre parcel (APN 162-020-004)."

The archaeological field survey was conducted using zig-zag transects approximately 10 meters apart. Naturally occurring obsidian and three isolated cultural modified flakes were observed during the archaeological field survey (Jones 2010). Jones did not record the artifacts as a prehistoric archaeological site. Due to the presence of culturally modified flakes, and previously identified prehistoric artifacts within the study area, Jones (2010) concurred with Greene's (2005) assessment that archaeological deposits may exist subsurface, and recommended archaeological monitoring for the project.

Jones (2010) formally recorded the historic-era farmstead (P-49-004535) on California Department of Parks and Recreation 523 Series forms (DPR) and provided an evaluation of the resource. The historical architectural survey of the farm complex noted modifications to the residential building, as well as minimal alterations to the six associated buildings and structures. While the DPR form does not feature a status code, it concluded that the property was not eligible for listing in the NRHP or the CRHR under any criteria (Hibma 2010). Although the farmstead retains location and association integrity, structural additions and modifications compromise the integrity of setting, feeling, and workmanship; for these reasons, Jones (2010) concluded that the resource is not eligible for listing in the NRHP or the CRHR, concurring with the findings of Greene (2005). As the farmstead does not retain integrity, no further built environmental analysis was recommended.

In 2018, Jones provided a supplemental report to his 2010 report that included an updated records search, SLF, and a site visit. Jones (2018) noted that the condition of the property had not changed since 2010, and concluded it still did not qualify as a historical resource due to its compromised integrity.

4.3 Previously Recorded Resources

The NWIC records search identified three previously recorded cultural resources within a 0.5-mile radius of the Project site (Table 2). These resources include a prehistoric site, a historic-period structure, and a historic-period ranch complex. Resource P-49-004535, as documented by Greene (2005) and Jones (2010, 2018), is recorded in the current Project site. Table 2.

Table 2 Previously Recorded Resources within a 0.5-mile Radius of the Project Area

Primary Number	Trinomial	Resource Type	Description	Recorder(s) and Year(s)	NRHP/ CRHR Status	Relationship to Project Site
P-49-001136	CA-SON-1212	Prehistoric Site	Lithic scatter	1971 (W. E. Soule and D. Sheeders)	Not evaluated	Outside
P-49-004369	–	Historic Structure	Fulton-Hopland 60 kV Transmission Line	2011 (V. Beard and A. DeGeorgey)	Recommended ineligible listing on the NRHP or CRHR.	Outside
P-49-004535	–	Historic Property	1295 Jensen Lane	2010 (M. Hibma)	Recommended ineligible listing on the NRHP or CRHR.	**Within**

Source: NWIC 2021

P-49-004535

In 2010, Michael Hibma of LSA Associates, Inc., recorded resource P-49-004535 at 1295 Jensen Lane, within the Project site. The resource is recorded as a farmstead with a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c.1950 prune dryer; fences and gates; and a Eucalyptus grove (Hibma 2010). Alterations including structure additions as well as façade conditions to the residence were noted during the recording, contributing to the conclusion that the resource does not maintain integrity of setting, feeling, or

workmanship. Although the farm complex retains integrity of location and association, the alterations to the buildings compromise other aspects.

The farmstead was found to not have significance under any criteria, and recommended ineligible for inclusion on the NRHP and CRHR (Hibma 2010). The 2018 supplemental cultural resources report did not include an updated DPR form or analysis of the property's eligibility for listing in the NRHP or the CRHR, but noted that the condition of the property had not changed since 2010 and concluded it still did not qualify as a historical resource due to its compromised integrity.

Rincon updated the inventory form for this property to confirm its historic development, historic context, existing condition, and integrity (Appendix C).

4.4 Aerial Imagery and Historical Topographic Map Review

Rincon reviewed historical aerials and topographic maps from HistoricAerials.com and from the United States Geologic Survey (USGS) "Topoview" webpage. These images were reviewed to identify potential cultural resources in the Project site, as well as the land use history of the parcel. Historical topographic maps from 1920 to 1955 depict the current Project site as the farm residence with mostly undeveloped land and Jensen Lane to the south-southeast (NETR Online 2021; USGS 2021). Imagery and maps from 1956 to 1993 show the Project site as the farmstead complex with the addition of an orchard throughout the southern portion of the Project site (NETR Online 2021; USGS 2021). Aerial imagery from 1953 to 1993 confirms the presence of the complex with an orchard south of the residence (NETR Online 2021). Imagery from 2005 to the present do not depict the orchard; the Project site is shown in its current condition (NETR Online 2021).

4.5 Sacred Lands File Search

Rincon contacted the Native American Heritage Commission (NAHC) on July 9, 2021, to request a Sacred Lands File (SLF) search of the Project site. As part of this request, Rincon asked the NAHC to provide a contact list of Native American groups and/or individuals culturally affiliated with the area who may have knowledge of Tribal heritage resources at the Project site and/or in the vicinity. The NAHC emailed a response on July 27, 2021, stating the SLF search was positive. In their response, the NAHC provided a list of 14 tribes who may have knowledge of cultural resources within the Project site. The SLF search can be found in Appendix B of this report. Rincon was not contracted to conduct Native American outreach as a part of this cultural resources assessment.

5 Fieldwork

5.1 Methods

Rincon cultural resources specialist Allison Wilson conducted a pedestrian survey of the Project site on August 12, 2021. An insensitive level survey was conducted across the southern portion of the Project site, consisting of 3.80 acres. A reconnaissance level survey was conducted across the northern portion of the Project site, consisting of 13.9 acres. Figure 3 below shows these differences. The pedestrian survey was conducted using transects oriented generally east-west and spaced no more than 10 meters apart. The survey examined exposed ground surfaces for artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools, ceramics, fire-affected rock [FAR]), ecofacts (bone), and soil discoloration that might indicate the presence of a cultural midden, soil depressions, and features indicative of the former presence of structures or buildings (e.g., standing exterior walls, postholes, foundations) or historic debris (e.g., metal, glass, ceramics). Ground disturbances such as burrows and drainages were visually inspected. The cultural resources specialist attempted to relocate any of the previously identified prehistoric artifacts and determine if a prehistoric archaeological site was located on the Project site.

Under the guidance of, and with input from, qualified architectural historian JulieAnn Murphy, MS, the built environment features were photographed and recorded on DPR 523 series forms, which are included in Appendix C of this report. The survey was documented in notes, which are available upon request.

5.2 Results

Vegetation within the Project site consisted of wild grasses, leaf litter, oaks, a pear grove, a eucalyptus grove, and shrubs. Ground visibility was poor, ranging from 5 to 10 percent (Figure 4 and Figure 5) throughout the Project site. Previous tilling was evidence throughout the Project site (Figure 6); however, the tilling does not appear to be recent based on vegetation growth. The soils within the Project site consisted of medium brown colored silt. Naturally occurring chert and “float” obsidian were evidenced throughout the Project site.

The survey identified one isolated culturally modified obsidian flake (Jensen-ISO-1) (Figure 7) in the Project site. No previously identified artifacts were relocated. Rincon was unable to discern the presence of a prehistoric archaeological site during the current survey efforts due to the amount of vegetation on the surface which limited the ground visibility. A Department of Parks and Recreation for the isolated culturally modified obsidian flake is found in Appendix D of this report.

Figure 3 Survey Results

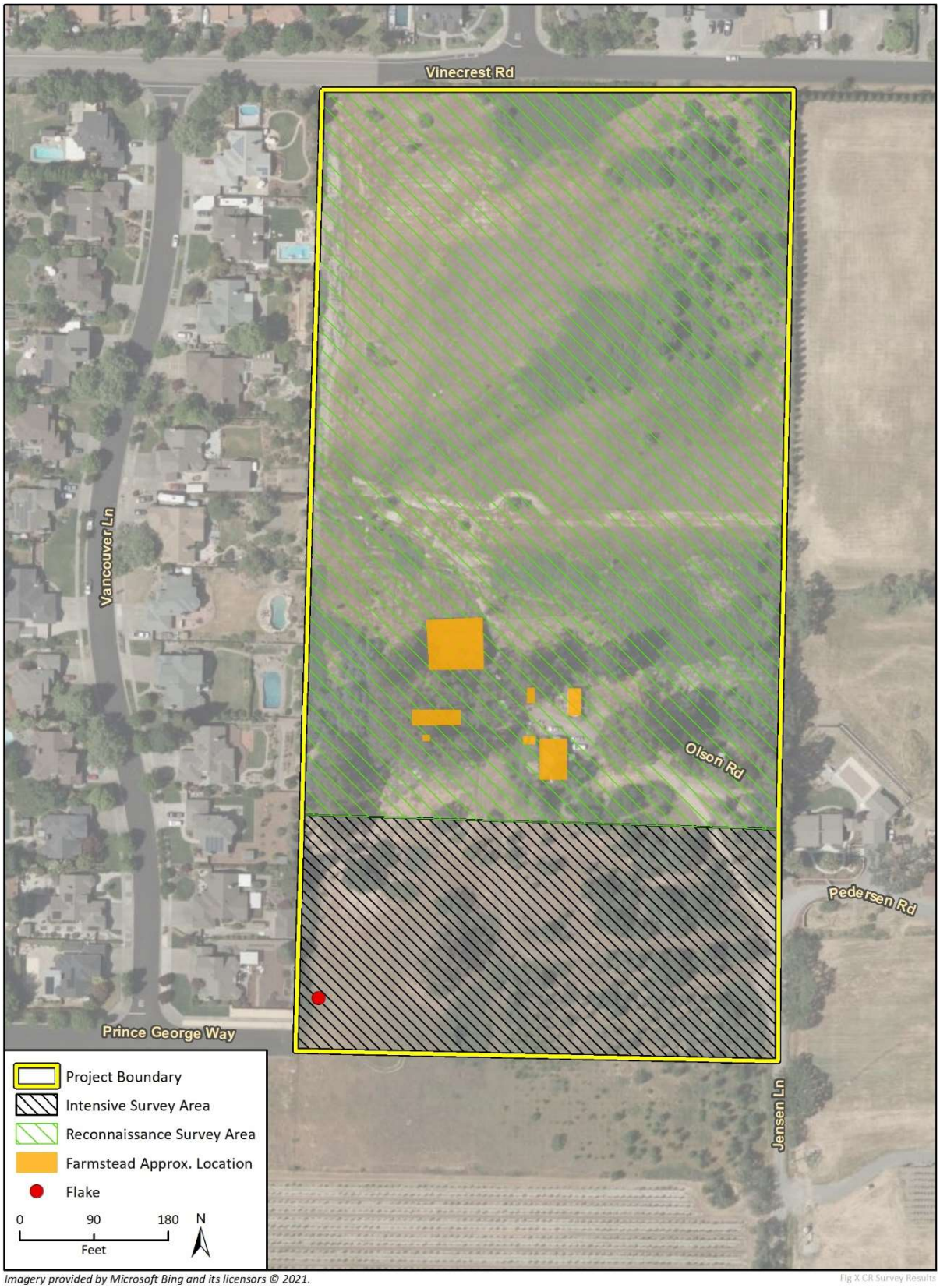


Figure 4 Representation of Ground Visibility Throughout Project Site, Facing West



Figure 5 Representation of Ground Visibility Throughout Project Site, Facing South



Figure 6 Evidence of Tilling, Facing West



Figure 7 Ventral Surface of Culturally Modified Obsidian Flake, Plainview



5.2.1 Built Environment Survey Results

The pedestrian survey confirmed the presence of P-49-004535, an agricultural property which has been subject to previous evaluation as discussed above in Section 4.3. The property was photographed under the direction of an SOI PQS architectural historian. An updated NRHP and CRHR eligibility evaluation was subsequently prepared on DPR 523 Series forms, which are included in Appendix C.

Architectural Description

P-49-004535 is a 17.17-acre property and comprising a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c.1950 prune dryer; fences and gates; and a Eucalyptus grove.

The residence is a c. 1900 Craftsman residential wood-frame building with a hipped asphalt shingle roof and a masonry pier foundation. The primary elevation has a main entry flanked by large, paired casement windows. Its south elevation features a full-width concrete shed-roof patio addition, which is separating from the house. Since last recording, the residence appears to be largely in the same condition with the exception of the addition of a temporary waterproofing tarp material covering the roof (Figure 8).

The detached sheds (Sheds A-C) are wood-frame structures with low-pitched lean-to roofs with wood siding. Shed A (c. 1930) appears to be in the same condition, although the paint peeling is more pronounced. Shed B (c. 1930) and Shed C are in the same condition recorded in 2010 (Figure 9)

The equipment shed (c. 1930) is a three-sided, single-story, wood-framed structure with a low-pitched corrugated metal roof and vertical plank siding. The equipment shed (c. 1930) is in poor condition and appears to be failing structurally with significant sagging at the hinged doors. Since its previous evaluation, the equipment shed has further deteriorated and lost significant portions of its exterior siding. Portions of its frame structure remain intact, while some of the structure has failed and is no longer in place (Figure 10).

The barn (c. 1900) is a rectangular, wood-frame two story building with a gable-end roof with a shed-roof addition portion on the north elevation. The building's exterior is clad in vertical and horizontal wood siding and it has a corrugated metal roof. The barn (c. 1900) appears largely as it did in 2010 with some minor advancement in deterioration of exterior materials, but is in otherwise good condition (Figure 11).

The prune dryer (c. 1950) has a brick firebox base with metal bracing securing the machinery above. Since the previous evaluation, the prune dryer has deteriorated, including material loss of the metal machine components (Figure 12).

Figure 8 Main Residence (c. 1900), view west



Figure 9 Shed A (c.1930), view south



Figure 10 Equipment Shed (c. 1930), view south



Figure 11 Prune Dryer (c. 1950), view east



Figure 12 Barn (c. 1900), view east



Property History and Evaluation

The property at 1295 Jensen Lane was evaluated in 2005 by Richard Greene of Archaeological Resource Service; and in 2010 by Michael Hibma of LSA. Previous documentation, including previous reports and site histories, were reviewed as part of the current update. Additional historical research was also conducted, including a review of historic-period maps, vital records, newspaper articles, and aerial images to confirm the site's historical development and history. As stated in the 2005 report, the land of the project site was part of a large farm owned by Lorenzo D. Latimer and wife Sarah Myers (Greene 2005). Latimer was a native of New York, who moved to Santa Rosa in 1856-1857 (Guinn 1904: 499). He practiced law until 1879, when he was appointed District Attorney of the Northern District of California by President Ulysses S Grant; he retired from law in 1885, and purchased 1160-acres of farmland in Windsor, including the subject property where he engaged in agricultural practices, including winemaking, until his death in 1901 (Guinn 1904: 499; Board of Viticultural Commissioners 1888). Latimer and his wife resided in a house east of the subject property on Chalk Hill Road.

As noted in the 2010 LSA report, after his death, Latimer's land was subdivided, and the subject parcel was purchased by TC Ross, who built the house in c. 1900 (Jones 2010). The Ross family built the associated sheds in the 1930s (Hibma 2010). In the 1950s the family grew grapes and prunes, until the decline of prune cultivation due to oak-root fungus in the 1960s that destroyed plum trees (Beedie 1978: 79; Page and Burns 2005:9). Additional historic-period and archival research did not reveal any historic or development history not outlined in previous studies.

Historical Evaluation

Based on the above research, there is no information to suggest the previous finding is no longer valid and the subject property appears to remain ineligible for listing in the NRHP or CRHR.

The subject property was first cultivated for agricultural use in the late nineteenth century and continued to be used for that purpose into the mid-twentieth century and was typical of Windsor, which remained agricultural throughout most of the 1900s, with wine grapes, hops, and prunes as the primary crops, regularly fluctuating to market demands. Although the subject property is associated with Windsor's agricultural history, research did not indicate the agricultural activities that occurred on the property were related to an important historic trend or significant operation within that historical context. Furthermore, P-49-004535 is not presently used for agricultural purposes and there is little evidence on the landscape of historic agricultural activities, with no discernable landscape features related to its agricultural use. Its remaining vegetation is limited to a grove of Eucalyptus trees that are not related to its historic-period agricultural use. Its location responded to the natural environment and the ease of irrigation and was typical of the area. The former farm's circulation network is loosely in place and retains its entry roadway with a straight road that terminates in a Y-shaped drive with access to the subject property to the west and an adjacent property to the east. Other circulation patterns are not present. It is, therefore, not eligible for listing under Criterion A/1 (Events).

P-49-004535 is not significant for its association with an important person under Criterion B/2 (Person). Though owned for a time by Lorenzo D. Latimer, archival research does not suggest he is a significant person in the development of Windsor and the subject property is not closely associated with his life or work. He does not appear to have lived on the subject property and it is a small piece of an originally much larger parcel. Similarly, historic research, including review of historic newspaper articles, announcements, and city directories, did not reveal significant contributions that TC Ross or the Ross family made to history within the context of the site's historical development or use.

The buildings on 1295 Jensen are not architecturally significant. Built between c. 1900 and c.1930, they do not represent a distinctive characteristic, type, or method of construction. The main residence is in the Craftsman style, among the most popular styles during the time of its construction. Historic research did not reveal its architect and it is not believed to be the work of a master. It is not a particularly notable example of the style. Additionally, it appears to have been altered over time with an enclosed porch addition. The building is also deteriorated, demonstrated by its recent temporary roof waterproofing material, and has caused diminished integrity of materials. The other buildings on the property are not examples of architectural styles and are utilitarian agricultural buildings. The site's ancillary structures, in addition to not being architecturally significant have condition issues and significant loss of material that diminish their overall integrity. The buildings are deteriorated, in many instances, beyond repair.

The barn building, constructed in c. 1930, is a version of a Dutch barn with elements of a bank barn, built to accommodate the natural sloping landscape. The Dutch barn is among the most popular barn styles in the United States with a gable roof with doors on the narrow side for wagons and stock. The gable roof slopes to a shed roof, following the grade change to allow for a larger barn footprint. The barn building, however, is not significant for its design or construction and does not embody a distinctive type or method of construction and is typical of barn buildings from that period. It does not represent the work of a master, possess high artistic value, or represent a significant distinguishable entity. The subject property is, therefore, not eligible for its architectural design or construction under Criterion C/3 (Architecture).

Archival research and a review of the California Historical Resources Information System also do not suggest P-49-004535 is likely to yield important to history and is not eligible for Criterion D/4 (Information).

6 Findings and Recommendations

The study identified one previously recorded cultural resource in the Project site: P-49-004535. As detailed above, P-49-004535 is not recommended eligible for listing in the NRHP or CRHR due to its lack of historical significance under each of the evaluative criteria in addition to its diminished integrity. Thus, it does not qualify as historical resource and its demolition would not qualify as an impact under CEQA. Therefore, Rincon recommends a finding of ***no impact to historical resources*** under CEQA.

The SLF search conducted by the NAHC in support of this study returned positive results and the cultural resources records search identified a prehistoric site within the surrounding vicinity of the Project site. Previous surveys identified culturally modified prehistoric artifacts throughout the Project site, consisting of obsidian flakes and chert fragments. Beyond the culturally modified flakes and fragments, Green (2005) and Jones (2010) noted the presence of naturally occurring "float" obsidian and chert within the Project site. No previous Extended Phase I or Phase II Testing has been conducted within the current Project site. Both Greene (2005) and Jones (2010) recommended archaeological monitoring for ground disturbance associated with Project construction given the presence of artifacts on the surface.

The pedestrian survey conducted by Rincon in August 2021, identified a single culturally modified obsidian flake on the surface, as well as an abundant amount of naturally occurring chert and "float" obsidian. Rincon did not identify evidence of a prehistoric archaeological site on the surface of the Project site; however, the area has minimal ground visibility. Given the lack of development of the Project site, poor ground visibility, prehistory of the area, the presence of culturally modified flakes on the surface, and known prehistoric sites within the vicinity, the Project site is considered sensitive for archaeological resources.

Rincon concurs with previous studies by Greene (2005) and Jones (2010, 2018) and recommends a worker's environmental awareness program prior to work commencing, and archaeological and Native American monitoring during ground disturbing activities. With adherence to these measures, Rincon recommends a finding of ***less than significant impact to archaeological resources with mitigation*** under CEQA. Recommended measures are provided in further detail below. The Project is also required to adhere to regulations regarding the unanticipated discovery of human remains, detailed below.

6.1 Worker's Environmental Awareness Program

A qualified archaeologist should be retained to conduct a WEAP training on archaeological sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The training should be conducted by an archaeologist who meets or exceeds the Secretary of Interior's Professional Qualification Standards for archeology (National Park Service [NPS] 1983). Archaeological sensitivity training should include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find.

6.2 Archaeological and Native American Monitoring

Rincon recommends archaeological and Native American monitoring of all Project-related ground disturbing activities by a qualified archaeologist and Native American consultant. Archaeological monitoring should be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983). Native American monitoring should be provided by a locally affiliated Tribal member(s). Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Native American monitoring or both may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the Project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).

6.3 Unanticipated Discovery of Cultural Resources

In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work in the immediate area shall (?) be halted and an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983) will be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative will be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources (CRHR) eligibility. If the discovery proves to be eligible for listing in the CRHR and cannot be avoided additional work, such as testing and data recovery excavations, may be warranted to mitigate any significant impacts to cultural resources to less than a significant level.

6.4 Unanticipated Discovery of Human Remains

In the unlikely event of an unanticipated discovery of human remains, all ground-disturbing activities in the vicinity of the discovery will be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 will be implemented including contacting the Fresno County Department of Medical Examiner-Coroner. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowner within 48 hours of being granted access.

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Railroad Collectors Association, Incorporated (RCAI)

2021 Syracuse China Date Codes. Electronic Resource, http://www.railroadcollectors.org/Pages/syracuse_china_dates.shtml. Accessed March 25, 2021.

Rolle, Andrew

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Shumway, Burgess McK.

2007 California Ranchos: Patented Private Land Grants Listed by County. Michael Burgess and Mary Wickizer Burgess, eds. Rockville, Maryland: Borgo Publishing Press.

Thompson, Thomas

1877 *Historical Atlas Map of Sonoma County California with Illustrations,* Thomas H. Thompson, Oakland

Town of Windsor

2020 "History," Windsor, CA Official Website. Accessed December 10, 2020. https://www.townofwindsor.com/439/History.

Workman, Boyle

1935 *The City that Grew*. Southland Publication Co., Los Angeles.

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Appendix A

California Historical Resources Information System Search Results

California Historical Resources Information System

CHRIS Data Request Form

ACCESS AND USE AGREEMENT NO.: 56 **IC FILE NO.:** _____

To: Northwest Information Center

Print Name: Courtney Montgomery Date: July 9, 2021

Affiliation: Rincon Consultants, Inc.

Address: 180 N. Ashwood Avenue

City: Ventura State: CA Zip: 93003

Phone: 805-644-4455 Fax: 805-644-4455 Email: cmontgomery@rinconconsultants.com

Billing Address (if different than above): _____

Billing Email: ap@rinconconsultants.com Billing Phone: 805-644-4455

Project Name / Reference: 20-10215 - 1295 Jensen Lane

Project Street Address: 1295 Jensen Lane

County or Counties: Sonoma

Township/Range/UTMs: T8N, R8W, S7

USGS 7.5' Quad(s): Healdsburg

PRIORITY RESPONSE (Additional Fee): yes ☐ / no ☒

TOTAL FEE NOT TO EXCEED: $600
(If blank, the Information Center will contact you if the fee is expected to exceed $1,000.00)

Special Instructions:

Information Center Use Only

Date of CHRIS Data Provided for this Request: _____

Confidential Data Included in Response: yes ☐ / no ☐

Notes: _____

CHRIS Data Request Form

Mark the request form as needed. Attach a PDF of your project area (with the radius if applicable) mapped on a 7.5' USGS topographic quadrangle to scale 1:24000 ratio 1:1 neither enlarged nor reduced and include a shapefile of your project area, if available. Shapefiles are the current CHRIS standard for submitting digital spatial data for your project area or radius. **Check with the appropriate IC for current availability of digital data products.**

- Documents will be provided in PDF format. Paper copies will only be provided if PDFs are not available at the time of the request or under specially arranged circumstances.
- Location information will be provided as a digital map product (Custom Maps or GIS data) unless the area has not yet been digitized. In such circumstances, the IC may provide hand drawn maps.
- In addition to the $150/hr. staff time fee, client will be charged the Custom Map fee when GIS is required to complete the request [e.g., a map printout or map image/PDF is requested and no GIS Data is requested, or an electronic product is requested (derived from GIS data) but no mapping is requested].

For product fees, see the CHRIS IC Fee Structure on the OHP website.

1. Map Format Choice:

Select One: Custom GIS Maps ☐ GIS Data ☐ Custom GIS Maps **and** GIS Data ☐ No Maps ☐

Any selection below left unmarked will be considered a "no. "

Location Information:

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Locations[1]	yes ☑ / no ☐	yes ☑ / no ☐
NON-ARCHAEOLOGICAL Resource Locations	yes ☑ / no ☐	yes ☑ / no ☐
Report Locations[1]	yes ☑ / no ☐	yes ☑ / no ☐
"Other" Report Locations[2]	yes ☐ / no ☑	yes ☐ / no ☑

3. Database Information:
(contact the IC for product examples, or visit the SSJVIC website for examples)

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Database[1]		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☑ / no ☐	yes ☑ / no ☐
NON-ARCHAEOLOGICAL Resource Database		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☑ / no ☐	yes ☑ / no ☐
Report Database[1]		
List (PDF format)	yes ☑ / no ☐	yes ☑ / no ☐
Detail (PDF format)	yes ☐ / no ☑	yes ☐ / no ☑
Excel Spreadsheet	yes ☐ / no ☑	yes ☐ / no ☑
Include "Other" Reports[2]	yes ☑ / no ☐	yes ☑ / no ☐

4. Document PDFs (paper copy only upon request)**:**

	Within project area	Within 0.5 mi. radius
ARCHAEOLOGICAL Resource Records[1]	yes ☑ / no ☐	yes ☑ / no ☐
NON-ARCHAEOLOGICAL Resource Records	yes ☑ / no ☐	yes ☑ / no ☐
Reports[1]	yes ☑ / no ☐	yes ☐ / no ☑
"Other" Reports[2]	yes ☐ / no ☑	yes ☐ / no ☑

CHRIS Data Request Form

5. Eligibility Listings and Documentation:

	Within project area	Within 0.5 mi. radius
OHP Built Environment Resources Directory[3]:		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☐ / no ☒
Associated documentation[4]	yes ☒ / no ☐	yes ☐ / no ☒
OHP Archaeological Resources Directory[1,5]:		
Directory listing only (Excel format)	yes ☒ / no ☐	yes ☒ / no ☐
Associated documentation[4]	yes ☒ / no ☐	yes ☒ / no ☐
***California Inventory of Historic Resources* (1976):**		
Directory listing only (PDF format)	yes ☐ / no ☒	yes ☐ / no ☒
Associated documentation[4]	yes ☐ / no ☒	yes ☐ / no ☒

6. Additional Information:

The following sources of information may be available through the Information Center. However, several of these sources are now available on the OHP website and can be accessed directly. The Office of Historic Preservation makes no guarantees about the availability, completeness, or accuracy of the information provided through these sources. Indicate below if the Information Center should review and provide documentation (if available) of any of the following ources as part of this request.

Caltrans Bridge Survey	yes ☐ / no ☒
Ethnographic Information	yes ☐ / no ☒
Historical Literature	yes ☐ / no ☒
Historical Maps	yes ☐ / no ☒
Local Inventories	yes ☐ / no ☒
GLO and/or Rancho Plat Maps	yes ☐ / no ☒
Shipwreck Inventory	yes ☐ / no ☒
Soil Survey Maps	yes ☐ / no ☒

---

[1] In order to receive archaeological information, requestor must meet qualifications as specified in Section III of the current version of the California Historical Resources Information System Information Center Rules of Operation Manual and be identified as an Authorized User or Conditional User under an active CHRIS Access and Use Agreement.

[2] "Other" Reports GIS layer consists of report study areas for which the report content is almost entirely non-fieldwork related (e.g., local/regional history, or overview) and/or for which the presentation of the study area boundary may or may not add value to a record search.

[3] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Includes, but not limited to, information regarding National Register of Historic Places, California Register of Historical Resources, California State Historical Landmarks, California State Points of Historical Interest, and historic building surveys. Previously known as the HRI and then as the HPD, it is now known as the Built Environment Resources Directory (BERD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

[4] Associated documentation will vary by resource. Contact the IC for further details.

[5] Provided as Excel spreadsheets with no cost for the rows; the only cost for this component is IC staff time. Previously known as the Archaeological Determinations of Eligibility, now it is known as the Archaeological Resources Directory (ARD). The Office of Historic Preservation compiles this documentation and it is the source of the official status codes for evaluated resources.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

8/2/2021 NWIC File No.: 21-0049

Courtney Montgomery
Rincon Consultants, Inc.
180 N. Ashwood Avenue
Ventura, CA 93003

Re: 20-10215 - 1295 Jensen Lane

The Northwest Information Center received your record search request for the project area referenced above, located on the Healdsburg USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a ½ mile radius:

Resources within project area:	P-49-004535
Resources within ½ mile radius:	P-49-001136; P-49-004369
Reports within project area:	S-030462; S-041287
Reports within ½ mile radius:	S-000975; S-008844; S-008930; S-009807; S-010020; S-010396; S-010500; S-011157; S-015975; S-017727; S-021840; S-027404; S-029203; S-038987; S-038995; S-051519

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed
OHP Built Environment Resources Directory:	☐ enclosed	☐ not requested	☒ nothing listed
Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed

Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☐ enclosed	☒ not requested	☐ nothing listed
Soil Survey Maps:	☐ enclosed	☒ not requested	☐ nothing listed

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Justin Murazzo
Researcher

Report List

21-0049 :: 20-10215 - 1295 Jensen Lane

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-000975		1973	Stephen A. Dietz and Miley P. Holman	An Archeological Impact Survey of the Proposed Lakewood Hills Property Development in the Vicinity of East Windsor, Sonoma County, California.		
S-008844		1986	Rene Peron	An Archaeological Investigation of a 123 Acre Parcel at Pleasant Ave. and Old Redwood Highway, Windsor, California		
S-008930		1987	Thomas M. Origer	Archaeological Survey Within the Conde Assessment District and the Brooks Assessment District, Windsor, Sonoma County, California		
S-009807		1988	Thomas M. Origer	An Archaeological Survey for the Vinecrest Road Assessment District, Windsor, Sonoma County, California		
S-010020	Submitter - File No. 5501/63-88	1988	David G. Bieling	An Archaeological Investigation of 48.5 Acres of Land Located at 1296 Jensen Lane, Windsor, Sonoma County, California	Anthropological Studies Center, Sonoma State University	
S-010396	Voided - S-10397	1988	Thomas M. Origer	An Archaeological Survey of the Proposed Route of Artemis Drive, Windsor, Sonoma County, California		
S-010396a		1988	Thomas M. Origer	An Archaeological Survey of Approximately 26 Acres Adjacent to the Route of Proposed Artemis Drive, Windsor, Sonoma County, California		
S-010500	Submitter - ASC# 5501/3-89	1989	Nancy L. French	An Archaeological Survey of 17 Acres at Vinecrest Road and Jensen Lane, Windsor, Sonoma County, California	Anthropological Studies Center, Cultural Resources Facility, Sonoma State University	
S-011157	Submitter - File No. 5123/5-89	1989	David G. Bieling and Allan G. Bramlette	Archaeological Investigations at Prehistoric Site CA-SON-1212, within A.P. Nos. 65-151-41, -42, -43, &-44, Sonoma County, California	Anthropological Studies Center, Sonoma State University	49-001136
S-015975		1994	Jessica Anderson and Thomas M. Origer	An Archaeological Survey for a Proposed Two Lot Minor Subdivision at 651 Jensen Lane, Windsor, Sonoma County, California	Tom Origer & Associates	
S-017727	Submitter - File No. 95-50S	1995	Thomas M. Origer	A Cultural Resources Study for Cellular One's Antenna Site #320 Near Windsor, Sonoma County, California	Tom Origer & Associates	
S-021840		1999	Thomas M. Origer	A Cultural Resources Study of The Pedersen Property at 595 Jensen Lane, Windsor, Sonoma County, California	Tom Origer & Associates	

Report List

21-0049 :: 20-10215 - 1295 Jensen Lane

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
S-027404	Submitter - File No. 03-68S	2003	Janine M. Loyd and Thomas M. Origer	A Cultural Resources Survey for the Chalk Ridge Subdivision, 385 Pleasant Avenue, Windsor, Sonoma County, California	Tom Origer & Associates	49-001179, 49-002711
S-029203	Submitter - File No. 04-19S	2004	Sue-Ann Schroder and Vicki Beard	A Cultural Resources Study of the Property at 657 Jensen Lane Windsor, Sonoma County, California	Tom Origer & Associates	
S-030462	Submitter - A.R.S. Project 05-060	2005	Richard Greene	A Cultural Resources Evaluation of the Property at 1295 Jensen Lane, Windsor, Sonoma County, California (APN 162-020-004)	Archaeological Resource Service	
S-038987	Submitter - File No. 11-30BE	2011	Vicki R. Beard	Historical Evaluation of the Fulton-Hopland 60kV Transmission Line, Sonoma and Mendocino Counties, California	Tom Origer & Associates	23-005299, 49-004369
S-038995		2011	Alex DeGeorgey	Archaeological Resources Survey for the Fulton-Fitch Mountain 60 KV Reconductoring Project, Sonoma County, California	North Coast Resource Management	49-001179, 49-004349, 49-004350, 49-004351, 49-004352, 49-004353, 49-004354, 49-004355, 49-004356, 49-004357, 49-004358, 49-004359, 49-004360, 49-004361, 49-004362, 49-004363, 49-004364, 49-004365, 49-004366, 49-004367, 49-004368, 49-004369, 49-005425, 49-005432, 49-005433, 49-005434, 49-005435, 49-005436, 49-005437, 49-005851, 49-005852
S-038995a		2017	Kim Tremaine	Additional Cultural Resources Survey Report: PG&E Fulton Fitch Reconductoring Project (letter report)	Tremaine & Associates	
S-038995b		2015	Kim Tremaine	PG&E Fulton Fitch 60 kV Reconductoring Project, Southern Windsor to Fulton Substation Extension, Updated Cultural Resources Addendum Report (letter report)	Tremaine & Associates	
S-041287	Submitter - LSA Project# WUS1001	2010	E. Timothy Jones	Cultural Resources Study for the Jensen Lane Elementary School Project EIR, Windsor, Sonoma County, California (Letter Report)	LSA Associates	49-004535
S-051519		1984		Historic Property Survey Report, Windsor Redevelopment Project	Dan Peterson, A.I.A. and Associates, Inc.	49-003181, 49-003182, 49-003813

Resource List

21-0049 :: 20-10215 - 1295 Jensen Lane

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-49-001136	CA-SON-001212		Site	Prehistoric	AP02; AP12	1979 (William E. Soule, Donna Sheeders, DWR)	S-001673, S-011157, S-016048
P-49-004369		Resource Name - Fulton-Hopland 60 kV Transmission Line; Other - Fulton-Fitch Mountain 60k V transmission line; Other - Fulton #19; Other - also P-23-005299	Structure	Historic	HP11; HP39	2011 (V. Beard, Alex DeGeorgey, Tom Origer & Associates; NCRM)	S-038987, S-038995, S-039496, S-040378, S-044538
P-49-004535		Resource Name - 1295 Jensen Lane	Building, Structure, Object, Site	Historic	HP02; HP04; HP30; HP32; HP33; HP34	2010 (Michael Hibma, LSA)	S-041287

Appendix B

Sacred Lands File Search Results

Rincon Consultants, Inc.
180 North Ashwood Avenue
Ventura, California 93003
805 644 4455 OFFICE AND FAX
info@rinconconsultants.com
www.rinconconsultants.com

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information below is required for a Sacred Lands File Search

Project Title: 20-10215 1295 Jensen Ln Project

County: Sonoma

USGS Quadrangle Name: Healdsburg

Township: 8N **Range:** 8W **Sections:** 7

Contact Person: Courtney Montgomery

Company/Firm/Agency: Rincon Consultants, Inc.

Street Address: 7080 N. Whitney Avenue, Suite 101

City: Fresno **Zip**: 93720

Phone: (559) 558-5875 **Email:** cmontgomery@rinconconsultants.com

Project Description: The proposed project is a subdivision of a vacant 17.17 acre parcel (Assessor's Parcel Number 162-020-004) located at 1295 Jensen Lane in the northeastern corner of the Town of Windsor. The project site would be subdivided into 30 new lots ranging in size from approximately 10,976 to 43,186 square feet. The average lot size would be approximately 19,370 square feet. A total of 26 of the 30 lots would be buildable. The project site has a land use and zoning designation of Estate Residential (ER) as identified in the 2040 General Plan and was analyzed as such in the 2040 General Plan EIR.



Imagery provided by Microsoft Bing and its licensors © 2021.

Fig 2 Project Site

NATIVE AMERICAN HERITAGE COMMISSION

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

COMMISSIONER
[**Vacant**]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

July 27, 2021

Courtney Montgomery, Archaeologist
Rincon Consultants, Inc.

Via Email to: cmontgomery@rinconconsultants.com
Cc to: scottg@mishewalwappotribe.com

Re: 20-10215 1295 Jensen Ln Project, Sonoma County

Dear Ms. Montgomery:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the Mishewal-Wappo Tribe of Alexander Valley on the attached list for more information. Please note that tribes do not always record their sacred sites in the SLF, nor are they required to do so. A SLF search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with a project's geographic area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites, such as the appropriate regional California Historical Research Information System (CHRIS) archaeological Information Center for the presence of recorded archaeological sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. Please contact all of those listed; if they cannot supply information, they may recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Sarah.Fonseca@nahc.ca.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Sonoma County
7/27/2021

Cloverdale Rancheria of Pomo Indians
Patricia Hermosillo, Chairperson
555 S. Cloverdale Blvd., Suite A — Pomo
Cloverdale, CA, 95425
Phone: (707) 894 - 5775
Fax: (707) 894-5727
info@cloverdalerancheria.com

Dry Creek Rancheria of Pomo Indians
Chris Wright, Chairperson
P.O. Box 607 — Pomo
Geyserville, CA, 95441
Phone: (707) 814 - 4150
lynnl@drycreekrancheria.com

Federated Indians of Graton Rancheria
Gene Buvelot,
6400 Redwood Drive, Suite 300 — Coast Miwok
Rohnert Park, CA, 94928 — Pomo
Phone: (707) 566 - 2288
Fax: (415) 279-4844
gbuvelot@gratonrancheria.com

Federated Indians of Graton Rancheria
Greg Sarris, Chairperson
6400 Redwood Drive, Ste 300 — Coast Miwok
Rohnert Park, CA, 94928 — Pomo
Phone: (707) 566 - 2288
Fax: (707) 566-2291
gbuvelot@gratonrancheria.com

Guidiville Indian Rancheria
Donald Duncan, Chairperson
P.O. Box 339 — Pomo
Talmage, CA, 95481
Phone: (707) 462 - 3682
Fax: (707) 462-9183
admin@guidiville.net

Kashia Band of Pomo Indians of the Stewarts Point Rancheria
Dino Franklin, Chairperson
1420 Guerneville Road, Ste 1 — Pomo
Santa Rosa, CA, 95403
Phone: (707) 591 - 0580
Fax: (707) 591-0583
dino@stewartspoint.org

Kashia Band of Pomo Indians of the Stewarts Point Rancheria
Loren Smith, Tribal Historic Preservation Officer
1420 Guerneville Road, Ste 1 — Pomo
Santa Rosa, CA, 95403
Phone: (707) 591 - 0580
Fax: (707) 591-0583

Lytton Rancheria
Marjorie Mejia, Chairperson
437 Aviation Boulevard — Pomo
Santa Rosa, CA, 95403
Phone: (707) 575 - 5917
Fax: (707) 575-6974
margiemejia@aol.com

Middletown Rancheria of Pomo Indians
Jose Simon, Chairperson
P.O. Box 1035 — Lake Miwok
Middletown, CA, 95461 — Pomo
Phone: (707) 987 - 3670
Fax: (707) 987-9091
sshope@middletownrancheria.com

Middletown Rancheria
Sally Peterson, THPO
P.O. Box 1658 — Lake Miwok
Middletown, CA, 95461 — Pomo
Phone: (707) 987 - 3670
THPO@middletownrancheria.com

Mishewal-Wappo Tribe of Alexander Valley
Scott Gabaldon, Chairperson
2275 Silk Road — Wappo
Windsor, CA, 95492
Phone: (707) 494 - 9159
scottg@mishewalwappotribe.com

Pinoleville Pomo Nation
Erica Carson, Tribal Historic Preservation Officer
500 B Pinoleville Drive — Pomo
Ukiah, CA, 95482
Phone: (707) 463 - 1454
Fax: (707) 463-6601

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 20-10215 1295 Jensen Ln Project, Sonoma County.

Pinoleville Pomo Nation
Leona Willams, Chairperson
500 B Pinoleville Drive Pomo
Ukiah, CA, 95482
Phone: (707) 463 - 1454
Fax: (707) 463-6601

Robinson Rancheria of Pomo Indians
Beniakem Cromwell, Chairperson
P.O. Box 4015 Pomo
Nice, CA, 95464
Phone: (707) 275 - 0527
Fax: (707) 275-0235
bcromwell@rrcbc-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed 20-10215 1295 Jensen Ln Project, Sonoma County.

Appendix C

P-49-004535 Department of Parks and Recreation 523 Series Update Forms

***Recorded by:** JulieAnn Murphy, Rincon Consultants ***Date:** August 2021 ☐ Continuation ■ Update

The subject property at 1295 Jensen Lane is located at the northeast edge of Windsor Town Limits, is a 17.18-acre property, and is comprised of a c. 1900 single story Craftsman-style residence; a c. 1930 barn; four sheds – three c. 1930 sheds and a c. 1900 shed; a c.1950 prune dryer; fences and gates; and a Eucalyptus grove. The property has been previously evaluated. In 2005, a 15.2-acre portion of the 17.18-acre property was surveyed by Archaeological Resource Service (Greene 2005). A DPR was not completed, and the survey was mostly limited to a review of potential archaeological resources, but the evaluation included a very brief description of the built resources and determined that "the house and main barn were in poor shape and did not appear to be architecturally or historically significant. The remaining sheds were mostly dilapidated and not of any historical significance" (Greene 2005). The report did not include a detailed analysis of the NRHP or CRHR criteria. The subject property was recorded and evaluated again in 2010 by LSA Associates, Inc. While the DPR form does not feature a status code, it concluded that the property was not eligible for listing in the NRHP or the CRHR under any criteria (Hibma 2010). LSA Associates, Inc. prepared a supplemental cultural resources report in 2018, and included an updated archival search and a site visit. The report did not include an updated DPR form, but noted that the condition of the property had not changed since 2010 and concluded it still did not qualify as a historical resource due to its compromised integrity, though it did not provide a detailed integrity analysis (Jones 2018).

Although the subject property was last examined in 2018, a DPR update was not completed (Jones 2018). The current survey update of the subject property was conducted as part of a supplemental EIR for the Estates at Ross Ranch Development Project, which proposes a 30-lot subdivision for residential development. The current DPR update was prepared in accordance with the guidelines of the California Office of Historic Preservation, which recommends updates to inventory forms after five years. Since the property was evaluated in 2018, the property remains largely unchanged. The main residence's (c. 1900) roof is now covered with temporary waterproofing tarp material but is otherwise the same as it was in 2010. Shed A (c. 1930) appears to be in the same condition, though the paint peeling is more pronounced. Shed B (c. 1930) is in the same condition recorded in 2010. Shed C (c. 1900) is in the same condition recorded in 2010.

The equipment shed (c. 1930) is in poor condition and appears to be failing structurally with significant sagging at the hinged doors. Since its previous evaluation, the equipment shed has further deteriorated and lost significant portions of its exterior siding. Portions of its frame structure remain intact, while some of the structure has failed and is no longer in place. The barn (c. 1900) appears largely as it did in 2010 with some minor advancement in deterioration of exterior materials, but is in otherwise good condition. Since the previous evaluation, the prune dryer (c. 1950) has deteriorated, including material loss of the metal machine components.

Previous documentation, including previous reports and written site histories were reviewed as part of the current update. Additional historical research was also conducted, including a review of historic maps, vital records, newspaper articles, and aerial images to confirm the site's historical development and history. As stated in the 2005 report, the land of the project site was part of a large farm owned by Lorenzo D. Latimer, wife Sarah Myers. Latimer was a native of New York, who moved to Santa Rosa in 1856-1857 (Guinn 1904: 499). He practiced law until 1879 when he was appointed District Attorney of the Northern District of California by President Ulyess S Grant. He retired from law in 1885, and purchased 1160-acres of farmland in Windsor, including the subject property where he engaged in agricultural practices, including winemaking, until his death in 1901 (Guinn 1904: 499; Board of Viticultural Commissioners 1888). He and his wife resided in a house east of the subject property on Chalk Hill Road. As noted in the 2010 LSA report, after his death, his land was subdivided, and the subject parcel was purchased by TC Ross who built the house in c. 1916. The Ross family built the associated sheds in the 1930s. In the 1950s the family grew grapes and prunes, until the decline of prune cultivation due to oak-root fungus in the 1960s that destroyed plum trees (Beedie 1978: 79; Page and Burns 2005:9). Additional historic and archival research did not reveal any historic or development history not outlined in previous studies.

Based on the above research, there is no information to suggest the previous finding is no longer valid and the subject property appears to remain ineligible for listing in the NRHP or CRHR.

The subject property was first cultivated for agricultural use in the late nineteenth century and continued to be used for that purpose into the mid-twentieth century and was typical of Windsor, which remained agricultural throughout most of the 1900s, with wine grapes, hops, and prunes as the primary crops, regularly fluctuating to market demands. Although the subject property is associated with Windsor's agricultural history, research did not indicate the agricultural activities that occurred on the property were related to an important historic trend or significant operation within that historical context. Furthermore, 1295 Jensen Lane is not presently used for agricultural purposes and there is little evidence on the landscape of historic agricultural activities, with no discernable landscape features related to its agricultural use. Its remaining vegetation is limited to a grove of Eucalyptus trees that are not related to its historic agricultural use. Its location responded to the natural environment and the ease of irrigation and was typical of the area. The former farm's circulation network is loosely in place and retains its entry roadway with a straight road that terminates in a Y-shaped drive with access to the subject property to the west and an adjacent property to the east. Other circulation patterns are not present. It is, therefore, not eligible for listing under Criterion A/1 (Events).

1295 Jensen Lane is not significant for its association with an important person under Criterion B/2 (Person). Though owned for a time by Lorenzo D. Latimer, archival research does not suggest he is a significant person in the development of Windsor and the subject property is not closely associated with his life or work. He does not appear to have lived on the subject property and it is a small piece of an originally much larger parcel. Similarly, historic research, including review of historic newspaper articles, announcements, and city directories, did not reveal significant contributions that TC Ross or the Ross family made to history. *See Continuation Sheet 2*

Continued from Sheet 1

The buildings on 1295 Jensen are not architecturally significant. Built between c. 1900 and c.1930, they do not represent a distinctive characteristic, type, or method of construction. The main residence is in the Craftsman style, among the most popular styles during the time of its construction. Historic research did not reveal its architect and it is not believed to be the work of a master. It is not a particularly notable example of the style. Additionally, it appears to have been altered over time with an enclosed porch addition. The building is also deteriorated, demonstrated by its recent temporary roof waterproofing material, and has caused diminished integrity of materials. The other buildings on the property are not examples of architectural styles and are utilitarian agricultural buildings. The site's ancillary structures, in addition to not being architecturally significant have condition issues and significant loss of material that diminish their overall integrity. The buildings are deteriorated, in many instances, beyond repair.

The barn building, constructed in c. 1930, is a version of a Dutch barn with elements of bank barn, built to accommodate the natural sloping landscape. The Dutch barn is among the most popular barn styles in the United States with a gable roof with doors on the narrow side for wagons and stock. The gable roof slopes to a shed roof, following the grade change to allow for a larger barn footprint. The barn building, however, is not significant for its design or construction and does not embody a distinctive type or method of construction and is typical of barn buildings from that period. It does not represent the work of a master, possess high artistic value, or represent a significant distinguishable entity. The subject property is, therefore, not eligible for its architectural design or construction under Criterion C/3 (Architecture).

Archival research and a review of the California Historical Resources Information System also do not suggest 1295 Jepsen is likely to yield important to history and is not eligible for Criterion D/4 (Information).

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Main Residence (c.1900), view west



Barn (c. 1900), view east



Shed A (c. 1930), view south



Shed B (c. 1930), view north



Equipment shed (c.1930), view south



Prune dryer (c. 1950), view west

CONFIDENTIAL Appendix D

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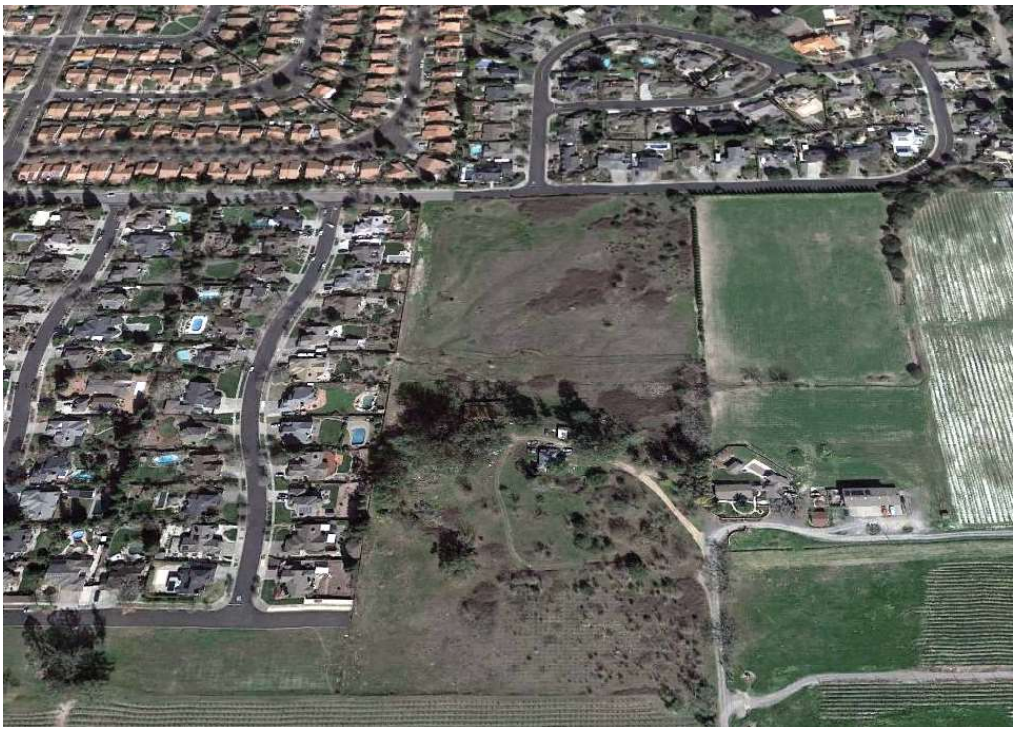
CONFIDENTIAL APPENDIX

**To protect sensitive information about the location and nature of cultural resources, this appendix is not included in the public draft of this document.

Appendix D

Traffic Impact Study

Traffic Impact Study for The Estates at Ross Ranch



Prepared for the Town of Windsor

Submitted by
W-Trans

August 25, 2022

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
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Introduction

This report presents an analysis of the potential mobility impacts that would be associated with a proposed residential development to be located at 1295 Jensen Lane in the Town of Windsor. The traffic study was completed in accordance with the criteria established by the Town of Windsor and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a traffic impact study is to provide Town staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of the proposed project, and any associated improvements that would be required to mitigate these impacts to an acceptable level under the California Environmental Quality Act (CEQA), the Town's General Plan, or other policies. This report provides an analysis of those items that are identified as areas of environmental concern under the CEQA. Impacts associated with access for pedestrians, bicyclists, and to transit; the vehicle miles traveled (VMT) generated by the project; and safety concerns are addressed in the context of the CEQA criteria. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation.

The report is organized to provide background data that supports the various aspects of the analysis, followed by the assessment of CEQA issues and then evaluation of policy-related issues.

Project Profile

The proposed project includes development of 31 single-family residential homes. As part of the project, a new street called Portland Way would extend southward from the existing intersection at Vinecrest Road/Vinecrest Circle, and in the southern portion of the site, Prince George Way would be extended eastward from its current terminus by approximately 550 feet. A mini roundabout would be constructed at the Vinecrest Road/Vinecrest Circle-Portland Way intersection. Jensen Lane would be constructed along the eastern project boundary, including two travel lanes and a sidewalk along the project frontage. The project site is located near the eastern Windsor Town limits and Urban Growth Boundary between Vinecrest Road and Prince George Way, as shown in Figure 1.



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Traffic Impact Study for The Estates at Ross Ranch

Figure 1 – Study Area and Existing Lane Configurations

Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby generators or attractors. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage and the following intersections:

1. Hembree Lane/Vinecrest Road
2. Vinecrest Road/Vinecrest Circle
3. Hembree Lane/Jensen Lane
4. Hembree Lane/Old Redwood Highway

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersections

Hembree Lane/Vinecrest Road is a three-legged all-way stop-controlled intersection. A marked crosswalk is present on the east leg and bicycle lanes are available on all legs of the intersection.

Vinecrest Road/Vinecrest Circle is a three-legged two-way stop-controlled intersection with stop control on the southbound Vinecrest Circle approach. Marked crosswalks do not exist at this intersection but a westbound bicycle lane is present on the west leg of the intersection.

Hembree Lane/Jensen Lane is a tee intersection with stop controls on all approaches. Marked crosswalks are available on the north and east legs while bicycle lanes exist on the north and south legs of the intersection. The intersection also includes a western Jensen Lane leg that is closed to vehicular traffic, but open for pedestrians and bicyclists.

Hembree Lane/Old Redwood Highway is a signalized intersection with protected left-turn phasing on the northbound and southbound Hembree Lane approaches and protective-permissive left-turn phasing with flashing yellow arrow (FYA) operation on eastbound and westbound approaches on Old Redwood Highway. Marked crosswalks exist on the north, south, and east leg of the intersection and bicycle lanes are present on all four legs.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is August 1, 2016 through July 30, 2021.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same urban environment, with the same number of approaches, and the same controls. No reported collisions have occurred at the Vinecrest Road/Vinecrest Circle or Hembree Lane/Jensen Lane intersections. The single reported collision at Hembree Lane/Vinecrest Road entailed a violation with a driver turning left in front of another driver who had the right-of-way. The intersection at Hembree Lane/Old Redwood Highway was found to have a collision rate slightly above the statewide average so was further reviewed. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2016-2021)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Hembree Ln/Vinecrest Rd	1	**0.11**	0.07
2. Vinecrest Rd/Vinecrest Cir	0	0.00	0.09
3. Hembree Ln/Jensen Ln	0	0.00	0.07
4. Hembree Ln/Old Redwood Hwy	8	**0.27**	0.24

Note: c/mve = collisions per million vehicles entering; **Bold** text indicates higher than the statewide average

At the Hembree Lane/Old Redwood Highway intersection, three of the eight reported collisions involved sideswipes, one of which involved a solo driver hitting a fixed object and one of which the driver was driving under the influence. The directions of travel and/or turning movement combinations were different for each of the three sideswipe collisions (one westbound vs. eastbound, one southbound vs. eastbound, and one northbound hitting a fixed object). Three of the reported collisions were broadsides. Two of the broadsides involved drivers on Old Redwood Highway turning left onto Hembree Lane, one in the eastbound direction and one in the westbound direction, though both occurred prior to the Town upgrading the signal to include flashing yellow arrow (FYA) operation; no reported broadside or other collision types involving left-turns from Old Redwood Highway have occurred since the signal was upgraded. Of the remaining two collisions, one was a head-on involving a driver under the influence, and the other was a rear-end on eastbound Old Redwood Highway approaching the intersection. Based on this review, and in consideration of signal modifications made by the Town in 2019 as well as the minimal amount by which the average rate is exceeded, there are no apparent collision trends indicative of a potential safety concern at the intersection.

Project Data

The project consists of 31 detached single-family homes. Most of the residential lots would range in size from 0.3 to 0.6 acres, while four lots on the eastern project boundary would be larger and range from 0.8 to 1.0 acre. The project would include construction of a segment of Jensen Lane along its frontage south of Vinecrest Road. Prince George Way would be extended eastward to connect to the segment of Jensen Lane that would be constructed as part of the project, and a new north-south street called Portland Way would pass through the center of the development between Prince George Way and Vinecrest Road, forming a new southern leg at the existing Vinecrest Road/Vinecrest Circle intersection. The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021 for "Single Family Detached Housing" (ITE LU # 210). The expected trip generation potential for the proposed project is indicated in Table 2. The proposed project is expected to generate an average of 292 trips per day, including 22 trips during the a.m. peak hour and 29 during the p.m. peak hour.

Table 2 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Single Family Detached Housing	31 du	9.43	292	0.70	22	6	16	0.94	29	18	11

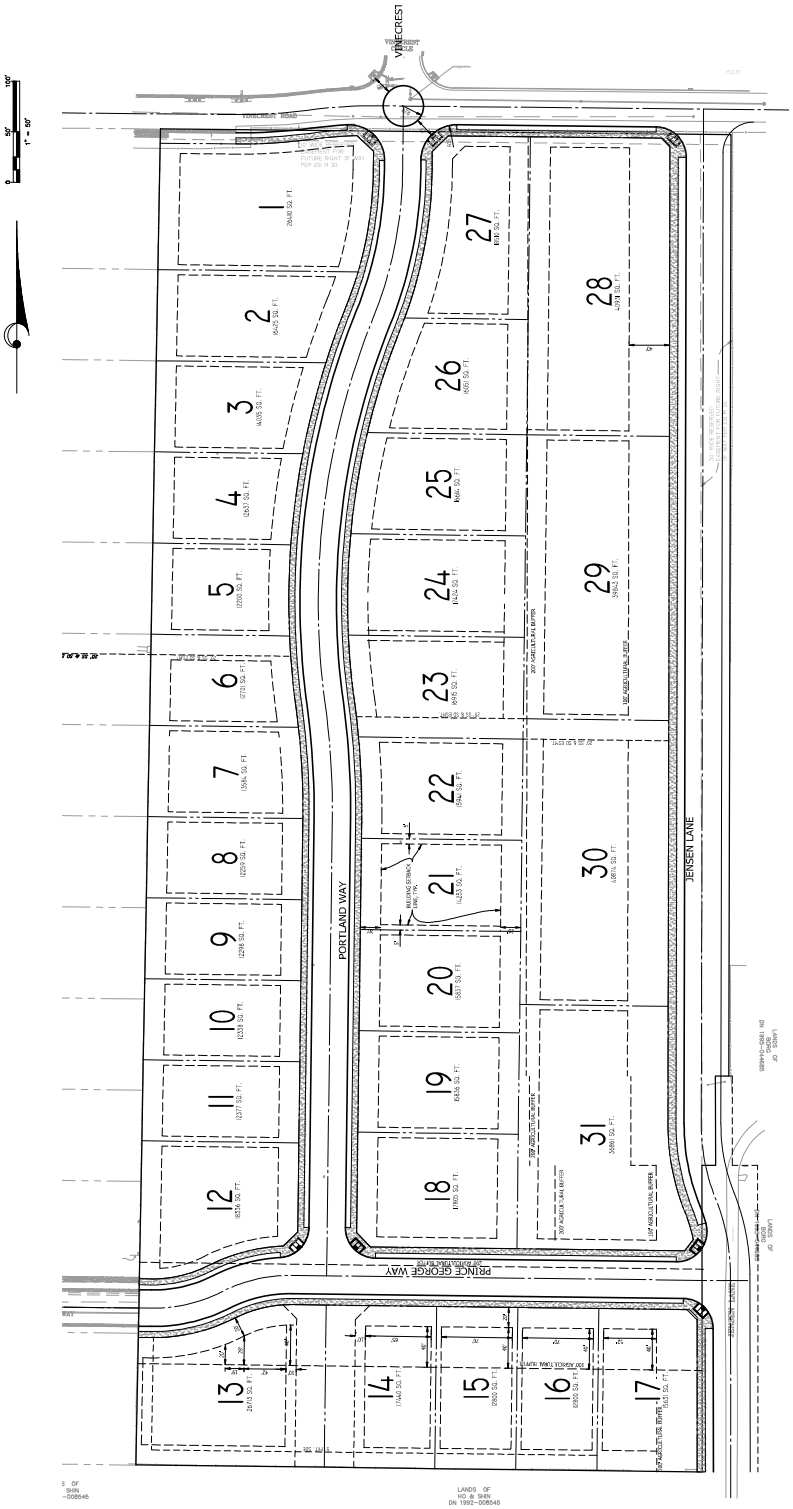
Note: du = dwelling unit

Trip Distribution

The pattern used to allocate new project trips to the street network was based on an analysis of existing turning movement data at the study intersections as well as local knowledge. The applied distribution assumptions and resulting trips are shown in Table 3.

Table 3 – Trip Distribution Assumptions

Route	Percent	Daily Trips	AM Trips	PM Trips
Hembree Ln north of Vinecrest Rd	24%	69	5	7
Old Redwood Hwy northwest of Hembree Ln	30%	87	7	9
Old Redwood Hwy southeast of Hembree Ln	28%	83	6	8
Hembree Ln south of Old Redwood Hwy	18%	53	4	5
TOTAL	**100%**	**292**	**22**	**29**



Source: T.D.G Consulting Civil Engineers, Inc. 4/22 win146.ai 10/21

Traffic Impact Study for The Estates at Ross Ranch

Figure 2 – Site Plan

Pedestrian Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. Existing pedestrian facilities along the proposed project site frontage as well as within a one-quarter mile distance of the project site were reviewed.

A connected pedestrian network does not currently exist along Vinecrest Road near the project site. There is a gap in the sidewalk network on the south side of the street along the entire Estates at Ross Ranch frontage, though connected sidewalks are present on the north side. Sidewalks planned to be built along the project frontage as part of the project would fill this gap. Further, based on the site plan, new streets with sidewalks would be constructed, including extensions of Jensen Lane from the current north terminus to Vinecrest Road and Prince George Way from the eastern terminus to Jensen Lane. Within the project site, Portland Way would also be built to the west of Jensen Lane and run north-south to connect Vinecrest Road and Prince George Way. All newly constructed streets would include sidewalks.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. Collision records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports were reviewed for the most current five-year period available, which was August 1, 2016 through July 31, 2021 at the time of the analysis. During the five-year study period there were no reported collisions involving pedestrians at the study intersections.

Project Impacts on Pedestrian Facilities

Pedestrian facilities at the project site would consist of new sidewalks constructed along the new streets within the development and on the project's Vinecrest Road and Jensen Lane frontages. The proposed project would include construction of the following pedestrian facilities.

- New sidewalks on the south side of Vinecrest Road along the entire project frontage
- New sidewalks on both sides of the Prince George Way street extension
- New sidewalks on both sides of the new internal street called Portland Way
- New sidewalks on the west side of Jensen Lane along the project frontage (sidewalks are not included on the east side of Jensen Lane as the area will remain undeveloped)

Pedestrian connectivity between the project site and existing neighborhoods to the north and west would be adequate upon completion of all proposed onsite and frontage improvements. Pedestrian connectivity to the south will be improved in the future as further development occurs.

Vinecrest Road and Prince George Way are designated as a local street in the Town's General Plan; Portland Way would also fall under the local street type. Per the Town's *Complete Street Design Guidelines* (CSDG), five-foot landscape zones and six-foot concrete sidewalks are required for this type of street. The segment of Jensen Lane along the eastern site boundary is designated in the 2040 General Plan as a rural lane and is required to provide a minimum six-foot wide path along the urban side of the street. The proposed project includes an eight-foot path plus an eight-foot landscape strip between the path and roadway, satisfying these standards.

Finding – Pedestrian connectivity to and from the project site would be adequate in the near-term and would improve in the future as developments to the south provide new sidewalk and pathway extensions. Pedestrian facilities would meet the requirements specified in the *Complete Street Design Guidelines*.

Recommendation – No additional measures to improve pedestrian circulation would be required.

Bicycle Facilities

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, striped buffers, or on-street parking.

In the project area, Class II bike lanes exist on Vinecrest Road between Hembree Lane and Vinecrest Circle as well as on Hembree Lane between Arata Lane-Foothill Drive and Shiloh Road. According to the *Windsor Bicycle and Pedestrian Master Plan,* 2014, Class II bicycle lanes on Vinecrest Road are planned to be extended to the east as a Class III bicycle route between Vinecrest Circle and Vinecrest Road, which includes the project frontage. Other planned bicycle facilities in the project area include Class III bicycle routes on Foothill Drive and the entire east-west length of Jensen Lane as well as the Class I Jensen Trail along the north-south segments of Jensen Lane. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 4 summarizes the existing and planned bicycle facilities in the project vicinity.

Table 4 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Vinecrest Rd	II	0.53	Hembree Ln	Vinecrest Cir
Hembree Ln	II	2.60	Arata Ln/Foothill Dr	Shiloh Rd
Planned				
Vinecrest Rd	III	0.14	Vinecrest Cir	Vinecrest Rd
Foothill Dr	III	1.00	Brooks Rd S	Vinecrest Rd
Jensen Trail	I	0.50	Jensen Ln	Pleasant Ave
Jensen Ln	III	0.79	3rd St	End of Jensen Ln

Source: *Windsor Bicycle and Pedestrian Master Plan*, Sonoma County Transportation Authority, 2014

Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. During the five-year study period between August 1, 2016 through July 31, 2021, there was no reported collision involving a bicyclist at any of the study intersections.

Project Impacts on Bicycle Facilities

As part of its frontage improvements the project would improve Vinecrest Road to include full curb, gutter, and sidewalk, and provide sufficient space to effectively accommodate bicyclists on the planned Class III bike route. The project would also complete the Class I Jensen Trail along its eastern frontage (i.e., on the west side of the street), consistent with the Town's bike plan. Bicyclists would be able to access the surrounding bike network via existing bike lanes on Vinecrest Road, Hembree Lane, Arata Lane, and Old Redwood Highway.

Finding – Existing and planned bicycle facilities would provide adequate access for bicyclists traveling to and from the project.

Recommendation – No additional measures to improve bicycle circulation would be required.

Transit Facilities

Existing Transit Facilities

Local School Bus

The Windsor Unified School District (WUSD) provides school bus services throughout Windsor to all its school campuses. For the morning home-to-school trip, Route 5 provides service from residences in the northeastern part of the Town to Windsor Middle School, Brooks Elementary School, and Mattie Washburn Elementary School. The buses for this route operate between 7:00 a.m. and 8:20 a.m. with a scheduled stop at Vinecrest Road/St. James Place at 7:07 a.m. During the afternoon, Route 4 provides school-to-home bus service between 2:15 p.m. and 4:25 p.m. and is scheduled to stop at Vinecrest Road/St. James Place at 3:29 p.m.

Sonoma County Transit

Sonoma County Transit (SCT) provides fixed-route bus services in the Town of Windsor and within the County of Sonoma. The transit stop nearest the project site is located on Hembree Lane near Vinecrest Road and is served by SCT Route 66 which is a loop route that runs along Hembree Lane. Plate 1 shows this route. The buses for this

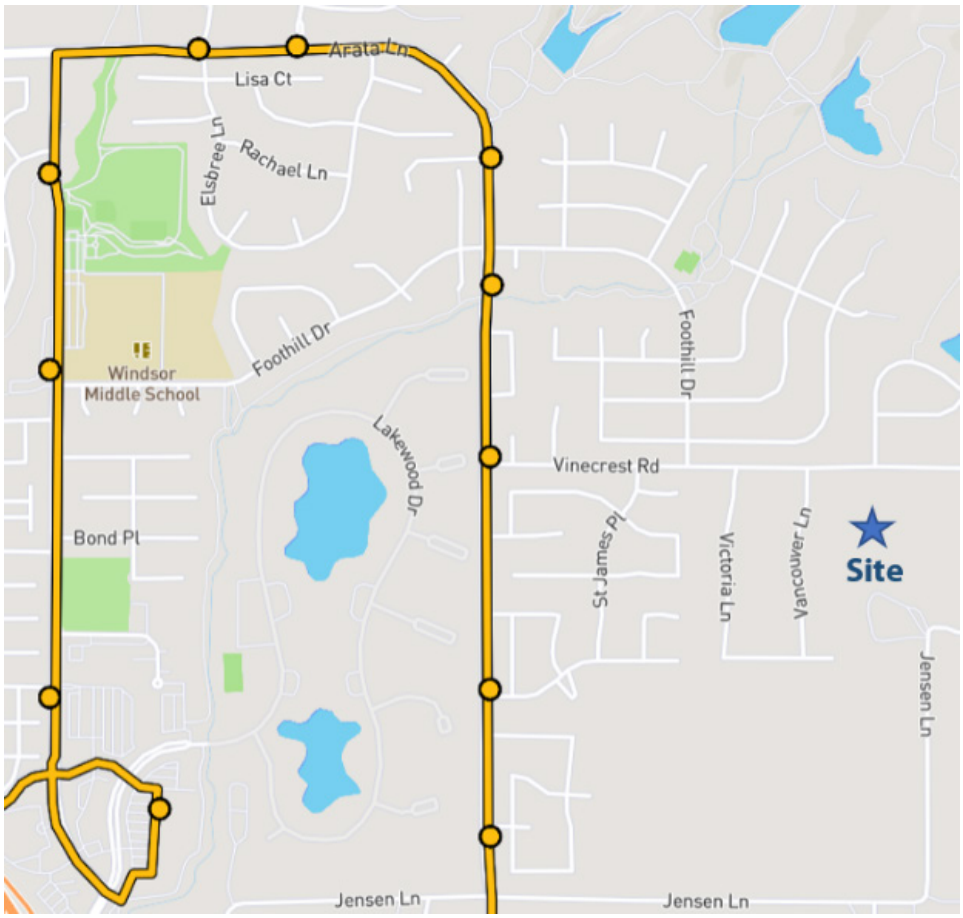


Plate 1 Sonoma County Transit Route 66 near Project Site

route are currently operating with approximately one-hour headways between 7:45 a.m. and 5:00 p.m. from Monday through Saturday.

Two bicycles can be carried on most SCT buses. Bike rack space is on a first-come, first-served basis. Additional bicycles are allowed on SCT buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities within the Town of Windsor and the greater Sonoma County area.

Impact on Transit Facilities

Given the size of the proposed project, there is unlikely to be substantial new demand for transit service generated by the development, though it is likely that some residents or visitors will occasionally choose to use transit. Upon completion of the project's proposed sidewalks on Vinecrest Road, continuous pedestrian facilities would effectively link the site to the existing SCT bus stop on Hembree Lane as well as the school bus stop at St. James Place. Walking distances to the SCT bus stop would be in the range of one-half to three-quarters of a mile, and walking distances to the school bus stop between one-quarter and one-half of a mile.

Finding – Existing public transit and school bus routes are adequate to accommodate the additional demand generated by the project, and existing bus stops accessible via continuous sidewalks are within an acceptable walking distance of the site. Transit facilities serving the project site are therefore considered to be adequate.

Recommendation – No additional measures to improve transit facilities would be required.

Vehicle Miles Traveled (VMT)

Background

The Vehicle Miles Traveled (VMT) associated with a project is the primary basis for determining traffic impacts under CEQA. Because the Town of Windsor has not yet adopted standards of significance for evaluating VMT, guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018, was used (referred to herein as the Technical Advisory). These criteria are consistent with those applied by Caltrans as outlined in the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide*, California Department of Transportation, May 2020.

Significance Threshold

The OPR Technical Advisory provides VMT threshold guidance for several land use types. Residential uses are assessed using a home-based VMT per capita metric, with VMT significance thresholds set at a level of 15 percent below the citywide or regional average. The Technical Advisory indicates that it may be appropriate to apply a countywide, rather than regional, average if most people both live and work within the smaller geographic area. According to data contained in the *Sonoma County Travel Behavior Study*, SCTA, 2020, approximately 97 percent of Windsor's vehicle trips remain within Sonoma County. Use of a common model to produce both project-level and threshold values also allows for a clear "apples to apples" assessment. Accordingly, the applied significance threshold is based on the Sonoma County per-capita VMT average rather than the nine-County Bay Area regional average.

SCTA operates and maintains the regional travel demand model that produces baseline VMT estimates. The VMT thresholds and projections applied in this analysis reflect the SCTM19 model updated in December 2021, which remains the current version as of the April 2022 timeframe of this analysis. Based on output from the SCTA model, the existing average residential VMT per capita in the County of Sonoma is 16.60 miles. VMT significance thresholds are set at 15 percent below this level, or 14.11 miles. Accordingly, the applied VMT significance threshold applied to the project is as follows.

- The project would have a potentially significant impact on VMT if its projected residential VMT per Capita exceeds 14.11 miles.

Project VMT Assessment

VMT per Capita

The SCTA model includes traffic analysis zones (TAZ) covering geographic areas throughout Sonoma County. The Estates at Ross Ranch project site is located within TAZ 873, which has a baseline VMT per capita of 16.38 miles. Based on the model, for the project to achieve the applied threshold of 15 percent below the Countywide average, its projected VMT per capita would need to be reduced by 13.9 percent.

Consideration was given to whether adjustments to the baseline per-capita VMT estimates produced by the SCTA model are warranted to reflect project-specific details. The most common adjustments pertain to project density, provision of affordable housing, mix of uses, and off-site improvements to non-auto travel networks. The overall residential density associated with the project reflects a suburban development pattern and does not necessitate adjustments to the baseline VMT projections. With respect to affordable housing, the project would not provide onsite affordable units, so no adjustments have been applied. The project does not include neighborhood-serving retail or service functions that could reduce resident VMT, so no use-related VMT adjustments are applicable. The

project would provide required on-site pedestrian facilities including sidewalks along street frontages, with no new proposed offsite facilities.

Modest VMT reductions can be achieved through implementation of traffic calming measures on surrounding streets. The proposed Estates at Ross Ranch project would construct a mini roundabout at the Vinecrest Circle-Portland Way intersection, helping to calm traffic on the corridor and incentivize non-auto travel. Based on information contained in the current and prior CAPCOA publication, this improvement can be expected to reduce VMT by approximately 0.3 percent.

Based on this assessment, the baseline SCTA VMT projection has been reduced by 0.3 percent to reflect incorporation of traffic calming measures. The VMT findings are shown in Table 5.

Table 5 – Vehicle Miles Traveled Analysis Summary

VMT Metric	Baseline VMT Rate (Countywide Avg)	Significance Threshold (15% Below Countywide Avg)	Project VMT per Capita	
			Project Site TAZ 873[1]	Meets Threshold?
Residential VMT per Capita (Countywide Baseline)	16.60	14.11	16.33	No

Notes: VMT Rate is measured in VMT per Capita, or the number of daily miles driven per resident; TAZ=Traffic Analysis Zone; [1] includes 0.3 percent adjustment to default SCTA model values to reflect implementation of traffic calming

Finding – The project is not expected to meet the applicable significance threshold for vehicle miles traveled.

VMT Reduction Strategies

As noted above, for the project to fall below the VMT target set according to State guidance, its VMT would need to be reduced by 13.9 percent. Following is a discussion of potential strategies that could be applied to the site, in recognition of its suburban context.

Integrate Affordable Housing

Research indicates that the VMT generated by residents of deed-restricted affordable housing is less than that generated by residents of market-rate housing. Because the proposed project involves a larger-lot single-family home development, designation of one or more lots for deed-restricted affordable housing may be unrealistic, and integration of onsite units would likely require more extensive modifications to the project description and site plan. Exploring mechanisms to construct income-restricted accessory dwelling units (ADUs) on some or all lots may be an option. Hypothetically, if the project were able to be modified such that 15 percent of total units (including homes and ADUs) were designated for low-income residents, the project's overall VMT per capita would decrease by approximately 1.5 percent based on a methodology published in *Income, Location Efficiency, and VMT: Affordable Housing as a Climate Strategy*, The California Housing Partnership, 2015.

Pedestrian and Bicycle Network Improvements

In some cases, a project's VMT may be effectively reduced by making off-site improvements to the pedestrian and bicycle networks, particularly where gaps in these networks are filled in a manner that would have a meaningful effect on whether residents walk or drive. In considering the effectiveness of such improvements, the proximity of nearby pedestrian and bicycle "attractors" must be considered. Shifting resident travel modes from automobiles to walking and biking can be difficult in suburban contexts like the Estates at Ross Ranch project area given the lack of nearby attractors (such as shopping and employment centers) and location on the urban edge. Note that pedestrian and bicycle amenities *within* the project site would be required by the Town regardless, so

these are considered standard improvements that, while very important, do not reduce the project's overall VMT below levels exhibited by similar types of development.

It may still be possible for the project to slightly reduce its VMT by constructing offsite pedestrian and bicycle improvements such as a paved pathway between the southeast corner of the project site and the segment of Jensen Lane to the south as called for in the Town's Bicycle and Pedestrian Master Plan, and installing pedestrian crossing with median island refuge on the east leg of the Vinecrest Road/Foothill Drive intersection. Based on data contained in *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*, ULI, 2009 as well as methodologies contained in the San Jose VMT Evaluation Tool, it is estimated that VMT reductions associated with such improvements in the vicinity of the project site may be between 0.5 and 1.0 percent. Note that the ability to construct offsite improvements on land that is not controlled by the applicant or within the public right-of-way may be limited.

Neighborhood Traffic Calming

As noted above, modest VMT reductions can be achieved through implementation of traffic calming measures both within the project site and on nearby streets, since these measures tend to improve pedestrian and bicycle circulation and safety, incentivizing travel by non-auto modes. The proposed Estates at Ross Ranch project would construct a mini roundabout at the Vinecrest Circle-Portland Way intersection. The potential enhanced pedestrian crossing with median refuge on the east leg of Vinecrest Road/Foothill Drive, as mentioned above, could serve as an additional neighborhood traffic calming measure; based on information contained in the current and prior CAPCOA publication, this additional measure would be expected to result in an additional VMT reduction of approximately 0.2 percent.

Overall Effectiveness of VMT Reduction Measures

To reduce the amount of VMT generated, it is recommended that the project be revised as feasible to incorporate on-site deed-restricted affordable housing units including units restricted for individuals and families in lower income categories. The project should also be required to incorporate bulbouts at new or reconfigured intersections, install a mini roundabout at the Vinecrest Road/Vinecrest Circle-Portland Way intersection, and construct an enhanced pedestrian crossing including refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.

With implementation of these VMT reduction measures, it is estimated that the project could potentially reduce its per capita VMT by two to three percent. While beneficial, these reductions would not be sufficient to reduce the project's VMT by the 13.9 percent needed to fall below the below the VMT significance threshold.

Finding – Even with incorporation of VMT reduction strategies and measures, the project would not be expected to fall below applicable VMT per capita thresholds and would therefore have a significant VMT impact.

Recommendation – To the degree feasible, the project should Incorporate on-site affordable housing units (potentially including ADUs) for individuals and families in lower income categories.

Recommendation – The project should be required to construct an enhanced pedestrian crossing including a refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.

Additional VMT Reduction Measures Not Selected

Several transportation demand management (TDM) and VMT reduction strategies were evaluated but ultimately deemed inappropriate or ineffective for the Estates at Ross Ranch project. Following is a list of other measures considered and the reasons why they were not recommended.

- **Increase Residential Density** – The publication *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, California Air Pollution Control Officers Association (CAPCOA), 2021, includes a methodology to determine the VMT reductions associated with increases in residential density. Per the CAPCOA methodology, a minimum density of 9.1 units per acre would need to be achieved before VMT reduction benefits are realized. Since this level of density is substantially higher than proposed by the project and is inconsistent with the site's General Plan land use designation and zoning, it does not appear to be applicable to the proposed project.

- **Subsidized Transit Passes** – Transit pass subsidies are a relatively common mitigation measure for multi-family housing, most often being implemented in areas with greater transit accessibility. While the proposed project is one-half to three-quarters of a mile from a bus route operated by Sonoma County Transit line, its proximity to the urban edge suggests that the area is unlikely to ever be served by frequent transit service or multiple transit lines, and the ultimate effectiveness of providing subsidized transit passes is quite limited from a VMT reduction perspective. The project's single-family housing type also complicates the viability of establishing a transit subsidy program. Given these factors, subsidized transit passes were not recommended as a VMT reduction strategy.

- **Carsharing** – Services such as Zipcar can provide a valuable incentive for some residents to forgo vehicle ownership. However, in a more suburban context, carsharing loses its effectiveness which explains why carsharing services are limited in suburban locations to places such as academic campuses. In this case, carsharing would likely have such a minimal impact that it was not recommended.

- **Ridematching** – Ridematching programs such as 511.org's *Merge* platform are cost-effective means to pair carpool and vanpool riders with each other. However, these programs are generally best suited based on an employee's job location rather than home location, which is the reason they are most commonly deployed by businesses as opposed to residences. While it is also possible for such programs to be overseen by a homeowner's association, the relatively small size of the proposed project would significantly limit its overall effectiveness. As such, it was not recommended.

- **Reduced Parking Supply** – The amount of parking provided in a residential development can be directly correlated with its generation of VMT. Therefore, in some cases a reduction in the parking supply below zoning requirements (or the calculated peak demand) can lower VMT. This strategy is most effective in areas well-served by transit, where space for onsite parking is physically limited, and where alternative free parking options do not exist nearby. None of these conditions exist in the project area, so the measure was not recommended.

- **VMT Mitigation Bank and/or Fee** – It is likely that regional VMT mitigation banks or VMT mitigation fee programs will be established in the coming years, allowing developments to mitigate potential VMT impacts by contributing funds to local or regional VMT-reducing improvements. While these sorts of programs and funding mechanisms hold much promise, they are anticipated to take several years to establish, and as of this writing no agencies in Sonoma County have commenced such efforts. Accordingly, they were not recommended for this project.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project accesses, as well as the adequacy of stacking space in left-turn lanes at the study intersections.

Site Access

Primary access to the site would be via Vinecrest Road. A new street called Portland Way would extend southward into the project site from Vinecrest Road, forming a new southern leg at the Vinecrest Road/Vinecrest Circle intersection. A mini roundabout would be constructed at this intersection. The project would also include construction of a section of Jensen Lane along its eastern frontage and extend Prince George Way eastward in the southern portion of the site. In the future, the Windsor General Plan indicates that Jensen Lane will be improved south of the site as a Rural Lane, and a new Rural Lane roadway linkage established between the existing improved section of Jensen Lane and Pleasant Avenue. The project is constructing a portion of this roadway along its eastern boundary. These future roadways would create additional options for project residents to access Hembree Lane, Pleasant Avenue, and Old Redwood Highway.

Jensen Lane Interim Condition

The segment of Jensen Lane to the south of the project site is currently an unimproved one-lane roadway that functions as a driveway to several parcels in the unincorporated County. While it is expected that the roadway will be improved to public street standards consistent with its Rural Lane designation in the Windsor General Plan as part of future development, the timing of such improvements is unknown. In the interim, the roadway's current configuration is inadequate to accommodate project traffic. It is recommended that an interim gated access be installed at the southern terminus of the Jensen Lane street segment to be constructed by the project. The gate would be removed in the future once Jensen Lane is fully improved.

Recommendation – A gate should be installed at the southern terminus of the Jensen Lane segment to be constructed by the project, preventing vehicular traffic from the project and points northward from using the currently unimproved segment of Jensen Lane to the south. The gate would be removed in the future once Jensen Lane is improved to public street standards.

Sight Distance

Sight distance along Vinecrest Road at the proposed new Portland Way leg opposite Vinecrest Circle was evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distances, using the approach travel speeds as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street. For the posted 35 mph speed on Vinecrest Road just west of the intersection, the required corner sight distance is 385 feet while the required stopping sight distance is 250 feet.

Since the new Portland Way street serving the project site has not yet been constructed, available sight distances were estimated based on field review as well as measurements using aerial photographs. Vinecrest Road is free of vertical curves in the area and is free of horizontal curves to the east of the proposed Portland Way intersection. To the west of the intersection, Vinecrest Road has a slight centerline shift of approximately nine feet through a gradual reverse curve which would not substantially alter sight distance. An existing brick monument sign on the southwest intersection corner that says "Vinecrest Estates" would, however, obstruct visibility for drivers looking

from Portland Way to the west. This monument sign would be removed or relocated upon construction of the mini roundabout; with this change and implementation of the mini roundabout, it appears that adequate sight lines could be established. Sight distances on both directions of Vinecrest Road would exceed 750 feet in both directions, which would meet the required criteria for speeds in excess of 50 mph and would be considered adequate.

The remaining intersections created by development of the project site are anticipated to be low-volume roadways with 25 mph speeds. Similar to the future Vinecrest Road/Portland Way intersection, the Prince George Way/Portland Way and Prince George Way/Jensen Lane intersections are shown to have slight centerline shifts near intersections, though sufficient sight lines are anticipated to exist as long as landscaping remains low-profile and no fences exceeding 3.5 feet in height are placed near intersection corners. It is recommended that sight distance be confirmed at all new intersections as landscaping plans are submitted.

Finding – Sufficient sight distance is generally anticipated to be available at new intersections created by the project.

Recommendation – Sight distance requirements should be confirmed at the project intersections during the Town's review of landscaping plans.

Access Analysis

The intersections created by or modified by the proposed project would be on low-volume, low-speed streets, and based on the results of the operational analysis described later in this report, would be expected to operate acceptably at LOS A. Accordingly, the intersections are anticipated to function acceptably from both operational and safety perspectives with single-lane approaches and no dedicated turn lanes.

Queuing

The *Town of Windsor 2040 General Plan*, adopted in April 2018, contains the following policy applicable to queuing.

> **Policy M-3.17 - Queuing**. *Intersection queuing shall be evaluated in tandem with LOS. Projected 95th percentile queues in left-turn pockets do not exceed the available stacking length. A queuing impact shall be considered significant if:*
>
> *a) The 95th percentile queue length can be contained within the available stacking length without the project, and the project causes the queue to exceed the stacking length; or*
>
> *b) The queue length exceeds the available stacking length without the project and the project increases the 95th percentile queue by more than 10 feet, or approximately one-half a car-length.*
>
> *Exceptions to this policy may be granted by the Town Engineer, where there is sufficient block length to accommodate projected queuing or physical constraints that make it infeasible to construct the improvement that would be necessary to achieve adequate stacking length, such as geometrics, a lack of right-of-way, adjacent slopes or hills, and soil conditions.*

The Town's queuing policy would apply at the Hembree Lane/Old Redwood Highway study intersection which has left-turn pockets on all four approaches. The remaining study intersections do not have left-turn pockets.

Queues in left-turn pockets were determined using the SIMTRAFFIC application of Synchro, averaging the projected 95th percentile queues for ten simulation runs. Summarized in Table 6 are the predicted queue lengths for all analysis scenarios. Copies of the SIMTRAFFIC projections are contained in Appendix B.

Table 6 – 95th Percentile Left-Turn Queues at Hembree Lane/Old Redwood Highway

Study Intersection	Available Storage	95th Percentile Left-Turn Queues							
		AM Peak Hour				PM Peak Hour			
		E	E+P	F	F+P	E	E+P	F	F+P
Northbound Hembree Ln	160	80	82	122	119	110	112	157	158
Southbound Hembree Ln	110	**153**	**157**	**252**	**258**	62	71	**123**	**129**
Eastbound Old Redwood Hwy	195	51	67	75	87	77	77	164	166
Westbound Old Redwood Hwy	200	31	34	40	42	24	50	28	33

Notes: 95th percentile queue based on the average of ten SIMTRAFFIC runs; all distances are measured in feet; E = existing conditions; E+P = existing plus project conditions; F = future conditions; F+P = future plus project conditions; future scenarios reflect worst-case without Jensen extension (Eastside Connector); **Bold** text = queue length exceeds available storage

Left-turn queues currently exceed available storage in the southbound left-turn lane during the a.m. peak hour. This condition is projected to occur in all a.m. peak hour scenarios and develop under future conditions during the p.m. peak hour. The addition of project-generated traffic would increase the 95th percentile queue lengths in this turn pocket by approximately four to six feet during impacted periods, which per the Town's criteria would not be considered a significant impact. Note that the future queuing projections reflect a worst-case condition in which Jensen Lane is not extended; with the Jensen Lane extension (Eastside Connector) the southbound left-turn queues would reduce somewhat, though would still exceed storage. The project's contribution to queues would be less, however, since a portion of the project volumes associated with travel to the southeast would travel via Jensen Lane instead of passing through the Hembree Lane/Old Redwood Highway intersection.

Upon reviewing the queuing projections and simulation runs, it was noted that the southbound left-turn movement would have the longest queues on the approach, that average queues are considerably shorter at 135 feet, and that occurrences during which the adjacent southbound through lane is blocked tend to last less than ten seconds. This is supported by review of the operational analysis which shows future delays on the southbound approach in the LOS C range, suggesting that congestion is not a major concern. For these reasons, the projected queues are not considered to present an adverse safety concern that warrants corrective measures such as widening Hembree Lane to add more queuing capacity. One potential measure the Town could pursue to reduce queues (regardless of whether the Estates at Ross Ranch project is completed) would be to implement protected-permitted left-turn phasing on both Hembree Lane intersection approaches. This is the same phasing including flashing yellow arrow that currently exists on the Old Redwood Highway approaches. With this change, 95th percentile queues during the worst-case future plus project a.m. peak hour would be reduced from 258 feet to 181 feet.

The projected 95th percentile queues on the northbound, eastbound, and westbound intersection approaches are anticipated to remain within the available storage.

Finding – Queuing in the southbound left-turn pocket at Hembree Lane/Old Redwood Highway exceeds the storage capacity under existing conditions, and would continue to do so in the future, though such occurrences would be brief and are not anticipated to result in adverse safety or operational effects. Traffic generated by the proposed project would be responsible for increasing these queues by four to six feet, which per the Town's criteria does not constitute a significant impact.

Recommendation – No additional measures to address queuing would be required.

Vinecrest Road Speeds and Potential for Traffic Calming

Vinecrest Road is depicted as a local street on the Town's General Plan Circulation System map. Within the local street category, the roadway functions as a "connector" street as described in the Town's *Complete Street Design Guidelines*. Local connector streets typically carry traffic volumes in the range of 4,000 to 8,000 vehicles per day.

The current Engineering and Traffic Survey (E&TS) completed for Vinecrest Road, which is used to establish speed limits per State law requirements, indicates an average surveyed speed of 33 mph and an 85th percentile speed of 37 mph. The posted speed limit is 35 mph. The E&TS indicates that zero reported collisions had occurred on the corridor, and that the average daily volume is 2,100 vehicles.

From a qualitative perspective, Vinecrest Road has the appearance of what most motorists typically perceive to be a moderate speed street. Contributing characteristics include a general lack of direct driveways to homes, no on-street parking, and a straight alignment with all traffic controls placed only on side streets. This context typically conveys to drivers, whether directly or perceived, that it is acceptable to drive faster than the typical 25-mph speed required on local residential streets with fronting residences.

Based on guidance provided in the *Complete Street Design Guidelines*, local connector streets should generally have a design speed of 30 mph, which is less than the current 35-mph posted speed limit. Rather than attempting to influence driver speeds by changing the posted limits, alternative measures including traffic calming may be considered. Ultimately, implementation of traffic calming measures may reduce prevailing speeds sufficiently to then support a reduction in the posted speed consistent with State law requirements.

The proposed Estates at Ross Ranch is projected to increase daily volumes on Vinecrest Road by approximately 292 vehicles, or an increase of about 14 percent. Under future conditions with growth in the area, including the proposed project, daily traffic volumes are estimated to be approximately 3,200 vehicles. This would be on the low end of the typical range for a local connector street in Windsor. With respect to vehicle speeds, residents of the proposed project can reasonably be expected to drive on Vinecrest Road at similar speeds as existing residents, assuming that the current street configuration remains unchanged. Given these conditions and no demonstrated pre-existing safety concerns evidenced through collision records, the project would not in and of itself be expected to create an adverse safety condition on Vinecrest Road.

While the project would not be expected to produce a safety impact on Vinecrest Road, its construction does present the opportunity to implement traffic calming measures on the corridor. Such measures would also help to reduce the project's VMT impact as described above. The project would construct a mini roundabout at the Vinecrest Road/Vinecrest Circle-Portland Way intersection. Mini roundabouts are smaller than conventional roundabouts (such as those present on Old Redwood Highway near the Town Green) but remain fully navigable by larger vehicles including emergency responders and moving trucks since they do not have raised elements in the center island. They are appropriate for use on streets such as Vinecrest Road and can effectively calm traffic on the corridor without requiring all drivers to stop, as implementation of all-way stop controls would. Besides traffic calming, mini roundabouts generally have better traffic operation and result in lower vehicle emissions than all-way stops and can help to improve (or maintain) safety at the intersection and adjacent corridor by reducing vehicle speeds. The mini roundabout would be expected to operate at LOS A under near-term and long-range conditions. A local mini roundabout with similar size and character is on Grove Street at Farmstand Road in Healdsburg.

As noted in the VMT section, an additional traffic calming opportunity that would also enhance pedestrian circulation in the area would be to install a new crosswalk with a pedestrian median refuge on the east leg of the Vinecrest Road/Foothill Drive intersection. Sufficient space exists to provide an approximately four-foot-wide pedestrian refuge at this location while still maintaining 10-foot travel lanes and six-foot bike lanes.

Finding – The proposed project would not be expected to result in an adverse safety condition on Vinecrest Road.

Finding – The mini roundabout to be constructed by the proposed project would help to calm traffic on the Vinecrest Road corridor.

Recommendation – It is recommended that the project construct a pedestrian crossing with median refuge at Vinecrest Road/Foothill Drive to also serve as an effective neighborhood traffic calming strategy.

Emergency Access

The site plan for the project depicts an interconnected roadway system with no dead-end streets and four points of access to the surrounding roadway network. Three of the access points lead to Vinecrest Road including the primary project street (Portland Way), new Jensen Lane segment, and Prince George Way extension which leads to two residential streets accessing Vinecrest Road (Victoria Lane and Vancouver Lane). The new segment of Jensen Lane would also connect to the existing rural Jensen Lane roadway to the south, which will be upgraded to public street standards as future development occurs, and the long-range vision of an ultimate extension to Pleasant Avenue as depicted in the General Plan comes to fruition. As recommended in the site access assessment above, access between the project's improved segment of Jensen Lane and the currently unimproved segment to the south should be restricted, controlled by a gate or similar measure until such time that Jensen Lane is improved to public street standards. The gate should be configured such that it can be unlocked by emergency responders as needed, including for emergency evacuation purposes.

While the project's accommodation of emergency vehicles and evacuation needs will remain subject to review and approval by the Town's Fire Marshal, from a transportation perspective the proposed street configuration and connectivity would provide adequate emergency vehicle circulation and access.

The adequacy of emergency evacuation routes was assessed in consideration of potential fire threats approaching from wildland areas to the north, south, and east. The primary evacuation route for Windsor leading to designated evacuation centers is US 101; evacuation staging schemes established by emergency responders would in most circumstances focus on moving traffic along arterial streets to the freeway. For the Estates at Ross Ranch project, emergency evacuation staging for fire threats from the north would focus on directing drivers to Old Redwood Highway, ultimately continuing south of the Town, or accessing US 101 via Shiloh Road; such routes would exist via both Vinecrest Road and Jensen Lane (Eastside connector) including the future linkage to Pleasant Avenue. For fire threats from the east, which may be the most likely scenario, evacuation routes would also likely focus on directing residents to Vinecrest Road and/or Jensen Lane toward US 101 via either Old Redwood Highway or Arata Lane. While fire threats from the south may be less likely than threats from the north or east, several evacuation staging options would still exist, including directing drivers to either Arata Lane or Brooks Road via Foothill Drive.

It is important to reiterate that the Town's Fire Marshal has final authority over the adequacy of the project's emergency access and compliance with applicable codes and requirements.

Finding – The proposed roadway network, including connectivity to existing and future roads, would provide adequate emergency circulation and access from a transportation perspective.

Finding – The proposed roadway configuration would accommodate multiple evacuation staging schemes that could be used in the case of approaching wildland fire threats.

Finding – The project will be subject to review and approval by the Town's Fire Marshal; any requirements imposed by the Fire Marshal shall take precedence over the emergency access and circulation findings contained herein.

Recommendation – The interim gate recommended to be installed at the southern terminus of the Jensen Lane segment to be constructed by the project should be configured such that it can be unlocked by emergency responders as needed, including for emergency evacuation purposes.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual*, 6th Edition, Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersection with stop signs on all approaches was analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing, and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole and then related to a Level of Service.

The study intersection that is currently controlled by a traffic signal was evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using signal timing obtained from the Town of Windsor.

The ranges of delay associated with the various levels of service are indicated in Table 7.

Table 7 – Intersection Level of Service Criteria			
LOS	**Two-Way Stop-Controlled**	**All-Way Stop-Controlled**	**Signalized**
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual*, 6th Edition, Transportation Research Board, 2018

Traffic Operation Standards

While the operation of local intersections is no longer evaluated for purposes of determining potential impacts under CEQA, an analysis of the potential impacts on traffic operation was performed to determine consistency with the Town's adopted General Plan policies.

The *Town of Windsor 2040 General Plan*, adopted in April 2018, contains the following policy applicable to the operational analysis.

> **Policy M-3.16 – Level of Service Application.** *The Town shall maintain the level of service standards that define the minimum acceptable operating characteristics for intersections and streets. A level of service D (LOS D) is defined as the minimum acceptable level of congestion during the weekday morning and evening peak periods for high-volume facilities such as freeways, crosstown streets, and signalized or all-way stop-controlled intersections. This standard should apply at all these locations except the following intersections, which are regional gateways to the Town's commercial and civic areas, and where a Level of Service E is tolerated by the Town and considered acceptable:*
>
> - *Old Redwood Highway/US 101 Northbound off-ramp/Lakewood Drive*

- *Old Redwood Highway/US 101 Southbound ramps*
- *Old Redwood Highway/Conde Lane/Windsor River Road*

At side-street stop-controlled unsignalized intersections, levels of service shall be determined for both controlled movements and for the overall intersection. Controlled movements operating at LOS E or LOS F are allowable if: 1) the intersection is projected to operate at LOS C or better overall, and 2) the projected traffic volume on the controlled movement is 30 vehicles or less per hour on approaches with single lanes, or on multilane approaches, 30 vehicles or less per hour per lane. If an intersection is operating at LOS E or F without project-generated traffic added, the project's impact shall be considered less-than-significant if it does not cause operation to fall from LOS E to LOS F and it increases average delay for the intersection as a whole by 5 seconds or less. Level of service standards shall not apply to minor intersections comprised of only local streets.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Traffic counts were obtained for the study intersections in late September 2021 while area schools were in session. "Big data" sources available through the provider Streetlight Data were used to compare current traffic volumes in Windsor with those observed in 2019 prior to the COVID-19 pandemic. Based on this review, it was determined that recent peak hour volumes on Windsor's arterials and collectors are generally equivalent to or greater than those occurring in 2019, indicating that it is unnecessary to factor current volumes to reflect a pre-pandemic condition.

Under existing conditions, all four study intersections are operating acceptably. A summary of the intersection Level of Service calculations is contained in Table 8, and copies of the calculations are provided in Appendix C. The existing traffic volumes are shown in Figure 3.

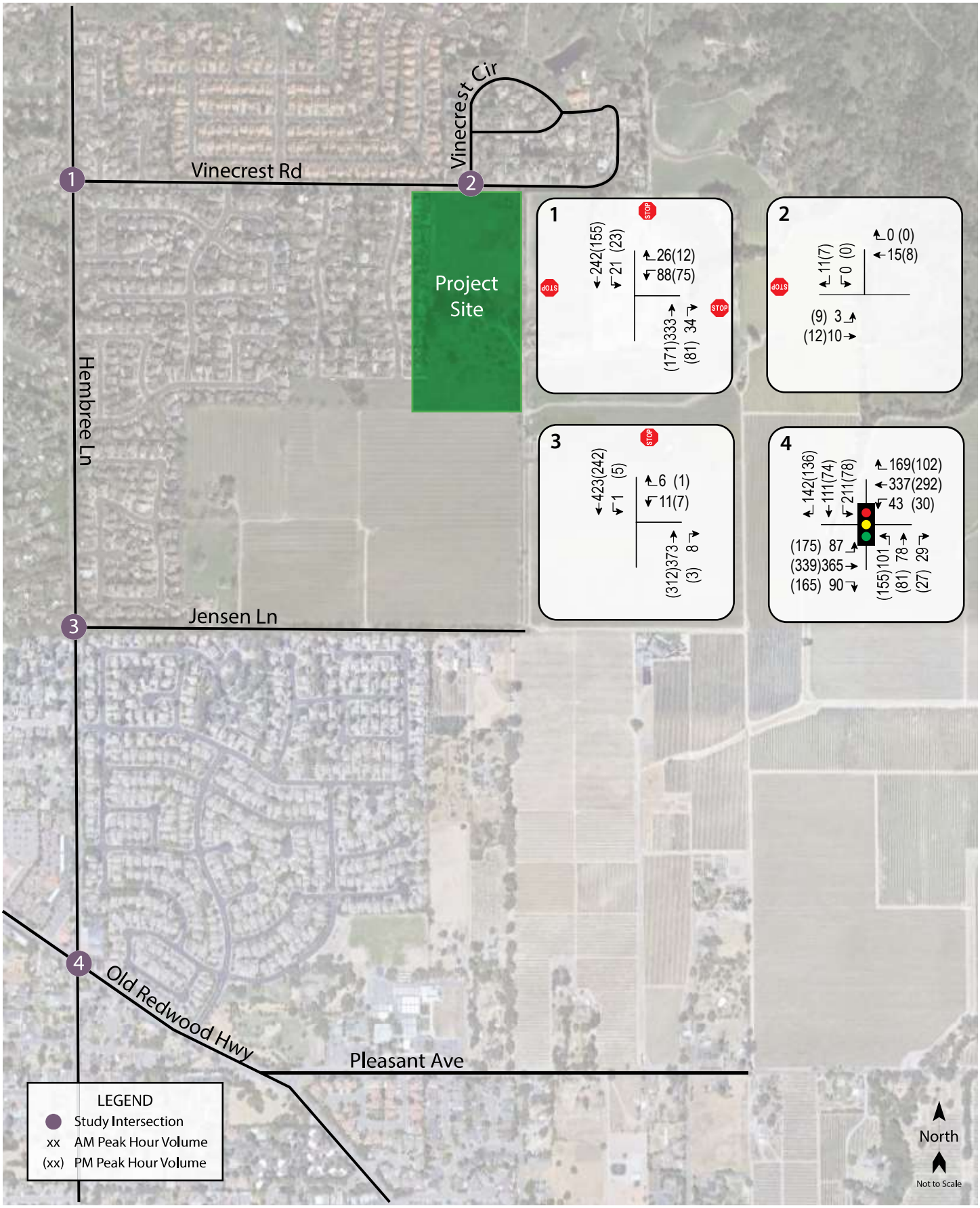
Table 8 – Existing Peak Hour Intersection Levels of Service

Study Intersection ***Approach***	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Hembree Ln/Vinecrest Rd	11.9	B	9.3	A
2. Vinecrest Rd/Vinecrest Cir	3.0	A	3.4	A
Southbound (Vinecrest Cir) Approach	*8.5*	*A*	*8.4*	*A*
3. Hembree Ln/Jensen Ln	0.3	A	0.3	A
Westbound (Jensen Ln) Approach	*15.8*	*C*	*13.2*	*B*
4. Hembree Ln/Old Redwood Hwy	19.0	B	17.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Future Conditions

Segment volumes for the horizon year of 2040 were obtained from the SCTA regional travel demand model. The model's link-based volume projections were translated to turning movement volumes at the study intersections using the "Furness" method, which is an iterative process that employs existing turn movement data, existing link volumes, and future link volumes to project future turning movement volumes at intersections. Since the SCTA model generally includes collector and arterial roadways but not local streets, the projections were also adjusted to be consistent with current and planned local street circulation patterns.



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Traffic Impact Study for The Estates at Ross Ranch

Figure 3 – Existing Traffic Volumes

W-Trans

The Town of Windsor *General Plan* circulation map indicates completion of a future north-south rural lane between Vinecrest Road and Pleasant Avenue, which is referred to as the Jensen Lane extension (Eastside Connector). The new connection would include the existing north-south portion of Jensen Lane and would run along the eastern edge of the proposed Estates at Ross Ranch project. The street would not be anticipated to carry substantial volumes since it is on the far eastern edge of the Town and abutting agricultural lands on one side. It would, however, increase connectivity within and between neighborhoods, and provides an additional route for persons traveling to and from the south, reducing the amount of future traffic growth that would be added to Hembree Lane, Vinecrest Road and the existing east-west segment of Jensen Lane. An excerpt from the General Plan circulation map showing the Jensen Lane extension (Eastside Connector) is shown in Plate 2.

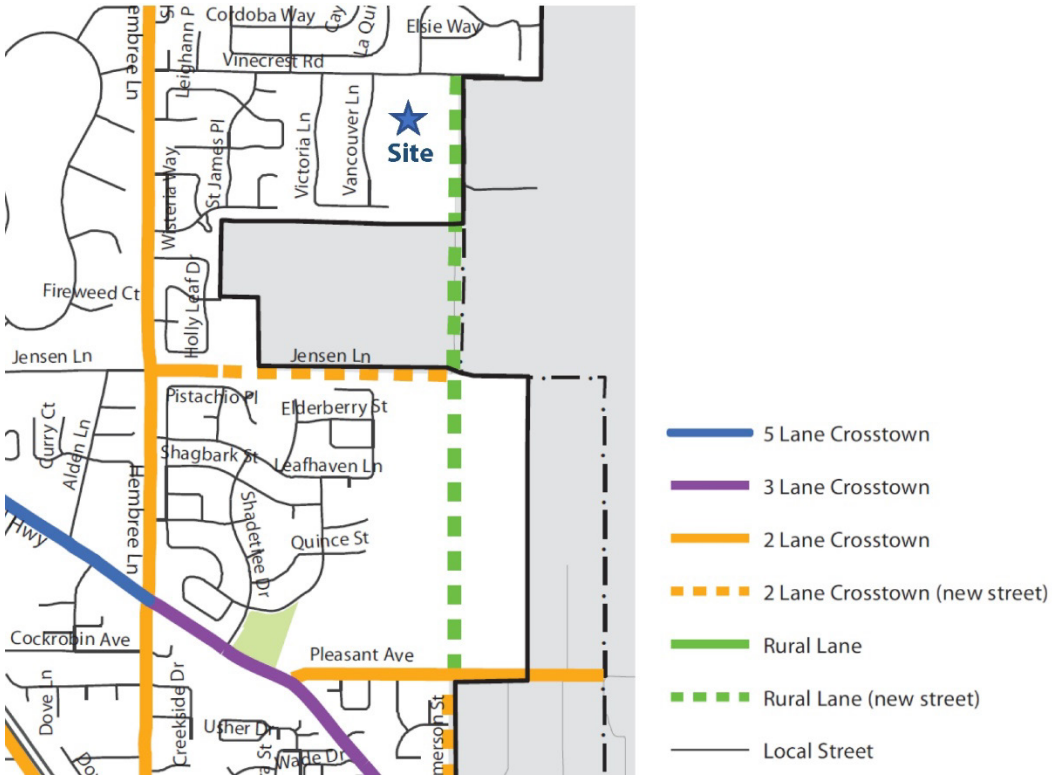
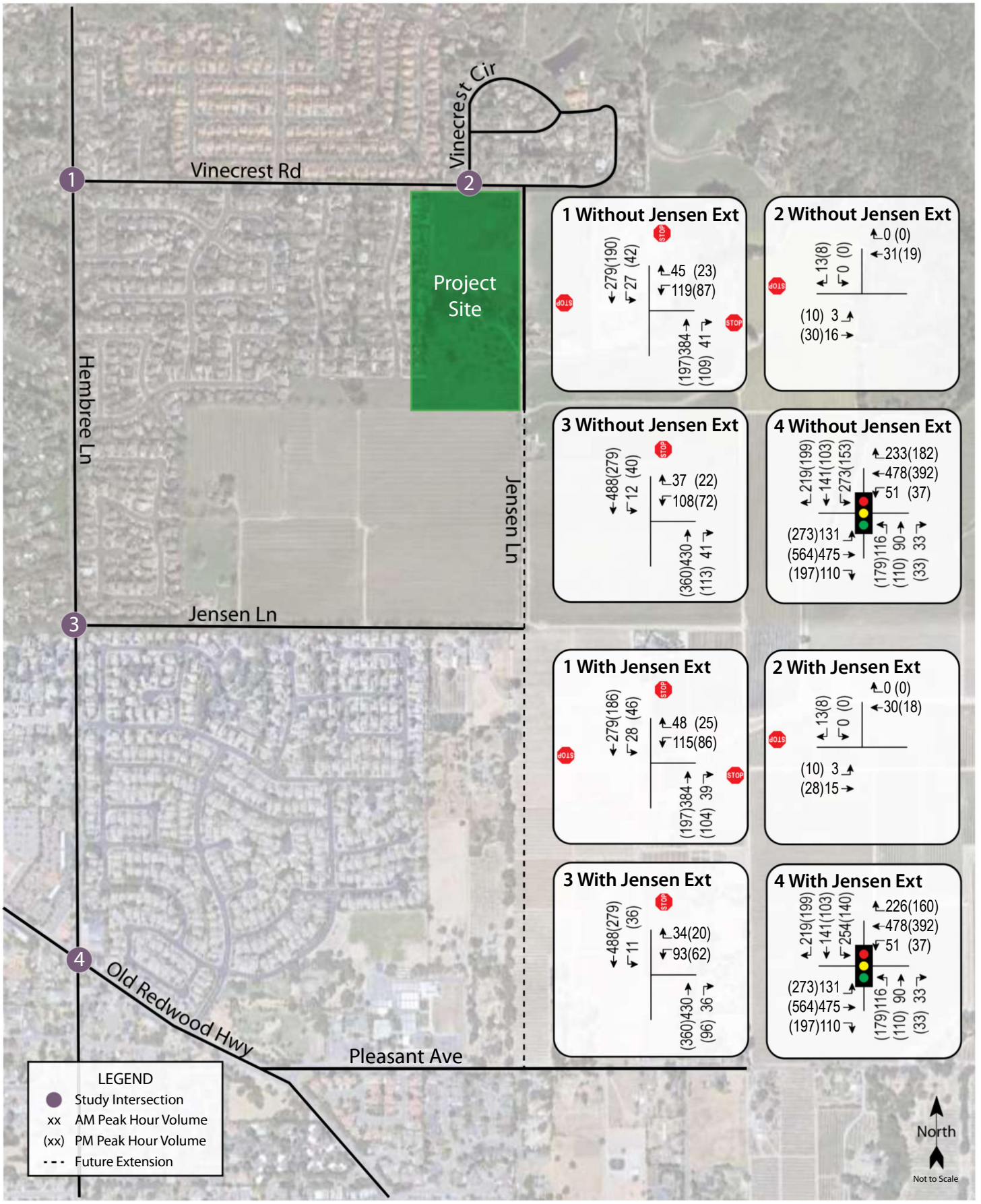


Plate 2 Excerpt from General Plan Circulation Map

Because the timing for completion of the Jensen Lane extension (Eastside Connector) is reliant on the future development projects that will construct it, as well as annexation from the County to the Town of Windsor, future conditions both without and with completion of the new linkage were analyzed.

Under the projected Future volumes, which do not include the proposed Estates at Ross Ranch project, three of the four study intersections are expected to operate acceptably both without and with completion of the Jensen Lane extension. Hembree Lane/Jensen Lane is projected to have unacceptable operation during the a.m. peak hour without the Jensen Lane extension. Future volumes are shown in Figure 4 and operating conditions are summarized in Table 9.



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Traffic Impact Study for The Estates at Ross Ranch

Figure 4 – Future Traffic Volumes

Table 9 – Future Peak Hour Intersection Levels of Service								
Study Intersection ***Approach***	**Without Jensen Extension**				**With Jensen Extension**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Hembree Ln/Vinecrest Rd	15.7	C	10.5	B	15.6	C	10.5	B
2. Vinecrest Rd/Vinecrest Cir	2.1	A	2.1	A	2.2	A	2.2	A
Southbound (Vinecrest Cir) Approach	*8.5*	*A*	*8.5*	*A*	*8.5*	*A*	*8.4*	*A*
3. Hembree Ln/Jensen Ln	5.0	A	2.6	A	3.8	A	2.2	A
Westbound (Jensen Ln) Approach	***37.7***	***E***	*20.7*	*C*	*32.1*	*D*	*19.2*	*C*
4. Hembree Ln/Old Redwood Hwy	22.9	C	19.4	B	22.0	C	19.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** = Unacceptable operation; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Project Conditions

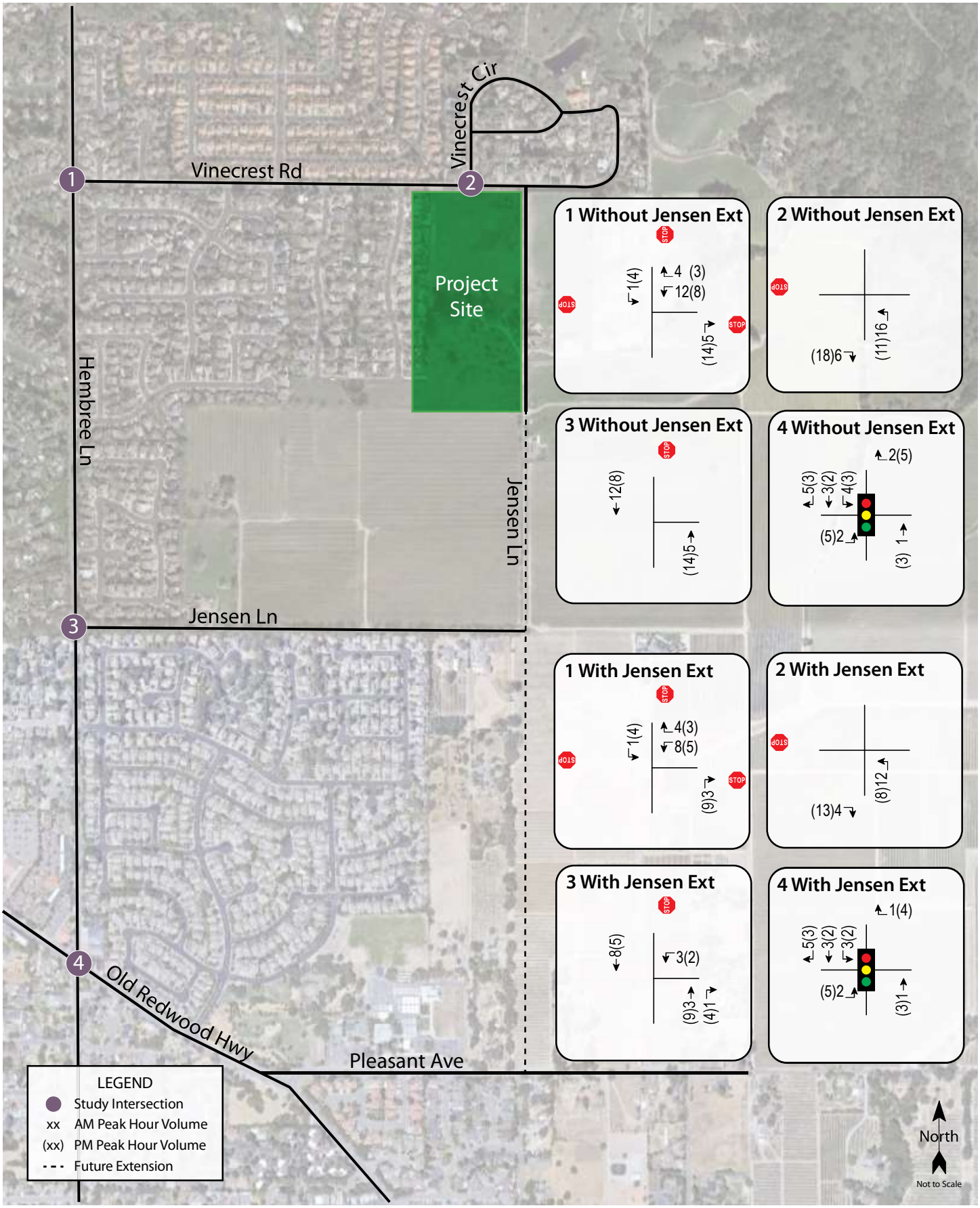
Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to operate acceptably. Project traffic volumes are shown in Figure 5 and Existing plus Project volumes are shown in Figure 6. These results are summarized in Table 10.

Table 10 – Existing and Existing plus Project Peak Hour Intersection Levels of Service								
Study Intersection ***Approach***	**Existing Conditions**				**Existing plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Hembree Ln/Vinecrest Rd	11.9	B	9.3	A	12.3	B	9.6	A
2. Vinecrest Rd/Vinecrest Cir	3.0	A	3.4	A	4.3	A	3.4	A
NB (Project Street) Approach	-	-	-	-	*8.9*	*A*	*9.0*	*A*
SB (Vinecrest Cir) Approach	*8.5*	*A*	*8.4*	*A*	*8.5*	*A*	*8.4*	*A*
With Mini Roundabout	-	-	-	-	*2.9*	*A*	*2.9*	*A*
3. Hembree Ln/Jensen Ln	0.3	A	0.3	A	0.3	A	0.3	A
WB (Jensen Ln) Approach	*15.8*	*C*	*13.2*	*B*	*16.1*	*C*	*13.5*	*B*
4. Hembree Ln/Old Redwood Hwy	19.0	B	17.3	B	19.1	B	17.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

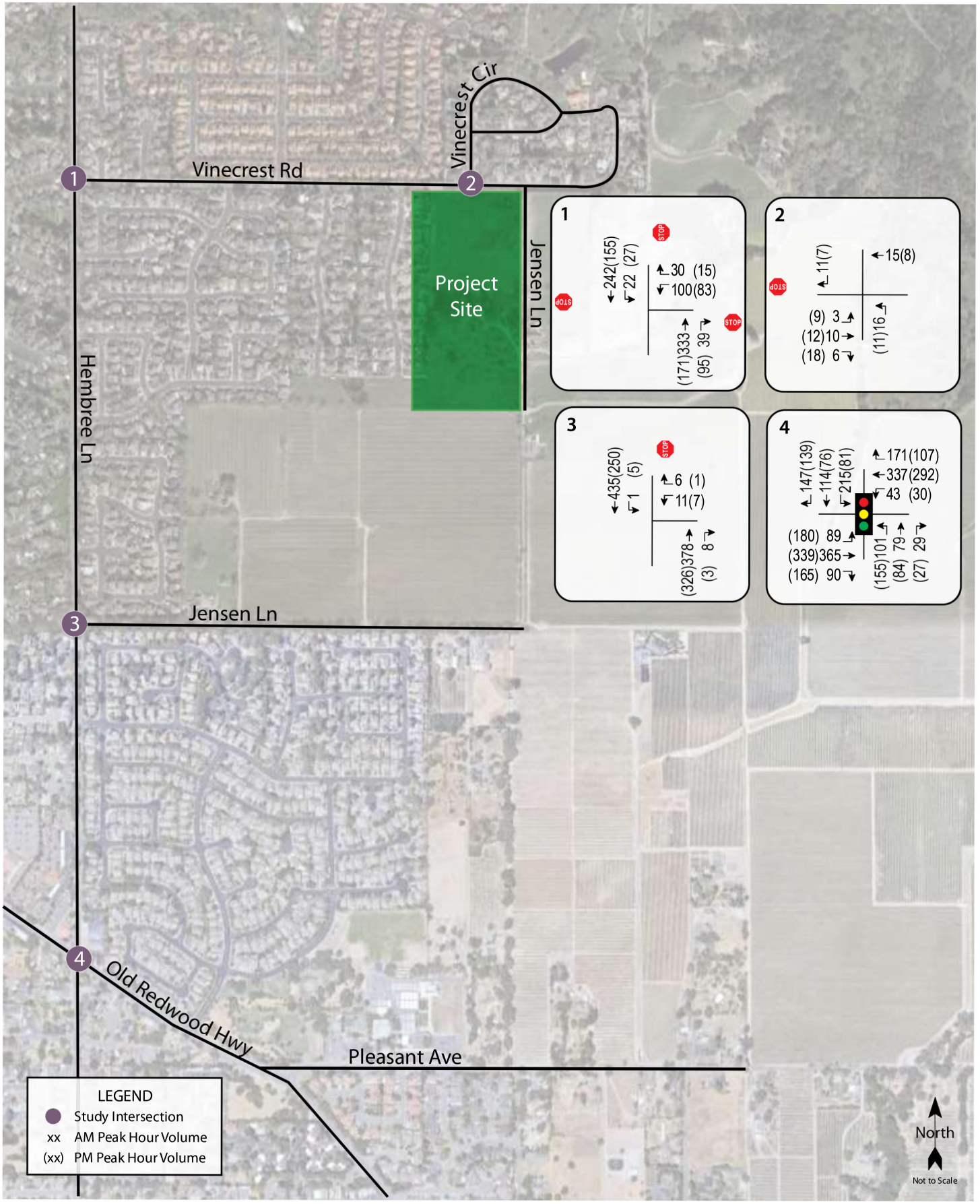
Finding – Under Existing plus Project conditions, the study intersections are expected to continue operating acceptably at the same Levels of Service upon the addition of project-generated traffic to existing volumes.



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Traffic Impact Study for The Estates at Ross Ranch

Figure 5 – Project Traffic Volumes



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Traffic Impact Study for The Estates at Ross Ranch

Figure 6 – Existing plus Project Traffic Volumes

W-Trans

Future plus Project Conditions

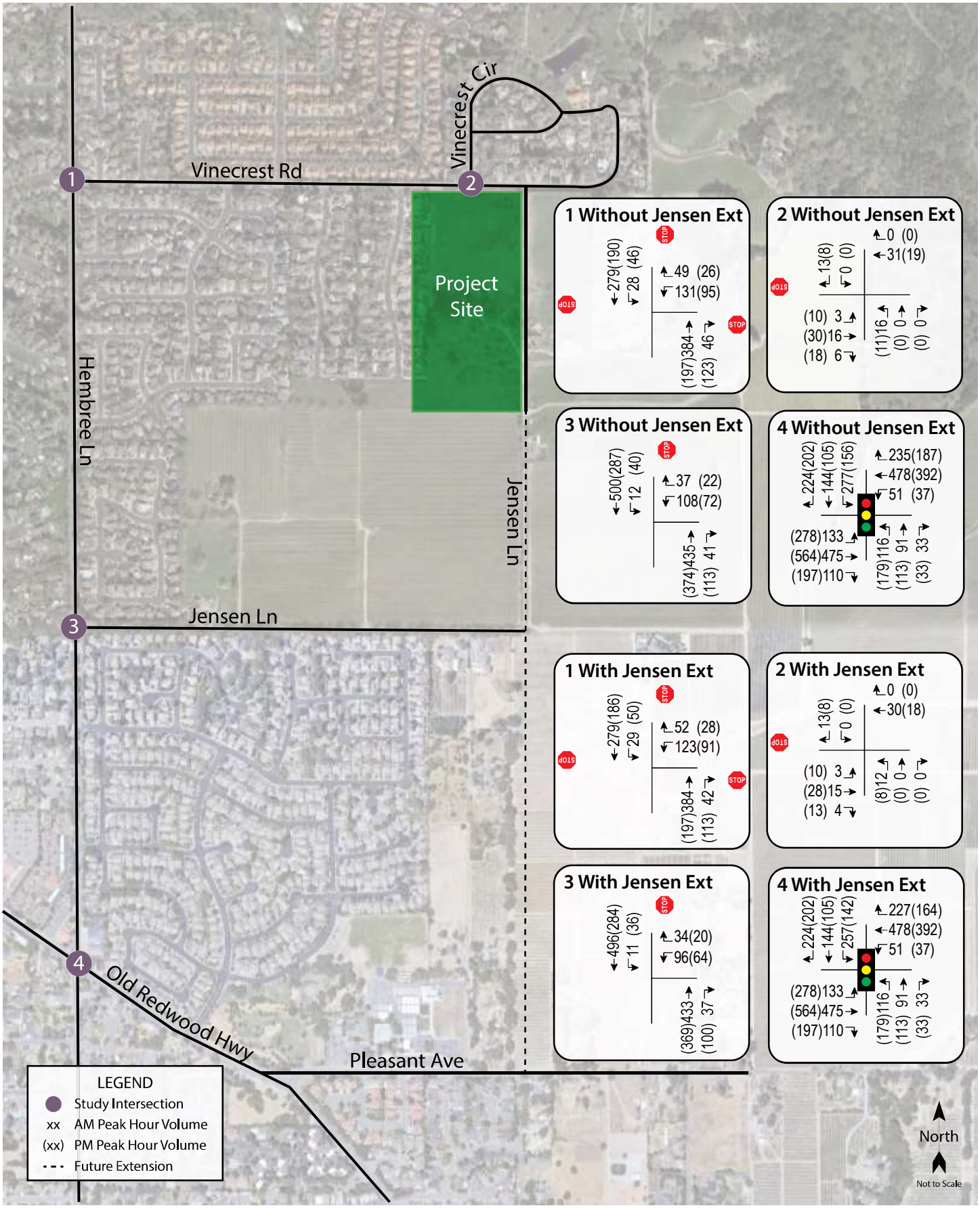
Upon the addition of project-generated traffic to the anticipated Future volumes, three of the four study intersections are expected to operate acceptably without the Jensen Lane extension (Eastside Connector), and at the same levels of service as would occur without the project. Operation on the westbound Jensen Lane approach at the Hembree Lane/Jensen Lane intersection is projected to be an unacceptable LOS E during the a.m. peak hour both with and without the project. The proposed project would increase the delay on this approach by approximately 1.8 seconds, which according to the Town's guidelines does not constitute an adverse operational effect. All four study intersections would operate acceptably with the Jensen Lane extension (Eastside Connector), with the same levels of service both with and without the project.

Future plus Project operation is summarized in Table 11 for conditions without the Jensen Lane extension, and in Table 12 for conditions with the extension. Future plus project traffic volumes are shown in Figure 7.

Table 11 – Future and Future plus Project Without Jensen Extension (Eastside Connector) Intersection Levels of Service

Study Intersection ***Approach***		**Future Conditions**				**Future plus Project**			
		AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	Hembree Ln/Vinecrest Rd	15.7	C	10.5	B	16.4	C	10.8	B
2.	Vinecrest Rd/Vinecrest Cir	2.1	A	2.1	A	3.3	A	2.5	A
	NB (Project Street) Approach	-	-	-	-	*9.1*	*A*	*9.2*	*A*
	SB (Vinecrest Cir) Approach	*8.5*	*A*	*8.5*	*A*	*8.5*	*A*	*8.5*	*A*
	With Mini Roundabout	-	-	-	-	*2.9*	*A*	*2.9*	*A*
3.	Hembree Ln/Jensen Ln	5.0	A	2.6	A	5.1	A	2.6	A
	WB (Jensen Ln) Approach	***37.7***	***E***	*20.7*	*C*	***39.5***	***E***	*21.6*	*C*
4.	Hembree Ln/Old Redwood Hwy	22.9	C	19.4	B	23.1	C	19.5	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; **Bold** = Unacceptable operation; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*



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Traffic Impact Study for The Estates at Ross Ranch

Figure 7 – Future plus Project Traffic Volumes

Table 12 – Future and Future plus Project with Jensen Extension (Eastside Connector) Intersection Levels of Service

	Study Intersection *Approach*	Future Conditions				Future plus Project			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	Hembree Ln/Vinecrest Rd	15.6	C	10.5	B	16.1	C	10.6	B
2.	Vinecrest Rd/Vinecrest Cir	2.2	A	2.2	A	3.1	A	2.5	A
	NB (Project Street) Approach	-	-	-	-	*9.1*	*A*	*9.1*	*A*
	SB (Vinecrest Cir) Approach	*8.5*	*A*	*8.4*	*A*	*8.5*	*A*	*8.4*	*A*
	With Mini Roundabout	-	-	-	-	*2.9*	*A*	*2.9*	*A*
3.	Hembree Ln/Jensen Ln	3.8	A	2.2	A	4.1	A	2.3	A
	WB (Jensen Ln) Approach	*32.1*	*D*	*19.2*	*C*	*34.0*	*D*	*19.9*	*C*
4.	Hembree Ln/Old Redwood Hwy	22.0	C	19.3	B	22.1	C	19.4	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Finding – The study intersections are projected to continue operating acceptably in the future with the planned Jensen Lane extension (Eastside Connector), both with and without the addition of project-generated traffic.

Finding – Under future conditions without the Jensen Lane extension (Eastside Connector), unacceptable LOS E operation is projected to occur on the westbound Jensen Lane approach to Hembree Lane/Jensen Lane during the a.m. peak hour both with and without project traffic added, though the 1.8-second increase in delay attributable to the project would not be considered an adverse operational effect per the Town's guidelines.

Recommendation – No measures to improve traffic operation would be required.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate approximately 292 vehicle trips per day, including 22 during the a.m. peak hour and 29 during the p.m. peak hour.
- Pedestrian connectivity to and from the project site would be adequate in the near-term and would improve in the future as developments to the south provide new sidewalk and pathway extensions. Pedestrian facilities would meet the requirements specified in the *Complete Street Design Guidelines*.
- Walking routes to the existing SCT bus stop on Hembree Lane would be adequate upon completion of sidewalk to be constructed as part of the project.
- Existing and planned bicycle facilities would provide adequate access for bicyclists traveling to and from the project.
- Existing public transit and school bus routes are adequate to accommodate the additional demand generated by the project, and existing bus stops accessible via continuous sidewalks are within an acceptable walking distance of the site. Transit facilities serving the project site are therefore considered to be adequate.
- The project is not expected to meet the applicable significance threshold for vehicle miles traveled.
- Even with incorporation of VMT reduction strategies and measures, the project would not be expected to fall below applicable VMT per capita thresholds and would therefore have a significant VMT impact.
- Sufficient sight distance is generally anticipated to be available at new intersections created by the project.
- Queuing in the southbound left-turn pocket at Hembree Lane/Old Redwood Highway exceeds the storage capacity under existing conditions and would continue to do so in the future both with and without the project, though such occurrences would be brief and are not anticipated to result in adverse safety or operational effects. Traffic generated by the proposed project would be responsible for increasing these queues by four to six feet, which per the Town's criteria (General Plan Policy M-3.17) does not constitute a significant impact.
- The proposed project would not be expected to result in an adverse safety condition on Vinecrest Road.
- The mini roundabout to be constructed by the proposed project would help to calm traffic on the Vinecrest Road corridor.
- The proposed roadway network, including connectivity to existing and future roads, would provide adequate emergency circulation and access from a transportation perspective.
- The proposed roadway configuration would accommodate multiple evacuation staging schemes that could be used in the case of approaching wildland fire threats.
- The project will be subject to review and approval by the Town's Fire Marshal; any requirements imposed by the Fire Marshal shall take precedence over the emergency access and circulation findings contained herein.

- Under Existing plus Project conditions including the addition of project-generated traffic, the study intersections are expected to continue operating acceptably at the same Levels of Service as Existing Conditions without the project.

- The study intersections are projected to continue operating acceptably in the future with the planned Jensen Lane extension (Eastside Connector), both with and without the addition of project-generated traffic.

- Under future conditions without the Jensen Lane extension (Eastside Connector) and without the project, unacceptable LOS E operation is projected to occur on the westbound Jensen Lane approach of Hembree Lane/Jensen Lane during the a.m. peak hour. With the addition of project-generated traffic, delays on this affected approach would increase by approximately 1.8-seconds, which would not be considered an adverse operational effect per the Town's guidelines.

Recommendations

- To the degree feasible, the project should Incorporate on-site affordable housing units (potentially including ADUs) for individuals and families in lower income categories.

- The project should be required to construct an enhanced pedestrian crossing including refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.

- A gate should be installed at the southern terminus of the Jensen Lane segment to be constructed by the project, preventing vehicular traffic from the project and points northward from using the currently unimproved segment of Jensen Lane to the south. The gate would be removed in the future once Jensen Lane is improved to public street standards. Emergency responders shall be able to unlock the interim gate as needed.

- Sight distance requirements should be confirmed at the project intersections during the Town's review of landscaping plans.

- Measures identified to reduce VMT impacts, including construction of a mini roundabout at Vinecrest Road/Vinecrest Circle-Portland Way intersection and a pedestrian crossing with median refuge at Vinecrest Road/Foothill Drive, would also serve as an effective neighborhood traffic calming strategy and should be implemented.

Study Participants and References

Study Participants

Principal in Charge	Zachary Matley, AICP
Assistant Planner	Jade Kim
Graphics	Cameron Wong
Editing/Formatting	Alex Scrobonia
Quality Control	Dalene J. Whitlock, PE, PTOE

References

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Traffic Impact Study for The Estates at Ross Ranch

Intersection # 1: Hembree Lane & Vinecrest Road
Date of Count: Thursday, September 30, 2021

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 5200
Start Date: August 1, 2016
End Date: July 30, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: 4 Way Stop
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{5{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.11 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.07 c/mve**	**1.1%**	**38.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection # 2: Vinecrest Road & Vinecrest Circle
Date of Count: Thursday, September 30, 2021

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 360
Start Date: August 1, 2016
End Date: July 30, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{360 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.09 c/mve**	**1.2%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Traffic Impact Study for The Estates at Ross Ranch

Intersection # 3: Hembree Lane & Jensen Lane
Date of Count: Thursday, September 30, 2021

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 5700
Start Date: August 1, 2016
End Date: July 30, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: 4 Way Stop
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{5{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.00 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.07 c/mve**	**1.1%**	**38.6%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection # 4: Old Redwood Highway & Hembree Lane
Date of Count: Thursday, September 30, 2021

Number of Collisions: 8
Number of Injuries: 3
Number of Fatalities: 0
Average Daily Traffic (ADT): 16500
Start Date: August 1, 2016
End Date: July 30, 2021
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{8 \times 1{,}000{,}000}{16{,}500 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.27 c/mve**	**0.0%**	**37.5%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Appendix B

Queuing Calculations

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Queuing and Blocking Report
Baseline
10/26/2021

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	49	116	72	31	85	107	77	78	146	76	63
Average Queue (ft)	21	63	20	8	46	44	40	44	78	42	37
95th Queue (ft)	51	125	76	31	95	108	80	82	153	84	63
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Baseline
10/26/2021

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	77	100	68	17	80	79	104	81	55	70	52
Average Queue (ft)	35	44	20	6	38	31	56	44	23	29	33
95th Queue (ft)	77	98	63	24	79	79	110	87	62	70	56
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Baseline
04/13/2022

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	60	118	85	34	119	102	78	101	146	98	66
Average Queue (ft)	27	58	19	9	64	51	38	56	82	50	38
95th Queue (ft)	67	114	69	34	123	110	82	108	157	102	66
Link Distance (ft)		954	954		285	285	901			291	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	195			200				160	110		120
Storage Blk Time (%)								1	3	0	
Queuing Penalty (veh)								1	9	2	

Queuing and Blocking Report
Baseline
10/26/2021

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	73	96	69	53	106	81	104	89	65	76	58
Average Queue (ft)	38	53	18	13	65	38	54	47	29	33	37
95th Queue (ft)	77	108	61	50	112	91	112	94	71	81	62
Link Distance (ft)	951	951	951	286	286	286	902	902	1046	1046	1046
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Baseline
10/26/2021

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	70	154	127	40	148	174	113	94	215	102	98
Average Queue (ft)	35	97	51	14	85	93	62	60	136	55	57
95th Queue (ft)	75	166	134	40	155	177	122	113	252	101	99
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Baseline
10/26/2021

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	152	166	130	26	124	147	150	120	119	100	66
Average Queue (ft)	95	98	56	8	77	83	82	73	56	49	47
95th Queue (ft)	164	176	136	28	131	152	157	126	123	103	74
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Baseline
04/13/2022

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	88	155	134	35	137	170	100	121	225	118	89
Average Queue (ft)	39	88	50	11	86	95	51	65	135	58	46
95th Queue (ft)	87	159	134	42	141	173	100	119	258	116	82
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Queuing and Blocking Report
Mitigated FYA
04/13/2022

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	75	143	130	32	162	172	81	123	170	105	85
Average Queue (ft)	38	82	39	12	85	97	39	66	90	54	48
95th Queue (ft)	76	151	111	32	157	175	80	120	181	108	79
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 4: Hembree Lane & Old Redwood Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	T	R
Maximum Queue (ft)	177	170	140	27	116	134	154	122	124	100	77
Average Queue (ft)	91	110	68	10	77	79	82	72	58	52	48
95th Queue (ft)	166	188	145	33	129	139	161	131	129	104	82
Link Distance (ft)	948	948	948	285	285	285	902	902	2272	2272	2272
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

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Appendix C

Intersection Level of Service Calculations

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Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	88	26	333	34	21	242
Future Vol, veh/h	88	26	333	34	21	242
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	30	387	40	24	281
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.1	13.1	11.1
HCM LOS	B	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	77%	8%
Vol Thru, %	91%	0%	92%
Vol Right, %	9%	23%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	367	114	263
LT Vol	0	88	21
Through Vol	333	0	242
RT Vol	34	26	0
Lane Flow Rate	427	133	306
Geometry Grp	1	1	1
Degree of Util (X)	0.546	0.205	0.407
Departure Headway (Hd)	4.604	5.575	4.796
Convergence, Y/N	Yes	Yes	Yes
Cap	781	638	746
Service Time	2.657	3.662	2.857
HCM Lane V/C Ratio	0.547	0.208	0.41
HCM Control Delay	13.1	10.1	11.1
HCM Lane LOS	B	B	B
HCM 95th-tile Q	3.4	0.8	2

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	10	0	0	15	0	0	0	0	0	0	11
Future Vol, veh/h	3	10	0	0	15	0	0	0	0	0	0	11
Conflicting Peds, #/hr	0	0	1	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	12	0	0	18	0	0	0	0	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	25	0	0	13	0	0	46	46	13	45	46	25
Stage 1	-	-	-	-	-	-	21	21	-	25	25	-
Stage 2	-	-	-	-	-	-	25	25	-	20	21	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1589	-	-	1606	-	-	955	846	1067	957	846	1051
Stage 1	-	-	-	-	-	-	998	878	-	993	874	-
Stage 2	-	-	-	-	-	-	993	874	-	999	878	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1578	-	-	1604	-	-	940	837	1066	948	837	1044
Mov Cap-2 Maneuver	-	-	-	-	-	-	940	837	-	948	837	-
Stage 1	-	-	-	-	-	-	994	874	-	983	868	-
Stage 2	-	-	-	-	-	-	981	868	-	996	874	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	0	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1578	-	-	1604	-	-	1044
HCM Lane V/C Ratio	-	0.002	-	-	-	-	-	0.012
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

HCM 6th TWSC
3: Hembree Lane & Jensen Lane 10/19/2021

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	6	373	8	1	423
Future Vol, veh/h	11	6	373	8	1	423
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	7	439	9	1	498

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	950	450	0	0	454	0
Stage 1	450	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	289	609	-	-	1107	-
Stage 1	642	-	-	-	-	-
Stage 2	609	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	287	606	-	-	1101	-
Mov Cap-2 Maneuver	287	-	-	-	-	-
Stage 1	638	-	-	-	-	-
Stage 2	608	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	352	1101	-
HCM Lane V/C Ratio	-	-	0.057	0.001	-
HCM Control Delay (s)	-	-	15.8	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

HCM 6th Signalized Intersection Summary
4: Hembree Lane & Old Redwood Highway 10/19/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	365	90	43	337	169	101	78	29	211	111	142
Future Volume (veh/h)	87	365	90	43	337	169	101	78	29	211	111	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	429	68	51	396	158	119	92	20	248	131	74
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	360	780	123	363	557	219	280	233	51	305	322	268
Arrive On Green	0.09	0.26	0.26	0.06	0.23	0.23	0.16	0.16	0.16	0.17	0.17	0.17
Sat Flow, veh/h	1781	3058	481	1781	2461	966	1781	1475	321	1781	1870	1556
Grp Volume(v), veh/h	102	248	249	51	284	270	119	0	112	248	131	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1762	1781	1777	1650	1781	0	1795	1781	1870	1556
Q Serve(g_s), s	2.2	6.3	6.4	1.1	7.7	7.9	3.2	0.0	2.9	7.0	3.3	2.2
Cycle Q Clear(g_c), s	2.2	6.3	6.4	1.1	7.7	7.9	3.2	0.0	2.9	7.0	3.3	2.2
Prop In Lane	1.00		0.27	1.00		0.59	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	360	453	449	363	402	374	280	0	284	305	322	268
V/C Ratio(X)	0.28	0.55	0.55	0.14	0.71	0.72	0.42	0.00	0.39	0.81	0.41	0.28
Avail Cap(c_a), veh/h	713	1158	1149	665	1043	969	681	0	1068	511	919	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	16.9	16.9	14.0	18.6	18.7	19.9	0.0	19.8	20.9	19.3	18.8
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.9	1.0	0.4	0.0	0.3	2.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.3	2.3	0.4	2.8	2.7	1.2	0.0	1.1	2.7	1.3	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.9	17.3	17.3	14.0	19.5	19.7	20.3	0.0	20.1	22.9	19.6	19.0
LnGrp LOS	B	B	B	B	B	B	C	A	C	C	B	B
Approach Vol, veh/h		599			605			231			453	
Approach Delay, s/veh		16.7			19.1			20.2			21.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	18.6	12.2	14.3	8.6	17.1	12.9	13.6
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.1	8.4	5.2	5.3	4.2	9.9	9.0	4.9
Green Ext Time (p_c), s	0.0	0.5	0.1	0.2	0.1	0.6	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	75	12	171	81	23	155
Future Vol, veh/h	75	12	171	81	23	155
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	14	201	95	27	182
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9	9.5	9.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	86%	13%
Vol Thru, %	68%	0%	87%
Vol Right, %	32%	14%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	252	87	178
LT Vol	0	75	23
Through Vol	171	0	155
RT Vol	81	12	0
Lane Flow Rate	296	102	209
Geometry Grp	1	1	1
Degree of Util (X)	0.349	0.146	0.264
Departure Headway (Hd)	4.239	5.119	4.532
Convergence, Y/N	Yes	Yes	Yes
Cap	848	699	792
Service Time	2.264	3.159	2.56
HCM Lane V/C Ratio	0.349	0.146	0.264
HCM Control Delay	9.5	9	9.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.6	0.5	1.1

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	12	0	0	8	0	0	0	0	0	0	7
Future Vol, veh/h	9	12	0	0	8	0	0	0	0	0	0	7
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	14	0	0	9	0	0	0	0	0	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	10	0	0	15	0	0	50	47	15	46	47	10
Stage 1	-	-	-	-	-	-	37	37	-	10	10	-
Stage 2	-	-	-	-	-	-	13	10	-	36	37	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1610	-	-	1603	-	-	950	845	1065	955	845	1071
Stage 1	-	-	-	-	-	-	978	864	-	1011	887	-
Stage 2	-	-	-	-	-	-	1007	887	-	980	864	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1608	-	-	1601	-	-	937	837	1064	949	837	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	937	837	-	949	837	-
Stage 1	-	-	-	-	-	-	970	857	-	1003	886	-
Stage 2	-	-	-	-	-	-	999	886	-	973	857	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.1	0	0	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1608	-	-	1601	-	-	1070
HCM Lane V/C Ratio	-	0.007	-	-	-	-	-	0.008
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

HCM 6th TWSC
3: Hembree Lane & Jensen Lane 10/19/2021

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	1	312	3	5	242
Future Vol, veh/h	7	1	312	3	5	242
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1	355	3	6	275

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	650	363	0	0	364	0
Stage 1	363	-	-	-	-	-
Stage 2	287	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	434	682	-	-	1195	-
Stage 1	704	-	-	-	-	-
Stage 2	762	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	429	678	-	-	1188	-
Mov Cap-2 Maneuver	429	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	450	1188	-
HCM Lane V/C Ratio	-	-	0.02	0.005	-
HCM Control Delay (s)	-	-	13.2	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

HCM 6th Signalized Intersection Summary
4: Hembree Lane & Old Redwood Highway 10/19/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	339	165	30	292	102	155	81	27	78	74	136
Future Volume (veh/h)	175	339	165	30	292	102	155	81	27	78	74	136
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.95	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	357	132	32	307	92	163	85	10	82	78	52
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	655	238	344	511	150	322	323	38	219	261	217
Arrive On Green	0.11	0.26	0.26	0.04	0.19	0.19	0.18	0.20	0.20	0.12	0.14	0.14
Sat Flow, veh/h	1781	2525	916	1781	2677	784	1781	1637	193	1781	1870	1554
Grp Volume(v), veh/h	184	249	240	32	201	198	163	0	95	82	78	52
Grp Sat Flow(s),veh/h/ln	1781	1777	1665	1781	1777	1684	1781	0	1830	1781	1870	1554
Q Serve(g_s), s	3.8	6.0	6.2	0.7	5.1	5.3	4.1	0.0	2.2	2.1	1.8	1.5
Cycle Q Clear(g_c), s	3.8	6.0	6.2	0.7	5.1	5.3	4.1	0.0	2.2	2.1	1.8	1.5
Prop In Lane	1.00		0.55	1.00		0.47	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	427	461	432	344	339	321	322	0	361	219	261	217
V/C Ratio(X)	0.43	0.54	0.56	0.09	0.59	0.62	0.51	0.00	0.26	0.37	0.30	0.24
Avail Cap(c_a), veh/h	769	1227	1150	700	1105	1048	722	0	1153	541	974	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	15.7	15.8	14.8	18.2	18.3	18.2	0.0	16.8	19.9	19.1	18.9
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.0	0.6	0.7	0.5	0.0	0.1	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	2.0	0.2	1.9	1.9	1.5	0.0	0.8	0.8	0.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	16.1	16.2	14.9	18.8	19.0	18.7	0.0	16.9	20.3	19.3	19.1
LnGrp LOS	B	B	B	B	B	B	B	A	B	C	B	B
Approach Vol, veh/h		673			431			258			212	
Approach Delay, s/veh		15.3			18.6			18.0			19.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	18.1	12.9	12.2	9.5	14.7	10.1	15.0
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.7	8.2	6.1	3.8	5.8	7.3	4.1	4.2
Green Ext Time (p_c), s	0.0	0.5	0.2	0.1	0.2	0.4	0.1	0.1

Intersection Summary		
HCM 6th Ctrl Delay		17.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	30	333	39	22	242
Future Vol, veh/h	100	30	333	39	22	242
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	35	387	45	26	281
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.4	13.6	11.4
HCM LOS	B	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	77%	8%
Vol Thru, %	90%	0%	92%
Vol Right, %	10%	23%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	372	130	264
LT Vol	0	100	22
Through Vol	333	0	242
RT Vol	39	30	0
Lane Flow Rate	433	151	307
Geometry Grp	1	1	1
Degree of Util (X)	0.56	0.235	0.415
Departure Headway (Hd)	4.659	5.597	4.866
Convergence, Y/N	Yes	Yes	Yes
Cap	770	635	734
Service Time	2.721	3.696	2.937
HCM Lane V/C Ratio	0.562	0.238	0.418
HCM Control Delay	13.6	10.4	11.4
HCM Lane LOS	B	B	B
HCM 95th-tile Q	3.5	0.9	2

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	10	6	0	15	0	16	0	0	0	0	11
Future Vol, veh/h	3	10	6	0	15	0	16	0	0	0	0	11
Conflicting Peds, #/hr	0	0	1	0	0	7	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	12	7	0	18	0	19	0	0	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	25	0	0	20	0	0	50	50	17	49	53	25
Stage 1	-	-	-	-	-	-	25	25	-	25	25	-
Stage 2	-	-	-	-	-	-	25	25	-	24	28	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1589	-	-	1596	-	-	950	841	1062	951	838	1051
Stage 1	-	-	-	-	-	-	993	874	-	993	874	-
Stage 2	-	-	-	-	-	-	993	874	-	994	872	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1578	-	-	1594	-	-	935	832	1061	942	829	1044
Mov Cap-2 Maneuver	-	-	-	-	-	-	935	832	-	942	829	-
Stage 1	-	-	-	-	-	-	989	871	-	983	868	-
Stage 2	-	-	-	-	-	-	981	868	-	991	869	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	8.9	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	935	1578	-	-	1594	-	-	1044
HCM Lane V/C Ratio	0.02	0.002	-	-	-	-	-	0.012
HCM Control Delay (s)	8.9	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	6	378	8	1	435
Future Vol, veh/h	11	6	378	8	1	435
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	7	445	9	1	512

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	970	456	0	0	460	0
Stage 1	456	-	-	-	-	-
Stage 2	514	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	281	604	-	-	1101	-
Stage 1	638	-	-	-	-	-
Stage 2	600	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	279	601	-	-	1095	-
Mov Cap-2 Maneuver	279	-	-	-	-	-
Stage 1	634	-	-	-	-	-
Stage 2	599	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	344	1095	-
HCM Lane V/C Ratio	-	-	0.058	0.001	-
HCM Control Delay (s)	-	-	16.1	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	365	90	43	337	171	101	79	29	215	114	147
Future Volume (veh/h)	89	365	90	43	337	171	101	79	29	215	114	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	429	68	51	396	160	119	93	20	253	134	80
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	359	783	123	363	555	221	279	232	50	310	327	272
Arrive On Green	0.09	0.26	0.26	0.06	0.23	0.23	0.16	0.16	0.16	0.17	0.17	0.17
Sat Flow, veh/h	1781	3058	481	1781	2451	975	1781	1478	318	1781	1870	1556
Grp Volume(v), veh/h	105	248	249	51	285	271	119	0	113	253	134	80
Grp Sat Flow(s),veh/h/ln	1781	1777	1762	1781	1777	1648	1781	0	1796	1781	1870	1556
Q Serve(g_s), s	2.3	6.4	6.5	1.1	7.8	8.0	3.2	0.0	3.0	7.2	3.4	2.4
Cycle Q Clear(g_c), s	2.3	6.4	6.5	1.1	7.8	8.0	3.2	0.0	3.0	7.2	3.4	2.4
Prop In Lane	1.00		0.27	1.00		0.59	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	359	455	451	363	403	374	279	0	282	310	327	272
V/C Ratio(X)	0.29	0.54	0.55	0.14	0.71	0.72	0.43	0.00	0.40	0.82	0.41	0.29
Avail Cap(c_a), veh/h	707	1150	1140	662	1035	960	676	0	1060	507	912	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	16.9	17.0	14.1	18.8	18.9	20.1	0.0	20.0	21.0	19.3	18.9
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.1	0.9	1.0	0.4	0.0	0.3	2.0	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.3	2.3	0.4	2.9	2.8	1.2	0.0	1.1	2.8	1.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	17.3	17.4	14.1	19.6	19.9	20.5	0.0	20.3	23.0	19.6	19.1
LnGrp LOS	B	B	B	B	B	B	C	A	C	C	B	B
Approach Vol, veh/h		602			607			232			467	
Approach Delay, s/veh		16.8			19.3			20.4			21.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	18.8	12.2	14.5	8.7	17.2	13.2	13.6
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.1	8.5	5.2	5.4	4.3	10.0	9.2	5.0
Green Ext Time (p_c), s	0.0	0.5	0.1	0.2	0.1	0.6	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	83	15	171	95	27	155
Future Vol, veh/h	83	15	171	95	27	155
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	18	201	112	32	182
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.2	9.8	9.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	85%	15%
Vol Thru, %	64%	0%	85%
Vol Right, %	36%	15%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	266	98	182
LT Vol	0	83	27
Through Vol	171	0	155
RT Vol	95	15	0
Lane Flow Rate	313	115	214
Geometry Grp	1	1	1
Degree of Util (X)	0.371	0.165	0.273
Departure Headway (Hd)	4.264	5.154	4.593
Convergence, Y/N	Yes	Yes	Yes
Cap	845	694	782
Service Time	2.291	3.201	2.624
HCM Lane V/C Ratio	0.37	0.166	0.274
HCM Control Delay	9.8	9.2	9.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.7	0.6	1.1

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	12	18	0	8	0	11	0	0	0	0	7
Future Vol, veh/h	9	12	18	0	8	0	11	0	0	0	0	7
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	14	21	0	9	0	13	0	0	0	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	10	0	0	36	0	0	61	58	26	57	68	10
Stage 1	-	-	-	-	-	-	48	48	-	10	10	-
Stage 2	-	-	-	-	-	-	13	10	-	47	58	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1610	-	-	1575	-	-	934	833	1050	940	823	1071
Stage 1	-	-	-	-	-	-	965	855	-	1011	887	-
Stage 2	-	-	-	-	-	-	1007	887	-	967	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1608	-	-	1574	-	-	921	826	1049	934	816	1070
Mov Cap-2 Maneuver	-	-	-	-	-	-	921	826	-	934	816	-
Stage 1	-	-	-	-	-	-	957	848	-	1003	886	-
Stage 2	-	-	-	-	-	-	999	886	-	960	840	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.7	0	9	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	921	1608	-	-	1574	-	-	1070
HCM Lane V/C Ratio	0.014	0.007	-	-	-	-	-	0.008
HCM Control Delay (s)	9	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	1	326	3	5	250
Future Vol, veh/h	7	1	326	3	5	250
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	1	370	3	6	284

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	674	378	0	0	379	0
Stage 1	378	-	-	-	-	-
Stage 2	296	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	420	669	-	-	1179	-
Stage 1	693	-	-	-	-	-
Stage 2	755	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	415	665	-	-	1172	-
Mov Cap-2 Maneuver	415	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	750	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 435	1172	-
HCM Lane V/C Ratio	-	- 0.021	0.005	-
HCM Control Delay (s)	-	- 13.5	8.1	0
HCM Lane LOS	-	- B	A	A
HCM 95th %tile Q(veh)	-	- 0.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	339	165	30	292	107	155	84	27	81	76	139
Future Volume (veh/h)	180	339	165	30	292	107	155	84	27	81	76	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		0.95	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	357	132	32	307	98	163	88	10	85	80	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	427	659	239	345	501	156	322	320	36	223	261	217
Arrive On Green	0.11	0.26	0.26	0.04	0.19	0.19	0.18	0.19	0.19	0.13	0.14	0.14
Sat Flow, veh/h	1781	2526	916	1781	2632	820	1781	1644	187	1781	1870	1554
Grp Volume(v), veh/h	189	249	240	32	205	200	163	0	98	85	80	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1665	1781	1777	1676	1781	0	1831	1781	1870	1554
Q Serve(g_s), s	3.9	6.0	6.2	0.7	5.2	5.4	4.1	0.0	2.3	2.2	1.9	1.6
Cycle Q Clear(g_c), s	3.9	6.0	6.2	0.7	5.2	5.4	4.1	0.0	2.3	2.2	1.9	1.6
Prop In Lane	1.00		0.55	1.00		0.49	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	427	464	434	345	338	319	322	0	357	223	261	217
V/C Ratio(X)	0.44	0.54	0.55	0.09	0.61	0.63	0.51	0.00	0.27	0.38	0.31	0.25
Avail Cap(c_a), veh/h	764	1224	1147	700	1102	1039	720	0	1150	540	971	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	15.7	15.8	14.9	18.3	18.4	18.3	0.0	17.0	19.9	19.1	19.0
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.0	0.7	0.8	0.5	0.0	0.2	0.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	2.0	0.2	1.9	1.9	1.5	0.0	0.8	0.8	0.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	16.1	16.2	14.9	19.0	19.2	18.8	0.0	17.1	20.3	19.4	19.2
LnGrp LOS	B	B	B	B	B	B	B	A	B	C	B	B
Approach Vol, veh/h		678			437			261			220	
Approach Delay, s/veh		15.3			18.8			18.1			19.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	18.2	12.9	12.2	9.6	14.7	10.2	14.9
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.7	8.2	6.1	3.9	5.9	7.4	4.2	4.3
Green Ext Time (p_c), s	0.0	0.5	0.2	0.1	0.2	0.4	0.1	0.1

Intersection Summary		
HCM 6th Ctrl Delay		17.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	15.7
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	119	45	384	41	27	279
Future Vol, veh/h	119	45	384	41	27	279
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	140	53	452	48	32	328
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.9	18.5	13.9
HCM LOS	B	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	73%	9%
Vol Thru, %	90%	0%	91%
Vol Right, %	10%	27%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	425	164	306
LT Vol	0	119	27
Through Vol	384	0	279
RT Vol	41	45	0
Lane Flow Rate	500	193	360
Geometry Grp	1	1	1
Degree of Util (X)	0.693	0.322	0.523
Departure Headway (Hd)	4.989	6	5.227
Convergence, Y/N	Yes	Yes	Yes
Cap	725	598	691
Service Time	3.018	4.042	3.26
HCM Lane V/C Ratio	0.69	0.323	0.521
HCM Control Delay	18.5	11.9	13.9
HCM Lane LOS	C	B	B
HCM 95th-tile Q	5.6	1.4	3.1

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	16	0	0	31	0	0	0	0	0	0	13
Future Vol, veh/h	3	16	0	0	31	0	0	0	0	0	0	13
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	19	0	0	36	0	0	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	20	0	0	72	65	20	64	65	37
Stage 1	-	-	-	-	-	-	28	28	-	37	37	-
Stage 2	-	-	-	-	-	-	44	37	-	27	28	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1574	-	-	1596	-	-	919	826	1058	930	826	1035
Stage 1	-	-	-	-	-	-	989	872	-	978	864	-
Stage 2	-	-	-	-	-	-	970	864	-	990	872	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1573	-	-	1594	-	-	902	822	1057	927	822	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	902	822	-	927	822	-
Stage 1	-	-	-	-	-	-	985	869	-	974	863	-
Stage 2	-	-	-	-	-	-	956	863	-	987	869	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	0	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1573	-	-	1594	-	-	1034
HCM Lane V/C Ratio	-	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

HCM 6th TWSC
3: Hembree Lane & Jensen Lane 10/19/2021

Intersection	
Int Delay, s/veh	5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	37	430	41	12	488
Future Vol, veh/h	108	37	430	41	12	488
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	42	489	47	14	555

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1102	519	0	0	542	0
Stage 1	519	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	234	557	-	-	1027	-
Stage 1	597	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	228	554	-	-	1021	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	547	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.7	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	268	1021	-
HCM Lane V/C Ratio	-	-	0.615	0.013	-
HCM Control Delay (s)	-	-	37.7	8.6	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	3.7	0	-

HCM 6th Signalized Intersection Summary
4: Hembree Lane & Old Redwood Highway 10/19/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	475	110	51	478	233	116	90	33	273	141	219
Future Volume (veh/h)	131	475	110	51	478	233	116	90	33	273	141	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	540	80	58	543	249	132	102	19	310	160	151
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	319	959	142	356	659	301	258	193	36	359	344	286
Arrive On Green	0.09	0.31	0.31	0.06	0.28	0.28	0.14	0.13	0.13	0.20	0.18	0.18
Sat Flow, veh/h	1781	3090	456	1781	2337	1068	1781	1524	284	1781	1870	1556
Grp Volume(v), veh/h	149	310	310	58	412	380	132	0	121	310	160	151
Grp Sat Flow(s),veh/h/ln	1781	1777	1769	1781	1777	1629	1781	0	1808	1781	1870	1556
Q Serve(g_s), s	3.6	9.0	9.1	1.4	13.4	13.5	4.2	0.0	3.9	10.4	4.7	5.4
Cycle Q Clear(g_c), s	3.6	9.0	9.1	1.4	13.4	13.5	4.2	0.0	3.9	10.4	4.7	5.4
Prop In Lane	1.00		0.26	1.00		0.66	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	319	551	549	356	501	459	258	0	229	359	344	286
V/C Ratio(X)	0.47	0.56	0.57	0.16	0.82	0.83	0.51	0.00	0.53	0.86	0.47	0.53
Avail Cap(c_a), veh/h	591	977	973	592	880	807	575	0	907	431	775	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	17.9	17.9	14.3	20.8	20.8	24.5	0.0	25.3	23.9	22.6	22.9
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	1.3	1.5	0.6	0.0	0.7	12.6	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.3	3.4	0.5	5.1	4.8	1.7	0.0	1.6	5.2	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	18.2	18.2	14.4	22.1	22.3	25.1	0.0	26.0	36.6	22.9	23.4
LnGrp LOS	B	B	B	B	C	C	C	A	C	D	C	C
Approach Vol, veh/h		769			850			253			621	
Approach Delay, s/veh		17.7			21.7			25.5			29.9	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	24.5	13.0	16.7	9.5	22.8	16.5	13.2
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.4	11.1	6.2	7.4	5.6	15.5	12.4	5.9
Green Ext Time (p_c), s	0.0	0.6	0.1	0.4	0.1	0.9	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th AWSC
1: Hembree Lane & Vinecrest Road 10/19/2021

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	87	23	197	109	42	190
Future Vol, veh/h	87	23	197	109	42	190
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	27	232	128	49	224
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.7	10.8	10.4
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	79%	18%
Vol Thru, %	64%	0%	82%
Vol Right, %	36%	21%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	306	110	232
LT Vol	0	87	42
Through Vol	197	0	190
RT Vol	109	23	0
Lane Flow Rate	360	129	273
Geometry Grp	1	1	1
Degree of Util (X)	0.438	0.192	0.357
Departure Headway (Hd)	4.383	5.347	4.704
Convergence, Y/N	Yes	Yes	Yes
Cap	821	666	762
Service Time	2.424	3.413	2.75
HCM Lane V/C Ratio	0.438	0.194	0.358
HCM Control Delay	10.8	9.7	10.4
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.2	0.7	1.6

HCM 6th TWSC
2: Vinecrest Circle & Vinecrest Road 10/19/2021

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	30	0	0	19	0	0	0	0	0	0	8
Future Vol, veh/h	10	30	0	0	19	0	0	0	0	0	0	8
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	35	0	0	22	0	0	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	36	0	0	87	83	36	82	83	23
Stage 1	-	-	-	-	-	-	60	60	-	23	23	-
Stage 2	-	-	-	-	-	-	27	23	-	59	60	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1575	-	-	899	807	1037	905	807	1054
Stage 1	-	-	-	-	-	-	951	845	-	995	876	-
Stage 2	-	-	-	-	-	-	990	876	-	953	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1590	-	-	1574	-	-	885	799	1036	899	799	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	885	799	-	899	799	-
Stage 1	-	-	-	-	-	-	942	837	-	986	875	-
Stage 2	-	-	-	-	-	-	981	875	-	945	837	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0	0	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1590	-	-	1574	-	-	1053
HCM Lane V/C Ratio	-	0.007	-	-	-	-	-	0.009
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	22	360	113	40	279
Future Vol, veh/h	72	22	360	113	40	279
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	25	409	128	45	317

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	886	479	0	0	543	0
Stage 1	479	-	-	-	-	-
Stage 2	407	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	315	587	-	-	1026	-
Stage 1	623	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	296	584	-	-	1020	-
Mov Cap-2 Maneuver	296	-	-	-	-	-
Stage 1	619	-	-	-	-	-
Stage 2	636	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 335	1020	-
HCM Lane V/C Ratio	-	- 0.319	0.045	-
HCM Control Delay (s)	-	- 20.7	8.7	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 1.3	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	564	197	37	392	182	179	110	33	153	103	199
Future Volume (veh/h)	273	564	197	37	392	182	179	110	33	153	103	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	287	594	165	39	413	177	188	116	17	161	108	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	451	910	252	317	558	236	297	229	34	260	230	191
Arrive On Green	0.15	0.33	0.33	0.05	0.23	0.23	0.17	0.14	0.14	0.15	0.12	0.12
Sat Flow, veh/h	1781	2726	755	1781	2399	1014	1781	1587	233	1781	1870	1552
Grp Volume(v), veh/h	287	387	372	39	304	286	188	0	133	161	108	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1704	1781	1777	1636	1781	0	1820	1781	1870	1552
Q Serve(g_s), s	6.4	10.5	10.6	0.9	9.0	9.2	5.6	0.0	3.8	4.8	3.1	4.1
Cycle Q Clear(g_c), s	6.4	10.5	10.6	0.9	9.0	9.2	5.6	0.0	3.8	4.8	3.1	4.1
Prop In Lane	1.00		0.44	1.00		0.62	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	451	593	569	317	413	380	297	0	263	260	230	191
V/C Ratio(X)	0.64	0.65	0.65	0.12	0.74	0.75	0.63	0.00	0.51	0.62	0.47	0.62
Avail Cap(c_a), veh/h	655	1067	1023	607	960	884	627	0	997	470	846	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	16.1	16.1	15.2	20.2	20.3	22.0	0.0	22.4	22.8	23.2	23.6
Incr Delay (d2), s/veh	0.6	0.5	0.5	0.1	1.0	1.1	0.8	0.0	0.6	0.9	0.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.7	3.6	0.3	3.4	3.2	2.2	0.0	1.5	1.9	1.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	16.6	16.6	15.3	21.2	21.4	22.9	0.0	23.0	23.7	23.7	24.8
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		1046			629			321			387	
Approach Delay, s/veh		15.8			20.9			22.9			24.0	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.3	13.5	12.3	12.5	18.5	12.3	13.5
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.9	12.6	7.6	6.1	8.4	11.2	6.8	5.8
Green Ext Time (p_c), s	0.0	0.8	0.2	0.3	0.2	0.7	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	115	48	384	39	28	279
Future Vol, veh/h	115	48	384	39	28	279
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	56	452	46	33	328
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	18.4	13.9
HCM LOS	B	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	71%	9%
Vol Thru, %	91%	0%	91%
Vol Right, %	9%	29%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	423	163	307
LT Vol	0	115	28
Through Vol	384	0	279
RT Vol	39	48	0
Lane Flow Rate	498	192	361
Geometry Grp	1	1	1
Degree of Util (X)	0.689	0.319	0.524
Departure Headway (Hd)	4.986	5.98	5.218
Convergence, Y/N	Yes	Yes	Yes
Cap	727	600	690
Service Time	3.015	4.021	3.249
HCM Lane V/C Ratio	0.685	0.32	0.523
HCM Control Delay	18.4	11.8	13.9
HCM Lane LOS	C	B	B
HCM 95th-tile Q	5.5	1.4	3.1

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	15	0	0	30	0	0	0	0	0	0	13
Future Vol, veh/h	3	15	0	0	30	0	0	0	0	0	0	13
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	18	0	0	35	0	0	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	36	0	0	19	0	0	70	63	19	62	63	36
Stage 1	-	-	-	-	-	-	27	27	-	36	36	-
Stage 2	-	-	-	-	-	-	43	36	-	26	27	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1575	-	-	1597	-	-	922	828	1059	933	828	1037
Stage 1	-	-	-	-	-	-	990	873	-	980	865	-
Stage 2	-	-	-	-	-	-	971	865	-	992	873	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1574	-	-	1595	-	-	905	824	1058	930	824	1036
Mov Cap-2 Maneuver	-	-	-	-	-	-	905	824	-	930	824	-
Stage 1	-	-	-	-	-	-	986	870	-	976	864	-
Stage 2	-	-	-	-	-	-	957	864	-	989	870	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	0	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1574	-	-	1595	-	-	1036
HCM Lane V/C Ratio	-	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	3.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	93	34	430	36	11	488
Future Vol, veh/h	93	34	430	36	11	488
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	39	489	41	13	555

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1097	516	0	0	536	0
Stage 1	516	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	236	559	-	-	1032	-
Stage 1	599	-	-	-	-	-
Stage 2	559	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	230	556	-	-	1026	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.1	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	1026	-
HCM Lane V/C Ratio	-	-	0.529	0.012	-
HCM Control Delay (s)	-	-	32.1	8.6	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	475	110	51	478	226	116	90	33	254	141	219
Future Volume (veh/h)	131	475	110	51	478	226	116	90	33	254	141	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	149	540	80	58	543	241	132	102	19	289	160	151
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	959	141	360	664	294	262	198	37	340	324	269
Arrive On Green	0.09	0.31	0.31	0.06	0.28	0.28	0.15	0.13	0.13	0.19	0.17	0.17
Sat Flow, veh/h	1781	3090	456	1781	2365	1046	1781	1524	284	1781	1870	1556
Grp Volume(v), veh/h	149	310	310	58	408	376	132	0	121	289	160	151
Grp Sat Flow(s),veh/h/ln	1781	1777	1769	1781	1777	1634	1781	0	1808	1781	1870	1556
Q Serve(g_s), s	3.5	8.8	8.9	1.3	12.9	13.0	4.1	0.0	3.8	9.5	4.7	5.4
Cycle Q Clear(g_c), s	3.5	8.8	8.9	1.3	12.9	13.0	4.1	0.0	3.8	9.5	4.7	5.4
Prop In Lane	1.00		0.26	1.00		0.64	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	326	551	549	360	499	459	262	0	234	340	324	269
V/C Ratio(X)	0.46	0.56	0.57	0.16	0.82	0.82	0.50	0.00	0.52	0.85	0.49	0.56
Avail Cap(c_a), veh/h	606	1002	998	603	902	829	589	0	930	442	795	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	17.4	17.4	14.0	20.3	20.3	23.7	0.0	24.6	23.6	22.6	22.9
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	1.3	1.4	0.6	0.0	0.7	9.6	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.2	3.3	0.5	4.9	4.6	1.6	0.0	1.5	4.4	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	17.8	17.8	14.0	21.6	21.7	24.3	0.0	25.2	33.2	23.0	23.6
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		769			842			253			600	
Approach Delay, s/veh		17.3			21.1			24.7			28.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	24.1	12.9	15.8	9.5	22.3	15.5	13.1
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.3	10.9	6.1	7.4	5.5	15.0	11.5	5.8
Green Ext Time (p_c), s	0.0	0.6	0.1	0.4	0.1	0.9	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	86	25	197	104	46	186
Future Vol, veh/h	86	25	197	104	46	186
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	29	232	122	54	219
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.7	10.8	10.4
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	77%	20%
Vol Thru, %	65%	0%	80%
Vol Right, %	35%	23%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	301	111	232
LT Vol	0	86	46
Through Vol	197	0	186
RT Vol	104	25	0
Lane Flow Rate	354	131	273
Geometry Grp	1	1	1
Degree of Util (X)	0.432	0.193	0.357
Departure Headway (Hd)	4.392	5.324	4.704
Convergence, Y/N	Yes	Yes	Yes
Cap	818	670	762
Service Time	2.433	3.39	2.75
HCM Lane V/C Ratio	0.433	0.196	0.358
HCM Control Delay	10.8	9.7	10.4
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.2	0.7	1.6

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	28	0	0	18	0	0	0	0	0	0	8
Future Vol, veh/h	10	28	0	0	18	0	0	0	0	0	0	8
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	33	0	0	21	0	0	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	34	0	0	84	80	34	79	80	22
Stage 1	-	-	-	-	-	-	58	58	-	22	22	-
Stage 2	-	-	-	-	-	-	26	22	-	57	58	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1593	-	-	1578	-	-	903	810	1039	910	810	1055
Stage 1	-	-	-	-	-	-	954	847	-	996	877	-
Stage 2	-	-	-	-	-	-	992	877	-	955	847	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1591	-	-	1576	-	-	889	802	1038	904	802	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	889	802	-	904	802	-
Stage 1	-	-	-	-	-	-	945	839	-	987	876	-
Stage 2	-	-	-	-	-	-	983	876	-	947	839	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	0	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1591	-	-	1576	-	-	1054
HCM Lane V/C Ratio	-	0.007	-	-	-	-	-	0.009
HCM Control Delay (s)	0	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	20	360	96	36	279
Future Vol, veh/h	62	20	360	96	36	279
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	23	409	109	41	317

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	869	470	0	0	524	0
Stage 1	470	-	-	-	-	-
Stage 2	399	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	322	594	-	-	1043	-
Stage 1	629	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	305	591	-	-	1037	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	625	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	346	1037	-
HCM Lane V/C Ratio	-	-	0.269	0.039	-
HCM Control Delay (s)	-	-	19.2	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	564	197	37	392	160	179	110	33	140	103	199
Future Volume (veh/h)	273	564	197	37	392	160	179	110	33	140	103	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	287	594	165	39	413	153	188	116	17	147	108	118
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	457	894	248	313	567	207	300	236	35	256	233	193
Arrive On Green	0.15	0.33	0.33	0.05	0.23	0.23	0.17	0.15	0.15	0.14	0.12	0.12
Sat Flow, veh/h	1781	2726	755	1781	2515	919	1781	1588	233	1781	1870	1552
Grp Volume(v), veh/h	287	387	372	39	290	276	188	0	133	147	108	118
Grp Sat Flow(s),veh/h/ln	1781	1777	1704	1781	1777	1657	1781	0	1820	1781	1870	1552
Q Serve(g_s), s	6.4	10.5	10.6	0.9	8.5	8.7	5.5	0.0	3.8	4.3	3.0	4.1
Cycle Q Clear(g_c), s	6.4	10.5	10.6	0.9	8.5	8.7	5.5	0.0	3.8	4.3	3.0	4.1
Prop In Lane	1.00		0.44	1.00		0.55	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	457	583	559	313	401	374	300	0	271	256	233	193
V/C Ratio(X)	0.63	0.66	0.67	0.12	0.72	0.74	0.63	0.00	0.49	0.57	0.46	0.61
Avail Cap(c_a), veh/h	663	1077	1033	607	970	904	633	0	1006	475	855	709
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	16.2	16.3	15.4	20.2	20.2	21.7	0.0	22.0	22.5	22.9	23.3
Incr Delay (d2), s/veh	0.5	0.5	0.5	0.1	0.9	1.1	0.8	0.0	0.5	0.8	0.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.7	3.6	0.3	3.2	3.1	2.1	0.0	1.5	1.7	1.2	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	16.7	16.8	15.4	21.1	21.3	22.6	0.0	22.5	23.2	23.4	24.5
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		1046			605			321			373	
Approach Delay, s/veh		15.9			20.8			22.5			23.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	23.7	13.5	12.3	12.5	18.0	12.1	13.7
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.9	12.6	7.5	6.1	8.4	10.7	6.3	5.8
Green Ext Time (p_c), s	0.0	0.8	0.2	0.3	0.2	0.6	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	131	49	384	46	28	279
Future Vol, veh/h	131	49	384	46	28	279
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	58	452	54	33	328
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.4	19.6	14.3
HCM LOS	B	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	73%	9%
Vol Thru, %	89%	0%	91%
Vol Right, %	11%	27%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	430	180	307
LT Vol	0	131	28
Through Vol	384	0	279
RT Vol	46	49	0
Lane Flow Rate	506	212	361
Geometry Grp	1	1	1
Degree of Util (X)	0.711	0.355	0.533
Departure Headway (Hd)	5.062	6.042	5.317
Convergence, Y/N	Yes	Yes	Yes
Cap	713	595	679
Service Time	3.094	4.087	3.353
HCM Lane V/C Ratio	0.71	0.356	0.532
HCM Control Delay	19.6	12.4	14.3
HCM Lane LOS	C	B	B
HCM 95th-tile Q	6	1.6	3.2

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	16	6	0	31	0	16	0	0	0	0	13
Future Vol, veh/h	3	16	6	0	31	0	16	0	0	0	0	13
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	19	7	0	36	0	19	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	37	0	0	27	0	0	76	69	24	68	72	37
Stage 1	-	-	-	-	-	-	32	32	-	37	37	-
Stage 2	-	-	-	-	-	-	44	37	-	31	35	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1574	-	-	1587	-	-	914	822	1052	925	818	1035
Stage 1	-	-	-	-	-	-	984	868	-	978	864	-
Stage 2	-	-	-	-	-	-	970	864	-	986	866	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1573	-	-	1585	-	-	898	818	1051	922	814	1034
Mov Cap-2 Maneuver	-	-	-	-	-	-	898	818	-	922	814	-
Stage 1	-	-	-	-	-	-	980	865	-	974	863	-
Stage 2	-	-	-	-	-	-	956	863	-	983	863	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	9.1	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	898	1573	-	-	1585	-	-	1034
HCM Lane V/C Ratio	0.021	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

HCM 6th Roundabout
2: Vinecrest Circle & Vinecrest Road

10/29/2021

Intersection	
Intersection Delay, s/veh	2.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	29	36	19	15
Demand Flow Rate, veh/h	29	37	19	15
Vehicles Circulating, veh/h	0	23	23	56
Vehicles Exiting, veh/h	71	19	6	4
Ped Vol Crossing Leg, #/h	0	0	1	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	2.8	2.9	2.8	2.9
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	29	37	19	15
Cap Entry Lane, veh/h	1380	1348	1348	1303
Entry HV Adj Factor	0.987	0.980	1.000	1.000
Flow Entry, veh/h	29	36	19	15
Cap Entry, veh/h	1362	1321	1348	1303
V/C Ratio	0.021	0.027	0.014	0.012
Control Delay, s/veh	2.8	2.9	2.8	2.9
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 6th TWSC
3: Hembree Lane & Jensen Lane

04/13/2022

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	37	435	41	12	500
Future Vol, veh/h	108	37	435	41	12	500
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	123	42	494	47	14	568

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1120	524	0	0	547	0
Stage 1	524	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	228	553	-	-	1022	-
Stage 1	594	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	222	550	-	-	1016	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	590	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	39.5	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	262	1016	-
HCM Lane V/C Ratio	-	-	0.629	0.013	-
HCM Control Delay (s)	-	-	39.5	8.6	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	3.9	0	-

HCM 6th Signalized Intersection Summary
4: Hembree Lane & Old Redwood Highway

04/13/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	475	110	51	478	235	116	91	33	277	144	224
Future Volume (veh/h)	133	475	110	51	478	235	116	91	33	277	144	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	540	80	58	543	251	132	103	19	315	164	157
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	960	142	355	658	303	257	192	36	364	348	290
Arrive On Green	0.09	0.31	0.31	0.06	0.28	0.28	0.14	0.13	0.13	0.20	0.19	0.19
Sat Flow, veh/h	1781	3090	456	1781	2331	1074	1781	1527	282	1781	1870	1557
Grp Volume(v), veh/h	151	310	310	58	414	380	132	0	122	315	164	157
Grp Sat Flow(s),veh/h/ln	1781	1777	1769	1781	1777	1627	1781	0	1809	1781	1870	1557
Q Serve(g_s), s	3.6	9.1	9.2	1.4	13.6	13.7	4.3	0.0	3.9	10.7	4.9	5.7
Cycle Q Clear(g_c), s	3.6	9.1	9.2	1.4	13.6	13.7	4.3	0.0	3.9	10.7	4.9	5.7
Prop In Lane	1.00		0.26	1.00		0.66	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	318	552	550	355	502	460	257	0	228	364	348	290
V/C Ratio(X)	0.48	0.56	0.56	0.16	0.82	0.83	0.51	0.00	0.54	0.87	0.47	0.54
Avail Cap(c_a), veh/h	587	971	967	589	874	801	571	0	902	428	771	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	18.0	18.0	14.4	20.9	21.0	24.7	0.0	25.5	24.0	22.6	23.0
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	1.3	1.5	0.6	0.0	0.7	13.4	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.4	3.4	0.5	5.2	4.8	1.7	0.0	1.6	5.4	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	18.3	18.3	14.5	22.3	22.4	25.3	0.0	26.3	37.4	23.0	23.6
LnGrp LOS	B	B	B	B	C	C	C	A	C	D	C	C
Approach Vol, veh/h		771			852			254			636	
Approach Delay, s/veh		17.8			21.8			25.8			30.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	24.7	13.0	16.9	9.6	22.9	16.7	13.2
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.4	11.2	6.3	7.7	5.6	15.7	12.7	5.9
Green Ext Time (p_c), s	0.0	0.6	0.1	0.4	0.1	0.9	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th AWSC
1: Hembree Lane & Vinecrest Road

10/19/2021

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	95	26	197	123	46	190
Future Vol, veh/h	95	26	197	123	46	190
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	112	31	232	145	54	224
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.9	11.2	10.6
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	79%	19%
Vol Thru, %	62%	0%	81%
Vol Right, %	38%	21%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	320	121	236
LT Vol	0	95	46
Through Vol	197	0	190
RT Vol	123	26	0
Lane Flow Rate	376	142	278
Geometry Grp	1	1	1
Degree of Util (X)	0.462	0.213	0.368
Departure Headway (Hd)	4.415	5.392	4.766
Convergence, Y/N	Yes	Yes	Yes
Cap	813	661	752
Service Time	2.462	3.468	2.82
HCM Lane V/C Ratio	0.462	0.215	0.37
HCM Control Delay	11.2	9.9	10.6
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.5	0.8	1.7

HCM 6th TWSC
2: Vinecrest Circle & Vinecrest Road 10/19/2021

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	30	18	0	19	0	11	0	0	0	0	8
Future Vol, veh/h	10	30	18	0	19	0	11	0	0	0	0	8
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	35	21	0	22	0	13	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	23	0	0	57	0	0	98	94	47	93	104	23
Stage 1	-	-	-	-	-	-	71	71	-	23	23	-
Stage 2	-	-	-	-	-	-	27	23	-	70	81	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1592	-	-	1547	-	-	884	796	1022	891	786	1054
Stage 1	-	-	-	-	-	-	939	836	-	995	876	-
Stage 2	-	-	-	-	-	-	990	876	-	940	828	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1590	-	-	1546	-	-	870	788	1021	885	778	1053
Mov Cap-2 Maneuver	-	-	-	-	-	-	870	788	-	885	778	-
Stage 1	-	-	-	-	-	-	931	828	-	986	875	-
Stage 2	-	-	-	-	-	-	981	875	-	932	821	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	0	9.2	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	870	1590	-	-	1546	-	-	1053
HCM Lane V/C Ratio	0.015	0.007	-	-	-	-	-	0.009
HCM Control Delay (s)	9.2	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

HCM 6th Roundabout
2: Vinecrest Circle & Vinecrest Road 10/29/2021

Intersection	
Intersection Delay, s/veh	2.9
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	68	22	13	9
Demand Flow Rate, veh/h	69	22	13	9
Vehicles Circulating, veh/h	0	25	48	35
Vehicles Exiting, veh/h	44	36	21	12
Ped Vol Crossing Leg, #/h	0	0	1	1
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	3.0	2.9	2.8	2.8
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	69	22	13	9
Cap Entry Lane, veh/h	1380	1345	1314	1331
Entry HV Adj Factor	0.990	0.980	1.000	1.000
Flow Entry, veh/h	68	22	13	9
Cap Entry, veh/h	1366	1319	1314	1331
V/C Ratio	0.050	0.016	0.010	0.007
Control Delay, s/veh	3.0	2.9	2.8	2.8
LOS	A	A	A	A
95th %tile Queue, veh	0	0	0	0

HCM 6th TWSC
3: Hembree Lane & Jensen Lane 10/19/2021

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	22	374	113	40	287
Future Vol, veh/h	72	22	374	113	40	287
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	25	425	128	45	326

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	911	495	0	0	559	0
Stage 1	495	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	304	575	-	-	1012	-
Stage 1	613	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	285	572	-	-	1006	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	323	1006	-
HCM Lane V/C Ratio	-	-	0.331	0.045	-
HCM Control Delay (s)	-	-	21.6	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1	-

HCM 6th Signalized Intersection Summary
4: Hembree Lane & Old Redwood Highway 10/19/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	564	197	37	392	187	179	113	33	156	105	202
Future Volume (veh/h)	278	564	197	37	392	187	179	113	33	156	105	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	293	594	165	39	413	182	188	119	17	164	111	122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	454	919	255	319	556	241	296	228	33	260	229	190
Arrive On Green	0.15	0.34	0.34	0.05	0.23	0.23	0.17	0.14	0.14	0.15	0.12	0.12
Sat Flow, veh/h	1781	2726	755	1781	2377	1032	1781	1593	228	1781	1870	1552
Grp Volume(v), veh/h	293	387	372	39	307	288	188	0	136	164	111	122
Grp Sat Flow(s),veh/h/ln	1781	1777	1704	1781	1777	1632	1781	0	1821	1781	1870	1552
Q Serve(g_s), s	6.5	10.5	10.6	0.9	9.2	9.4	5.6	0.0	4.0	4.9	3.2	4.3
Cycle Q Clear(g_c), s	6.5	10.5	10.6	0.9	9.2	9.4	5.6	0.0	4.0	4.9	3.2	4.3
Prop In Lane	1.00		0.44	1.00		0.63	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	454	599	575	319	415	382	296	0	260	260	229	190
V/C Ratio(X)	0.65	0.65	0.65	0.12	0.74	0.75	0.64	0.00	0.52	0.63	0.48	0.64
Avail Cap(c_a), veh/h	651	1061	1017	607	955	877	624	0	991	468	841	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	16.0	16.1	15.2	20.3	20.4	22.2	0.0	22.7	23.0	23.4	23.9
Incr Delay (d2), s/veh	0.6	0.4	0.5	0.1	1.0	1.1	0.8	0.0	0.6	0.9	0.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.7	3.6	0.3	3.5	3.3	2.2	0.0	1.6	1.9	1.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	16.5	16.5	15.3	21.3	21.5	23.0	0.0	23.3	23.9	24.0	25.2
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		1052			634			324			397	
Approach Delay, s/veh		15.7			21.0			23.2			24.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	24.6	13.5	12.3	12.7	18.7	12.3	13.5
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.9	12.6	7.6	6.3	8.5	11.4	6.9	6.0
Green Ext Time (p_c), s	0.0	0.8	0.2	0.3	0.3	0.7	0.1	0.1

Intersection Summary		
HCM 6th Ctrl Delay		19.5
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	123	52	384	42	29	279
Future Vol, veh/h	123	52	384	42	29	279
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	61	452	49	34	328
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.2	19.1	14.2
HCM LOS	B	C	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	70%	9%
Vol Thru, %	90%	0%	91%
Vol Right, %	10%	30%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	426	175	308
LT Vol	0	123	29
Through Vol	384	0	279
RT Vol	42	52	0
Lane Flow Rate	501	206	362
Geometry Grp	1	1	1
Degree of Util (X)	0.702	0.343	0.532
Departure Headway (Hd)	5.041	6.006	5.283
Convergence, Y/N	Yes	Yes	Yes
Cap	717	597	681
Service Time	3.072	4.051	3.317
HCM Lane V/C Ratio	0.699	0.345	0.532
HCM Control Delay	19.1	12.2	14.2
HCM Lane LOS	C	B	B
HCM 95th-tile Q	5.8	1.5	3.2

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	15	4	0	30	0	12	0	0	0	0	13
Future Vol, veh/h	3	15	4	0	30	0	12	0	0	0	0	13
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	18	5	0	35	0	14	0	0	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	36	0	0	24	0	0	73	66	22	65	68	36
Stage 1	-	-	-	-	-	-	30	30	-	36	36	-
Stage 2	-	-	-	-	-	-	43	36	-	29	32	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1575	-	-	1591	-	-	918	825	1055	929	823	1037
Stage 1	-	-	-	-	-	-	987	870	-	980	865	-
Stage 2	-	-	-	-	-	-	971	865	-	988	868	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1574	-	-	1589	-	-	901	821	1054	926	819	1036
Mov Cap-2 Maneuver	-	-	-	-	-	-	901	821	-	926	819	-
Stage 1	-	-	-	-	-	-	983	867	-	976	864	-
Stage 2	-	-	-	-	-	-	957	864	-	985	865	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0	9.1	8.5
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	901	1574	-	-	1589	-	-	1036
HCM Lane V/C Ratio	0.016	0.002	-	-	-	-	-	0.015
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	8.5
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	96	34	433	37	11	496
Future Vol, veh/h	96	34	433	37	11	496
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	109	39	492	42	13	564

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1109	519	0	0	540	0
Stage 1	519	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	232	557	-	-	1028	-
Stage 1	597	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	226	554	-	-	1022	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	543	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	267	1022	-
HCM Lane V/C Ratio	-	-	0.553	0.012	-
HCM Control Delay (s)	-	-	34	8.6	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.1	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	475	110	51	478	227	116	91	33	257	144	224
Future Volume (veh/h)	133	475	110	51	478	227	116	91	33	257	144	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	540	80	58	543	242	132	103	19	292	164	157
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	959	142	360	664	295	262	197	36	343	327	272
Arrive On Green	0.09	0.31	0.31	0.06	0.28	0.28	0.15	0.13	0.13	0.19	0.17	0.17
Sat Flow, veh/h	1781	3090	456	1781	2361	1049	1781	1527	282	1781	1870	1556
Grp Volume(v), veh/h	151	310	310	58	408	377	132	0	122	292	164	157
Grp Sat Flow(s),veh/h/ln	1781	1777	1769	1781	1777	1633	1781	0	1809	1781	1870	1556
Q Serve(g_s), s	3.5	8.8	8.9	1.3	13.0	13.1	4.1	0.0	3.8	9.6	4.8	5.6
Cycle Q Clear(g_c), s	3.5	8.8	8.9	1.3	13.0	13.1	4.1	0.0	3.8	9.6	4.8	5.6
Prop In Lane	1.00		0.26	1.00		0.64	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	326	552	549	360	499	459	262	0	234	343	327	272
V/C Ratio(X)	0.46	0.56	0.57	0.16	0.82	0.82	0.50	0.00	0.52	0.85	0.50	0.58
Avail Cap(c_a), veh/h	604	998	994	602	898	826	587	0	926	440	792	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	17.5	17.5	14.0	20.4	20.4	23.9	0.0	24.7	23.7	22.7	23.0
Incr Delay (d2), s/veh	0.4	0.3	0.3	0.1	1.3	1.4	0.6	0.0	0.7	10.0	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.2	3.3	0.5	4.9	4.6	1.7	0.0	1.6	4.5	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	17.8	17.8	14.1	21.6	21.8	24.4	0.0	25.4	33.7	23.1	23.7
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		771			843			254			613	
Approach Delay, s/veh		17.3			21.2			24.9			28.3	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	24.2	12.9	15.9	9.5	22.4	15.7	13.1
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	3.3	10.9	6.1	7.6	5.5	15.1	11.6	5.8
Green Ext Time (p_c), s	0.0	0.6	0.1	0.4	0.1	0.9	0.2	0.1

Intersection Summary		
HCM 6th Ctrl Delay	22.1	
HCM 6th LOS	C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	91	28	197	113	50	186
Future Vol, veh/h	91	28	197	113	50	186
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	33	232	133	59	219
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.8	11	10.5
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	76%	21%
Vol Thru, %	64%	0%	79%
Vol Right, %	36%	24%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	310	119	236
LT Vol	0	91	50
Through Vol	197	0	186
RT Vol	113	28	0
Lane Flow Rate	365	140	278
Geometry Grp	1	1	1
Degree of Util (X)	0.447	0.208	0.366
Departure Headway (Hd)	4.417	5.352	4.749
Convergence, Y/N	Yes	Yes	Yes
Cap	813	666	755
Service Time	2.461	3.422	2.799
HCM Lane V/C Ratio	0.449	0.21	0.368
HCM Control Delay	11	9.8	10.5
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.3	0.8	1.7

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	28	13	0	18	0	8	0	0	0	0	8
Future Vol, veh/h	10	28	13	0	18	0	8	0	0	0	0	8
Conflicting Peds, #/hr	0	0	1	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	33	15	0	21	0	9	0	0	0	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	22	0	0	49	0	0	92	88	42	87	95	22
Stage 1	-	-	-	-	-	-	66	66	-	22	22	-
Stage 2	-	-	-	-	-	-	26	22	-	65	73	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1593	-	-	1558	-	-	892	802	1029	899	795	1055
Stage 1	-	-	-	-	-	-	945	840	-	996	877	-
Stage 2	-	-	-	-	-	-	992	877	-	946	834	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1591	-	-	1557	-	-	878	794	1028	893	787	1054
Mov Cap-2 Maneuver	-	-	-	-	-	-	878	794	-	893	787	-
Stage 1	-	-	-	-	-	-	936	832	-	987	876	-
Stage 2	-	-	-	-	-	-	983	876	-	938	826	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0	9.1	8.4
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	878	1591	-	-	1557	-	-	1054
HCM Lane V/C Ratio	0.011	0.007	-	-	-	-	-	0.009
HCM Control Delay (s)	9.1	7.3	0	-	0	-	-	8.4
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	20	369	100	36	284
Future Vol, veh/h	64	20	369	100	36	284
Conflicting Peds, #/hr	0	0	0	6	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	23	419	114	41	323

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	887	482	0	0	539	0
Stage 1	482	-	-	-	-	-
Stage 2	405	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	315	584	-	-	1029	-
Stage 1	621	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	298	581	-	-	1023	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	617	-	-	-	-	-
Stage 2	640	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.9	0	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	337	1023	-
HCM Lane V/C Ratio	-	-	0.283	0.04	-
HCM Control Delay (s)	-	-	19.9	8.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	278	564	197	37	392	164	179	113	33	142	105	202
Future Volume (veh/h)	278	564	197	37	392	164	179	113	33	142	105	202
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	293	594	165	39	413	158	188	119	17	149	111	122
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	459	904	250	316	565	213	298	235	34	256	231	192
Arrive On Green	0.15	0.33	0.33	0.05	0.23	0.23	0.17	0.15	0.15	0.14	0.12	0.12
Sat Flow, veh/h	1781	2726	755	1781	2490	939	1781	1594	228	1781	1870	1552
Grp Volume(v), veh/h	293	387	372	39	293	278	188	0	136	149	111	122
Grp Sat Flow(s),veh/h/ln	1781	1777	1704	1781	1777	1653	1781	0	1821	1781	1870	1552
Q Serve(g_s), s	6.5	10.5	10.6	0.9	8.6	8.8	5.6	0.0	3.9	4.4	3.1	4.2
Cycle Q Clear(g_c), s	6.5	10.5	10.6	0.9	8.6	8.8	5.6	0.0	3.9	4.4	3.1	4.2
Prop In Lane	1.00		0.44	1.00		0.57	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	459	589	565	316	403	375	298	0	269	256	231	192
V/C Ratio(X)	0.64	0.66	0.66	0.12	0.73	0.74	0.63	0.00	0.51	0.58	0.48	0.64
Avail Cap(c_a), veh/h	658	1071	1027	607	964	897	630	0	1001	472	850	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	16.2	16.2	15.4	20.3	20.3	21.9	0.0	22.2	22.6	23.1	23.6
Incr Delay (d2), s/veh	0.6	0.5	0.5	0.1	0.9	1.1	0.8	0.0	0.6	0.8	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	3.7	3.6	0.3	3.3	3.1	2.2	0.0	1.6	1.7	1.3	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	16.6	16.7	15.5	21.2	21.4	22.7	0.0	22.8	23.4	23.7	24.9
LnGrp LOS	B	B	B	B	C	C	C	A	C	C	C	C
Approach Vol, veh/h		1052			610			324			382	
Approach Delay, s/veh		15.8			20.9			22.8			24.0	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	24.1	13.5	12.3	12.7	18.1	12.1	13.6
Change Period (Y+Rc), s	4.0	* 5.3	4.0	5.3	4.0	5.3	4.0	* 5.3
Max Green Setting (Gmax), s	12.0	* 34	20.0	25.7	15.0	30.7	15.0	* 31
Max Q Clear Time (g_c+I1), s	2.9	12.6	7.6	6.2	8.5	10.8	6.4	5.9
Green Ext Time (p_c), s	0.0	0.8	0.2	0.3	0.3	0.6	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix E

Mitigation Monitoring and Reporting Program

Mitigation Monitoring and Reporting Program

CEQA requires that a reporting or monitoring program be adopted for the conditions of project approval that are necessary to mitigate or avoid significant effects on the environment (Public Resources Code 21081.6). This Mitigation Monitoring and Reporting Program (MMRP) is designed to ensure compliance with adopted mitigation measures. For each mitigation measure recommended in the Final Supplemental Environmental Impact Report (SEIR), specifications are made herein that identify the action required and the monitoring that must occur. In addition, a responsible agency is identified for verifying compliance with individual conditions of approval contained in this MMRP.

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Aesthetics							
AES-1 Light and Glare							
Project design shall include LED, downcast, shielded lighting and lighting that would be directed towards building walls in order to limit overspill and glare from the project, without compromising the safety and security of the community. The Town shall review and approve the lighting design prepared by the applicant.	The Town shall review and approve the lighting design prepared by the applicant.	Prior to the issuance of building permit approval.	Once	Town of Windsor			
Air Quality							
AQ-1 Construction Emissions Measures							
The Town shall require that development projects incorporate the Bay Area Air Quality Management District (BAAQMD) Basic Construction Mitigation Measures to reduce construction emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$). The Town shall require the following to be adhered to during project construction to reduce air quality impacts. During construction activities: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, with priority given to the use of recycled water for this activity when feasible. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power	The project applicant shall ensure that BAAQMD's Basic Construction Mitigation Measures are adhered to during construction activities.	Prior to issuance of grading permit and throughout construction	Throughout construction	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
sweeping is prohibited. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emission evaluator. 8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations. The Town shall also require that development projects incorporate feasible measures that reduce operational emissions for reactive organic gases, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$).							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Biological Resources							
BIO-1 Worker Environmental Awareness Program (WEAP)							
Prior to initiation of construction activities (including staging and mobilization), and at the applicant's financial expense, all personnel associated with project construction shall attend a Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in recognizing special-status resources that may occur in the construction area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and measures required to reduce impacts to biological resources within the work area. A qualified biologist shall prepare a fact sheet conveying this information for distribution to all contractors, their employers, and other personnel involved with construction. All employees shall sign a form provided by the trainer indicating they have attended the WEAP and understand the information presented to them. The form shall be submitted to the Town to document compliance following each training.	The project applicant shall ensure that all personnel associated with construction attend a WEAP training and sign a form indicating that they have attended and understand the information.	Prior to initiation of construction activities	Once	Town of Windsor			
BIO-2 Roosting Bats Surveys and Avoidance Measures							
Prior to tree removal, a qualified biologist shall be retained by the applicant to conduct a focused survey of all trees and structures to be removed or impacted by construction activities to determine whether active roosts of special-status bats are present on site. If	The project applicant shall retain a qualified biologist to conduct a focused surveys of all trees and structures to be removed or impacted to determine whether active roosts of special-status bats are present on site. If no bat	Prior to tree removal	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
tree or structure removal is planned for the fall, the survey shall be conducted in September to ensure tree and/or structure removal will have adequate time to occur during seasonal periods of bat activity (March 1 to April 15, September 1 to October 15, or when evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs, as described below). If tree and/or structure removal is planned for the spring, then the survey shall be conducted during the earliest possible time in March, to allow for suitable conditions for both the detection of bats and subsequent tree and/or structure removal. Trees and/or structures containing suitable potential bat roost habitat features shall be clearly marked or identified. If no bat roosts are found, the results of the survey will be documented and submitted to the Town within 30 days of the survey, after which no further action will be required. If day roosts are found to be potentially present, the biologist shall prepare a site-specific roosting bat protection plan to be implemented by the contractor following the Town's approval. The plan shall be approved by the Town and incorporate the following guidance as appropriate: ▪ When possible, removal of trees/structures identified as suitable roosting habitat shall be conducted during seasonal periods of bat activity, including the following: a) Between September 1 and about	roosts are found, results of the survey shall be documented and submitted to the Town and no further action will be required. If day roosts are found to be potentially present, the biologist shall prepare a site-specific roosting bat protection plan that incorporates the appropriate guidance.						

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
October 15, or before evening temperatures fall below 45 degrees Fahrenheit and/or more than 0.5 inch of rainfall within 24 hours occurs. b) Between March 1 and April 15, or after evening temperatures rise above 45 degrees Fahrenheit and/or no more than 0.5 inch of rainfall within 24 hours occurs. ▪ If a tree /structure must be removed during the breeding season and is identified as potentially containing a colonial maternity roost, then a qualified biologist retained by the applicant shall conduct acoustic emergence surveys or implement other appropriate methods to further evaluate if the roost is an active maternity roost. Under the biologist's guidance, the contractor shall implement measures similar to or better than the following: a) If it is determined that the roost is not an active maternity roost, then the roost may be removed in accordance with the other requirements of this measure. b) If it is found that an active maternity roost of a colonial roosting species is present, the roost shall not be disturbed during the breeding season (April 15 to August 31). ▪ Tree removal procedures shall be implemented using a two-step tree							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on day one. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed to not return to the roost that night. The remainder of the tree is removed on day two. ▪ Prior to the demolition of vacant structures within the project site, a qualified biologist retained by the applicant shall conduct a focused habitat assessment of all structures to be demolished. The habitat assessment shall be conducted enough in advance to ensure the commencement of building demolition can be scheduled during seasonal periods of bat activity (see above), if required. If no signs of day roosting activity are observed, no further actions will be required. If bats or signs of day roosting by bats are observed, a qualified biologist will prepare specific recommendations such as partial dismantling to cause bats to abandon the roost, or humane eviction, both to be conducted during seasonal periods of bat activity, if required. ▪ If the qualified biologist determines a roost is used by a large number of bats (large hibernaculum), bat boxes shall be							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultation with CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately.							
BIO-3 Nesting Bird Protection							
If construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season, February 1 to August 31, a focused survey for active nests shall be conducted by a Qualified Biologist within 7 days prior to the beginning of project-related activities. The survey shall consist of the entire project limits, as well as a minimum 500-foot buffer. If a lapse in project-related work of 7 days or longer occurs, another focused survey shall be required before project work can be reinitiated. If an active nest is found during surveys, qualified biologist shall establish site- and species-specific no-work buffers. The buffer distances shall be specified to protect the bird's normal behavior to prevent nesting failure or abandonment. The buffer distance recommendation shall be developed after field investigations that evaluate the bird(s)	The project applicant shall retain a qualified biologist to conduct a focused survey for active nests if construction, grading, vegetation removal, or other project-related activities are scheduled during the nesting season. If an active nest is found during surveys, site- and species-specific no-work buffers shall be established. If abnormal behavior is exhibited by nesting birds, the biologist shall have authority to order the cessation of all nearby project activities. The qualified biologist shall monitor the behavior of the birds behavior of the birds at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall	Prior to beginning of project-related activities and throughout construction	Once and throughout construction	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
apparent distress in the presence of people or equipment at various distances. Abnormal nesting behaviors which may cause reproductive harm include, but are not limited to, defensive flights/vocalizations directed towards project personnel, standing up from a brooding position, and flying away from the nest. The qualified biologist shall have authority to order the cessation of all nearby project activities if the nesting birds exhibit abnormal behavior which may cause reproductive failure (nest abandonment and loss of eggs and/or young) until an appropriate buffer is established. The qualified biologist shall monitor the behavior of the birds (adults and young, when present) at the nest site to ensure that they are not disturbed by project work. Nest monitoring shall continue during project work until the young have fully fledged (have completely left the nest site and are no longer being fed by the parents), as determined by the qualified biologist, unless otherwise approved in writing by CDFW.	continue during project work until the young have fully fledged.						
BIO-4 Sensitive Community Offsets/Wetlands Mitigation Plan							
Impacts to seasonal wetland/vernal pool habitat shall be offset through purchase of credits by the applicant at an agency (USFWS, CDFW, RWQCB, and USACE) approved mitigation bank for creation or enhancement of sensitive natural communities that covers the vernal pool plants at a 1.5:1 ratio per the PBO for the Santa Rosa Plain. If the project falls outside of agency approved mitigation	Impacts to seasonal wetland/vernal pool habitat shall be offset through purchase of credits by the applicant at an agency (USFWS, CDFW, RWQCB, and USACE) approved mitigation bank for creation or enhancement of sensitive natural communities that covers the vernal pool plants at a 1.5:1 ratio per the PBO for the Santa Rosa	During project design and minimum of five years (for restoration and/or enhancement)	Once and for a minimum of five years	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
bank service areas, impacts to sensitive natural communities shall be offset through habitat restoration and/or enhancement at an off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted). Final acreage requirements will be determined in consultation with each individual permitting agency (USFWS, CDFW, RWQCB, and USACE). The location of restoration and/or enhancement shall be determined by a qualified biologist. The restoration and/or enhancement shall include locally native species approved by the Town. The restoration and/or enhancement shall be incorporated into an Off-Site Habitat Restoration/Enhancement Plan to be developed by a qualified biologist pursuant to the requirements listed below. Upon final project design, a qualified biologist shall be retained by the applicant to determine the final impacts to sensitive communities and the subsequent amount of acreage needed for restoration and/or enhancement for the project. The project applicant shall implement restoration and/or enhancement for a period of not less than five years, or until restoration and/or enhancement has been completed successfully as determined by a qualified biologist in coordination with the Community Development Department. The Off-Site Habitat Restoration/Enhancement Plan shall include, at a minimum, the following components:	Plain. If the project falls outside of agency approved mitigation bank service areas, impacts to sensitive natural communities shall be offset through habitat restoration and/or enhancement at an off-site location at a minimum ratio of 1.5:1 (habitat restored and/or enhanced to habitat impacted). The project applicant shall retain a qualified biologist to determine the final impacts to sensitive communities and the subsequent amount of acreage needed for restoration and/or enhancement for the project. The project applicant shall implement restoration and/or enhancement for a period of not less than five years, or until restoration and/or enhancement has been completed successfully as determined by a qualified biologist in coordination with the Community Development Department.						

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
a) Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);							
b) Goal(s) of the compensatory mitigation project (i.e., the type/types and area/areas of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type/types to be established, restored, enhanced, and/or preserved);							
c) Description of the proposed compensatory mitigation-site (i.e., location and size, ownership status, existing functions and values of the compensatory mitigation-site);							
d) Implementation plan for the compensatory mitigation-site (the plan will include rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan, including plant species to be used, container sizes, and seeding rates);							
e) Maintenance activities during the monitoring period, including weed removal and irrigation as appropriate (the plan will include activities, responsible parties, and schedule);							
f) Monitoring plan for the compensatory mitigation-site, including no less than quarterly monitoring for the first year; the plan will include performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved,							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
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annual monitoring reports; g) Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type; h) An adaptive management program and remedial measures to address negative impacts to restoration efforts; i) Notification of completion of compensatory mitigation and agency confirmation; and j) Contingency measures (e.g., initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism).							
Cultural Resources							
CUL-1 Worker's Environmental Awareness Program							
A qualified archaeologist shall be retained by the applicant to conduct a WEAP training on archaeological sensitivity for all construction personnel prior to the commencement of any ground-disturbing activities. The training shall be conducted by an archaeologist who meets or exceeds the Secretary of Interior's Professional Qualification Standards for archeology (National Park Service [NPS] 1983). Archaeological sensitivity training shall include a description of the types of cultural material that may be encountered, cultural sensitivity issues, the regulatory environment, and the proper protocol for treatment of the materials in the event of a find.	The project applicant shall ensure all construction personnel attend a Cultural Awareness Training conducted by a qualified archaeological monitor.	Prior to construction	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
CUL-2 Archaeological and Native American Monitoring							
Archaeological monitoring shall be performed under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for archeology (National Park Service 1983). Native American monitoring shall be provided by a locally affiliated Tribal member(s). Monitoring shall be paid for by the applicant. Monitors will have the authority to halt and redirect work should any archaeological resources be identified during monitoring. If archaeological resources are encountered during ground-disturbing activities, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Tribal monitoring or both may be reduced or halted at the discretion of the monitors, in consultation with the lead agency, as warranted by conditions such as encountering bedrock, sediments being excavated are fill, or negative findings during the first 50 percent of ground-disturbance. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached (unless those depths are within bedrock).	The project applicant shall retain a qualified archaeological monitor to observe all project-related ground disturbing activities. Native American monitoring shall be provided by a locally affiliated Tribal member(s). If archaeological resources are encountered, work in the immediate area must halt and the find evaluated for listing in the CRHR and NRHP. Archaeological or Tribal monitoring or both may be reduced or halted at the discretion of the monitors. If monitoring is reduced to spot-checking, spot-checking shall occur when ground-disturbance moves to a new location within the project site and when ground disturbance will extend to depths not previously reached.	During construction activities	Throughout construction	Town of Windsor			
CUL-3 Unanticipated Discovery of Cultural Resources							
In the unlikely event that archaeological resources are unexpectedly encountered during ground-disturbing activities, following Archaeological and Native American monitoring reduction, work in the immediate area shall be halted and an archaeologist meeting the Secretary of the Interior's Professional	If archaeological resources are encountered, work in the immediate area shall be halted and a qualified archaeologist shall evaluate the find. If the find is prehistoric, then a Native American representative will be contacted to participate in the	During construction activities	Throughout construction	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Qualification Standards for archeology (National Park Service 1983) will be contacted immediately to evaluate the find. If the find is prehistoric, then a Native American representative will be contacted to participate in the evaluation of the find. If necessary, the evaluation may require preparation of a treatment plan and archaeological testing for California Register of Historical Resources (CRHR) eligibility at expense of the applicant. If the discovery proves to be eligible for listing in the CRHR and cannot be avoided additional work, such as testing and data recovery excavations, may be warranted to mitigate any significant impacts to cultural resources to less than a significant level in consultation with locally affiliated Tribal member(s).	evaluation of the find. If the discovery proves to be eligible for listing in the CRHR and cannot be avoided, additional work, such as testing and data recovery excavations, may be warranted						
CUL-4 Human Remains							
In the unlikely event of an unanticipated discovery of human remains, all ground disturbing activities in the vicinity of the discovery shall be immediately suspended and redirected elsewhere. All steps required to comply with State of California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 shall be implemented including contracting the Sonoma County Department Coroner. If the human remains are determined to be prehistoric, the coroner shall notify the NAHC, which will determine and notify a mostly likely descendant (MLD). The MLD shall complete an inspection of the site and provide recommendations for treatment to the landowners within 48 hours of being granted access.	If human remains are discovered, all ground disturbing activities in the vicinity of the discovery shall be immediately suspended and redirected elsewhere. If the human remains are determined to be prehistoric, the coroner shall notify the NAHC, which will determine and notify a mostly likely descendant (MLD).	During construction activities	Throughout construction	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Geology and Soils							
GEO-1 Paleontological Resource Studies							
The Town shall require a paleontological assessment, and avoidance and/or mitigation for potential impacts to paleontological resources. The Town shall require the following specific requirements: 1. **Retain a Qualified Paleontologist.** Prior to initial ground disturbance within highly sensitive geologic units, the applicant shall retain a project paleontologist, defined as a paleontologist who meets the Society of Vertebrate Paleontology standards for Qualified Professional Paleontologist, to direct all mitigation measures related to paleontological resources. A qualified paleontologist (Principal Paleontologist) is defined by the Society of Vertebrate Paleontology standards as an individual with an M.S. or Ph.D. in paleontology or geology who is experienced with paleontological procedures and techniques, who is knowledgeable in the geology of California, and who has worked as a paleontological mitigation project supervisor for a least one year. 2. **Paleontological Mitigation and Monitoring Program.** Prior to construction activity a qualified paleontologist should prepare a Paleontological Mitigation and Monitoring Program to be implemented during ground disturbance activity. This program should outline the procedures for construction staff Worker Environmental Awareness Program	The project applicant shall retain a project paleontologist to prepare a Paleontological Mitigation and Monitoring Program, conduct worker training, and monitoring. If significant fossils are discovered, the paleontologist or paleontological monitor shall recover, identify, and prepare the fossils, and complete a final report.	Prior to beginning of project-related activities and throughout construction	Once and throughout construction	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
(WEAP) training, paleontological monitoring extent and duration, salvage and preparation of fossils, the final mitigation and monitoring report, and paleontological staff qualifications. 3. **Paleontological Worker Environmental Awareness Program (WEAP).** Prior to the start of construction, the project paleontologist or his or her designee, shall conduct training for construction personnel regarding the appearance of fossils and the procedures for notifying paleontological staff should fossils be discovered by construction staff. The WEAP shall be fulfilled at the time of a preconstruction meeting at which a qualified paleontologist shall attend. In the event of a fossil discovery by construction personnel, all work in the immediate vicinity of the find shall cease and a qualified paleontologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the fossil(s) is(are) scientifically significant, the qualified paleontologist shall complete the following conditions to mitigate impacts to significant fossil resources. 4. **Paleontological Monitoring.** Ground disturbing construction activities (including grading, trenching, foundation work and other excavations) at the surface in areas mapped as high paleontological sensitivity and exceeding 5 feet in depth in areas overlying potentially high paleontological sensitivity units should be monitored on a full-time basis by a qualified paleontological monitor during initial ground disturbance.							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
The Paleontological Mitigation and Monitoring Program shall be supervised by the project paleontologist. Monitoring should be conducted by a qualified paleontological monitor, who is defined as an individual who has experience with collection and salvage of paleontological resources. The duration and timing of the monitoring will be determined by the project paleontologist. If the project paleontologist determines that full-time monitoring is no longer warranted, he or she may recommend that monitoring be reduced to periodic spot-checking or cease entirely. Monitoring would be reinstated if any new or unforeseen deeper ground disturbances are required and reduction or suspension would need to be reconsidered by the Supervising Paleontologist. Ground disturbing activity that does not occur in areas mapped as high sensitivity or that do not exceed 5 feet in depth in areas overlying potentially high sensitivity units would not require paleontological monitoring. 5. **Salvage of Fossils.** If significant fossils are discovered, the project paleontologist or paleontological monitor should recover them. Typically fossils can be safely salvaged quickly by a single paleontologist and not disrupt construction activity. In some cases larger fossils (such as complete skeletons or large mammal fossils) require more extensive excavation and longer salvage periods. In this case the paleontologist should have the authority to temporarily direct, divert or halt construction activity to ensure that the fossil(s) can be removed in a safe and timely							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
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manner. Work may continue outside of a buffer zone around the fossil, usually 50-100 feet (specific distance may be determined by the project paleontologist). 6. **Preparation and Curation of Recovered Fossils.** Once salvaged, significant fossils should be identified to the lowest possible taxonomic level, prepared to a curation-ready condition and curated in a scientific institution with a permanent paleontological collection (such as the University of California Museum of Paleontology), along with all pertinent field notes, photos, data, and maps. Fossils of undetermined significance at the time of collection may also warrant curation at the discretion of the project paleontologist. 7. **Final Paleontological Mitigation Report.** Upon completion of ground disturbing activity (and curation of fossils if necessary) the qualified paleontologist should prepare a final mitigation and monitoring report outlining the results of the mitigation and monitoring program. The report should include discussion of the location, duration and methods of the monitoring, stratigraphic sections, any recovered fossils, and the scientific significance of those fossils, and where fossils were curated.							
Noise							
N-1 Construction Noise Control Measures							
The following noise control measures shall be included as standard conditions of approval	The project applicant shall ensure noise control measures 1 through 6 are implemented during construction.	Prior to issuance of grading permit	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
for projects involving construction: 1. Properly muffle and maintain all construction equipment powered by internal combustion engines. 2. Prohibit unnecessary idling of combustion engines. 3. Locate all stationary noise-generating construction equipment such as air compressors as far as practical from existing nearby residences and other noise-sensitive land uses. Such equipment shall also be acoustically shielded. 4. Select quiet construction equipment, particularly air compressors, whenever possible. Fit motorized equipment with proper mufflers in good working order. 5. Residences adjacent to project sites shall be notified in advance by writing of the proposed construction schedule before construction activities commence. 6. The project applicant shall designate a "noise disturbance coordinator" responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint (e.g., starting too early, bad muffler, etc.) and shall require that reasonable measures be implemented to correct the problem. A telephone number for the disturbance coordinator shall be posted at the construction site.							

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
N-2 Construction Vibration Control Measures							
The following measures to minimize exposure to construction vibration shall be included as standard conditions of approval for applicable projects involving construction: 1. Avoid the use of vibratory rollers within 50 feet of fragile buildings, which are buildings that are susceptible to damage from vibration. 2. Schedule construction activities with the highest potential to produce vibration to hours with the least potential to affect nearby institutional, educational, and office uses that the Federal Transit Administration identifies as sensitive to daytime vibration (FTA 2006). 3. Notify neighbors of scheduled construction activities that would generate vibration.	The applicant shall ensure vibration control measures 1 and 2 are implemented during construction.	Prior to issuance of grading permit	Once	Town of Windsor			
Transportation							
TRA-1 Vehicle Miles Traveled Reductions							
The applicant shall implement the following measures aimed at achieving a reduction in overall vehicle trips to and from the site: ▪ **Bulbouts**: The project applicant shall incorporate bulbouts at new or reconfigured intersections. ▪ **Pedestrian Network Improvements**: The project applicant shall construct an enhanced pedestrian crossing including a refuge median on the west leg of the Vinecrest Road/Foothill Drive intersection.	The project applicant shall incorporate bulbouts and construct an enhanced pedestrian crossing to reduce vehicle trips.	During project design	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
TRA-2 Improving Sight Distance							
To ensure that drivers have visibility to the west at the Vinecrest Road/Portland Way intersection, the applicant shall relocate the existing "Vinecrest Estates" monument. The monument shall be relocated at least three feet behind the new proposed Vinecrest Road sidewalk along the project frontage. The relocation of the monument shall be indicated in project site plans for review by the Town of Windsor staff.	The project applicant shall relocate the existing "Vinecrest Estates" monument to at least three feet behind the new proposed Vinecrest Road sidewalk along the project frontage.	During project design	Once	Town of Windsor			
Tribal Cultural Resources							
TCR-1 Canine Investigation							
Prior to any ground disturbing activities, the project applicant shall conduct a Canine Investigation of the project site using a K9 team trained in the identification of human remains. The Canine Investigation is a noninvasive method for the discovery of buried human remains. If the Canine Investigation identifies human remains within the project site, the area in which the remains are identified shall be avoided. If the area cannot be avoided for the project, further consultation with the consulting Native American Tribes to create Mitigation Measures and/or a Burial Recovery Plan that shall be implemented is required. The project applicant shall retain a qualified cultural resources specialist to draft the Mitigation Measures and/or a Burial Recovery Plan.	The project applicant shall conduct a Canine Investigation of the project site using a K9 team trained in the identification of human remains. If the Canine Investigation identifies human remains within the project site, the area in which the remains are identified shall be avoided. If the area cannot be avoided for the project, further consultation with the consulting Native American Tribes to create Mitigation Measures and/or a Burial Recovery Plan that shall be implemented is required.	Prior to ground disturbing activities	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Wildfire							
WF-1 Wildfire Risk Reduction During Construction							
The Town shall require the applicant to take the following measures to reduce risk of loss, injury, or death from wildfire during construction of the proposed project: 1. Construction equipment powered by internal combustion engines shall be equipped with spark arresters. The spark arresters shall be maintained pursuant to manufacturer recommendations to ensure adequate performance. 2. Certain project construction activities with potential to ignite wildfires during red-flag warnings issued by the National Weather Service for the project site location shall be prohibited. Example activities that shall be prohibited during red-flag warnings include welding and grinding outside of enclosed buildings. 3. Fire extinguishers shall be required to be onsite during project construction. Fire extinguishers shall be maintained to function according to manufacturer specifications. Construction personnel shall receive training on the proper methods of using a fire extinguisher. At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.	The project applicant shall implement wildfire measures 1 through 3 to minimize risk of loss, injury, or death from wildfire during construction.	Prior to issuance of grading permit	Once	Town of Windsor			

Mitigation Measure/ Condition of Approval	Action Required	Monitoring Timing	Monitoring Frequency	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
WF-2 Fire Suppression Requirements							
During project design, the applicant shall ensure that all fire hydrants on the project site are able to satisfy the Town's minimum fire flow requirements. Compliance shall be verified by the Town prior to occupancy clearance.	The project applicant shall ensure that all fire hydrants on the project site are able to satisfy the Town's minimum fire flow requirements.	During project design	Once	Town of Windsor			
WF-3 California Building Code Chapter 7A Compliance							
During project design, the applicant shall ensure that materials and construction methods outlined in Chapter 7A of the California Building Code are followed. Compliance shall be verified by the Town prior to building permit approval.	The project applicant shall ensure that materials and construction methods outlined in Chapter 7A of the California Building Code are followed.	During project design	Once	Town of Windsor			
WF-4 Fire Resistant Vegetation and Landscaping							
The Town shall require that fire-resistant vegetation native to Sonoma County and/or the local microclimate of the site are planted by the applicant and shall prohibit the use of fire-prone species especially non-native, invasive species. No vegetation or wood fences, gates, or ornamental landscaping shall be allowed within five feet of residences or other structures. Metal or other fire-resistant materials shall be used for fences and gates within five feet of residences or other structures. At the Town's discretion, additional wildfire risk reduction requirements may be required. The Town shall review and approve the project-specific methods to be employed prior to building permit approval.	The project applicant shall be required to plant fire-resistant vegetation native to Sonoma County and/or the local microclimate of the site. The project applicant shall be prohibited from the use of fire-prone species especially non-native, invasive species. No vegetation or wood fences, gates, or ornamental landscaping shall be allowed within five feet of residences or other structures. Metal or other fire-resistant materials shall be used for fences and gates within five feet of residences or other structures.	During project design	Once	Town of Windsor			

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