

## **Skyfarm Unit 3 Subdivision**

Saint Andrews Drive, Santa Rosa, CA (Sonoma County)

Assessor's Parcel Nos. 173-760-038 & 039

Initial Study/Mitigated Negative Declaration

Lead Agency:

City of Santa Rosa  
Community Development Department  
100 Santa Rosa Avenue, Rm. 3  
Santa Rosa, CA 95404

Contact: Erin Morris, Senior Planner

Date: May 20, 2010

Updated July 27, 2011

Changes noted by ~~strikethrough old text~~ and underline new text

**MITIGATION MONITORING AND REPORTING PROGRAM**  
**Skyfarm Unit 3 Subdivision – May 2010, last revised July 27, 2011**

Mitigation Measure	Implementation Procedure	Monitoring Responsibility	Monitoring / Reporting Action & Schedule	Non-Compliance Sanction/Activity	Monitoring Compliance Record (Name/Date)
<i>I.1 Hillside Development. Prior to issuance of grading or building permits for each residential lot, the developer shall apply for and obtain Hillside Development Permits to ensure design and site planning for each new residence conforms to City Hillside Development Standards and Design Guidelines. The review for each lot shall include analysis of site planning options, intended to reduce tree removals or significant pruning.</i>	The developer for each residential lot shall apply for a Hillside Development Permit.	Community Development Department.	Hillside Development Permits shall be obtained for each residential lot prior to issuance of lot grading and building permits.	Deny approval of Hillside Development Permits, and withhold issuance of grading and building permits.	
<i>I.2 Saint Andrews Drive Access. The Final Map shall include a notation restricting driveway access for individual lots to Saint Andrews Drive to ensure reduced driveway cuts and to minimize visual impacts as seen from the road.</i>	Developer shall include notation on submitted Final Map.	Community Development Department	Review Final Map prior to City approval and recordation.	Deny approval of Final Map.	
<i>IV.1 Wildlife Corridor. In order to ensure viability of the wildlife corridor on Parcel B is maintained, the following provisions shall apply to the project:</i>	Developer shall include notation on Final Map. HOA shall maintain Parcel B. Review Improvement Plans for lighting placement. Ensure posting of speed limit and wildlife crossing signage. Developer shall prepare informational handouts and distribute to prospective buyers.	Community Development Department and Public Works Department.	Review Final Map prior to City approval and recordation. Ensure HOA includes provisions for maintenance of Parcel B. Review Improvement Plans for lighting placement. Ensure posting of speed limit and wildlife crossing signage prior to issuance of first residential occupancy	Deny approval of Final Map.  Deny issuance of Improvement Plans.  Withhold issuance of residential occupancy permits.	
<ul style="list-style-type: none"> <li>◊ A note shall be placed on the Final Map indicating Proposed Parcel B (Wildlife Corridor) may not be developed, fenced along the western or eastern property line, or landscaped.</li> <li>◊ Parcel B shall be maintained by the homeowner's association for the project.</li> <li>◊ No new street lights shall be placed along Saint Andrews Drive in front of Parcel B.</li> <li>◊ Speed limits on Saint Andrews Drive approaching and in front of Parcel B shall</li> </ul>					

**MITIGATION MONITORING AND REPORTING PROGRAM**  
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<p>be posted as 25 mph.</p> <p>◊ Wildlife crossing signs shall be placed along Saint Andrews Drive approaching Parcel B.</p> <p>◊ All homeowner's shall be provided with informational notices when purchasing properties requesting that pets (particularly dogs) be kept indoors or, when outdoors, on leashes or similarly restrained, and motion sensors be used for outdoor lighting.</p>			<p>permit. Developer shall prepare informational handouts and distribute to prospective buyers.</p>		
<p>IV.2 Tree Removals. The Planning Department shall review all Hillside Development permit applications for construction of new residences to ensure protection of existing trees. Where possible and practical, trees shall be protected by locating driveways away from trees, limiting the extent of grading and landscaping beneath tree driplines, and placing residences and structures away from trees. Any trees approved for removal shall be replaced consistent with requirements of the City's tree ordinance.</p>	<p>The applicant for each residential lot's Hillside Development Permit shall include tree protection and replacement plans.</p>	<p>Community Development Department</p>	<p>Review Hillside Development Permits to ensure tree protection and replacement measures are included. Inspect lots prior to grading permit issuance to ensure protective tree fencing has been placed.</p>	<p>Deny approval of Hillside Development Permits, and withhold issuance of grading and building permits.</p>	
<p>XIII.1 Vegetation Clearance. A note shall be placed on the Final Map requiring all residential development to ensure clearance (and subsequent maintenance) of fire-hazardous vegetation around structures. A minimum 30-foot clearance is required, with greater clearances required where lot conditions warrant. Landscape plans for</p>	<p>The developer for each residential lot's Hillside Development Permit shall include fire safety (landscaping/vegetation clearance) plans.</p>	<p>Community Development Department and Fire Department</p>	<p>Review Final Map prior to approval and recordation to ensure inclusion of the note. Required developer to provide copy of the informational handouts.</p>	<p>Deny approval of Final Map.</p> <p>Deny issuance of residential occupancy permits if required vegetation</p>	

**MITIGATION MONITORING AND REPORTING PROGRAM**  
**Skyfarm Unit 3 Subdivision – May 2010, last revised July 27, 2011**

Mitigation Measure	Implementation Procedure	Monitoring Responsibility	Monitoring / Reporting Action & Schedule	Non-Compliance Sanction/Activity	Monitoring Compliance Record (Name/Date)
construction of each residence shall be reviewed and approved by the Fire Department as part of the Hillside Development permit process to ensure consistency with this standard, considering tree protection/viewshed protection with the need for fire safety.				clearance has not been completed.	



## ENVIRONMENTAL CHECKLIST

1. **Project Title:** Skyfarm Unit 3 Subdivision
2. **Lead Agency Name & Address:** City of Santa Rosa  
Community Development Department  
Planning Division  
100 Santa Rosa Avenue (P.O. Box 1678)  
Santa Rosa, California 95402-1678
3. **Contact Person & Phone Number:** Erin Morris, Senior Planner  
Phone number: (707) 543-3273  
Email: [emorris@srcity.org](mailto:emorris@srcity.org)
4. **Project Location:** The site is located in the City of Santa Rosa, Sonoma County, California along Saint Andrews Drive, APN's 173-760-038 & 039 (Refer to Exhibit A, "Vicinity Map").
5. **Project Sponsor's Name & Address:** Project Sponsor and Owner  
  
Skyfarm Estates, LP  
1301 Farmers Lane, Suite 203  
Santa Rosa, CA 95405
6. **General Plan Designation:** Low Density Residential (2-8 units/acre)
7. **Zoning:** PD (Planned Development)
8. **Description of Project:**

The project consists of a proposed subdivision to create ~~34~~ 30 lots for single-family residential uses by subdividing two bulk lots of 5.19 acres and 5.23 that were originally created by the Skyfarm Unit 1C map in the early 1990's. The project would result in a density of ~~2.98~~ 2.87 units per acre.

The subdivider is proposing to create the lots and install the public roadways and utilities with the subdivision, and sell the lots individually or in small groups to individuals or builders. No house construction, lot grading or tree removal on individual lots, with the exception of grading and tree removal associated with the construction of the roadways, would occur with the subdivision improvements. In order to illustrate the feasibility of and eventual impacts of the development of housing on the site, the project plans illustrated a range of housing footprints of various types (uphill split, downhill split, side to side split, etc) that can occur on the lots.

### Northern Lot

The northern lot would be subdivided into 15 lots, ranging in size from 6,641 square feet to ~~40,868~~ 41,285 square feet. This portion of the site has relatively uniform existing tree cover over most of the site. Trees were carefully evaluated by the project arborist for health and preservation value, and this information was used to guide the layout of roadways, lots, and future home placement. Building setback lines are proposed that would assure preservation of key trees on various lots, and a unique loop configuration is proposed at the north end of the public street in lieu of a typical cul de sac, so that a significant grove of trees can be preserved undisturbed in the center of the loop. The parcel enclosed

by the loop road would be owned and maintained by the homeowner's association. Streets for both portions of the project are proposed using the hillside section with two 12 ft travel lanes, and parking bays where slope and tree conditions permit. Sidewalks are proposed on one side of the street and are proposed to be attached to the curb, again to minimize grading and tree removal.

#### Southern Lot

The southern parcel would be subdivided into 46 15 lots, a wildlife corridor, and a drainage infiltration parcel. Both common parcels would be owned and maintained by the homeowner's association. The purpose of the wildlife corridor is to provide for continued movement of wildlife between the Golf Course and St Andrews Drive and the open spaces beyond in both directions. Lot sizes in the southern portion of the project range from 6,035 square feet to 13,914 square feet. The existing tree cover on the southern parcel is concentrated on the top of the slope above St Andrews Drive, and in several groves along the golf course towards the north end. ~~Two~~ Several significant groves of trees are proposed for preservation in large setback areas between lots 18 and 19, 19 and 22, 24 and 25, and 28 and 29, lots 22 and 34. As with the northern parcel, the arborist identified trees that were most suitable for preservation ~~preservation-worthy trees~~, which formed the basis for the layout of the lots and streets. The plan currently proposed for approval consists of two cul de sacs, connected by an EVA drive that would also provide lot access for lots 19 - 22, 20, 22, and 23, as well as access for public utility maintenance. A locked gate would prevent through traffic.

#### Tree Removal (Project Totals)

The project plans include tree preservation exhibits that depict trees that would be preserved as part of the subdivision outside of building areas, trees that may be saved as part of development of individual homes, and trees to be removed either as part of initial subdivision improvements or with development of individual homes.

<b>Category</b>	<b>Not Including Manzanitas</b>	<b>Including Manzanitas</b>
<i>Number of Trees to be Saved</i>	156 (53%)	156 (50%)
<i>Number of Trees to be Evaluated for Preservation with Future Lot Development</i>	14 (5%)	14 (4%)
<i>Number of Trees to be Removed with Road and Utility Construction</i>	59 (20%)	64 (21%)
<i>Number of Trees to be Removed with Future Lot Development</i>	63 (22%)	77 (25%)
<b>Total Number of Trees</b>	<b>292 (100%)</b>	<b>311 (100%)</b>

#### Stormwater Treatment

The preliminary SUSMP plan was updated recently to incorporate low impact development storm water treatment and retention features, consistent with the City's evolving storm water management plans, and the recently completed LID priority list.

#### Maintenance

The project has been identified as an annexable area in the Skyfarm Unit 2 Homeowner's Association document, and proposes to annex into that association for the ownership and maintenance of the parcel inside the loop road, the wildlife corridor parcel, and of a retention/infiltration parcel at the south end. The association would also be responsible for maintenance of the low impact development storm

water treatment and infiltration devices. Skyfarm Unit 3 does not propose to be annexed into the Fountaingrove Ranch Master Association.

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

*North:* Single-family detached residential uses.

*South:* Single-family detached residential uses.

*West:* Fountaingrove Golf Course and single-family detached residential uses.

*East:* Open lands and single-family detached residential uses.

**10. Other Public Agencies Whose Approval Is Required:**

None.

## ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

- |   |   |   |
|---|---|---|
| <input checked="" type="checkbox"/> Aesthetics                      | <input type="checkbox"/> Agriculture Resources                        | <input type="checkbox"/> Air Quality                |
| <input checked="" type="checkbox"/> Biological Resources            | <input type="checkbox"/> Cultural Resources                           | <input checked="" type="checkbox"/> Geology / Soils |
| <input checked="" type="checkbox"/> Hazards / Hazardous Materials   | <input type="checkbox"/> Hydrology / Water Quality                    | <input type="checkbox"/> Land Use / Planning        |
| <input type="checkbox"/> Mineral Resources                          | <input type="checkbox"/> Noise  | <input type="checkbox"/> Population / Housing       |
| <input type="checkbox"/> Public Services                            | <input type="checkbox"/> Recreation                                   | <input type="checkbox"/> Transportation / Traffic   |
| <input type="checkbox"/> Utilities / Service Systems                | <input checked="" type="checkbox"/> Mandatory Finding of Significance |   |
| <input checked="" type="checkbox"/> <u>Greenhouse Gas Emissions</u> |   |   |

## DETERMINATION

On the basis of this initial evaluation:

- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.

Erin Morris

Signature  
Erin Morris, Senior Planner

July 27, 2011

Date





SEE SHEET 3

SEE SHEET 3 FOR  
TREE MITIGATION NOTES

## EVALUATION OF ENVIRONMENTAL IMPACTS

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
<b>I. AESTHETICS</b>				
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Discussion

The project site is located in the rolling hillsides of northern Santa Rosa, and is situated beneath a prominent ridgeline to the west, as classified by the General Plan. Since the project does not include construction of residences at this time, future construction plans will be subject to review by the City under separate applications to evaluate potential visual impacts and compliance with City hillside development standards. The project requires a Hillside Development Permit in conjunction with the approval of the Tentative Map, and individual hillside development permits for future home construction on each lot will be required under the zoning administrator process.

Applicable General Plan policies relative to hillside development include:

*UD-H: Design hillside development to be sensitive to existing terrain, views, and significant natural landforms or features.*

*UD-H-1: Minimize the visual prominence of hillside development by taking advantage of existing site features for screening, such as tree clusters, depressions in topography, setback hillside plateau areas, and other natural features.*

*UD-H-2: Align and construct streets along natural grades...*

*UD-H-3: Prohibit grading on slopes that are greater than 25 percent...*

*UD-H-5: Allow creative lot layouts such as clustering, flexible setbacks, or flag lots if such approaches help to preserve contours and other natural features.*

*UD-H-6: Minimize vegetation removal in hillside areas, and preserve large trees that partially screen development or help blend new development into views.*

*UD-I: Respect natural features in the design and construction of hillside development.*

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No  
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The applicant provided a Visual Analysis (Brelje & Race, August 24, 2005, updated July 2011) that considered potential viewshed impacts from several different vantage points by photographically inserting hypothetical pictures of residential development on the proposed lots. The updated simulations depict more subdued building colors in response to comments made during the public review process but otherwise are not different than the initial visual analysis. Photomontages were based on views from Saint Andrews Drive, the adjoining golf course, and from a vantage point west of the project site on Skyfarm Drive. While the tentative map provides only illustrations of possible residence construction locations, styles and massing, the photo analysis suggests certain views, particularly those from certain vantage points along Saint Andrews Drive, may be impacted by residences that have the potential to partially silhouette above the ridge to the west. In some instances, the road bank along the edge of Saint Andrews Drive would help limit views upslope to the ridge to the west, but oftentimes the view would be open or only partially blocked by the slope or existing trees. This may be a more pronounced impact given the applicant's stated maximum building height of 35 feet, combined with setbacks that could result in placement of residences near the Saint Andrews Drive frontage. However, the applicant has submitted photographs taken from a greater distance (Riebli Valley) indicating that while portions of the new homes may be visible to the public, the homes will not impact the higher ridge to the west of the golf course. Placement, design style, and size/heights of the homes to be built on each lot will therefore determine the exact nature of the viewshed impact.

Hillside Development Permits will be required from the Planning Commission for approval of the subdivision and from the Zoning Administrator for each residence to be constructed. Provisions of the City's Hillside Development Standards (Article 20-32 of the Municipal Code) will apply to the project. The Standards are intended to reduce impacts related to grading in hillside areas, and to protect views of ridgelines as seen from public viewpoints. The City further regulates development in hillside areas through the implementation of its Hillside Considerations in the City's Design Guidelines. Goals focus on preservation of vistas of ridgelines, protecting native vegetation on hillsides, to promote appropriate development and to minimize grading through use of design features (building placement, limits in hillside grading, street placement, landscaping and erosion control and fire protection). The applicant's building envelopes submitted with the tentative map illustrate the intent to avoid significant grading or development activities on slopes in excess of 25 percent, while Roads 1 and 2 generally follow site contours as a means of reducing grading and potential use of retaining walls, consistent with City standards. Tree removals, further discussed under the Biological section of this Initial Study, may create an adverse visual impact, and shall be further considered as part of each Hillside Development permit. No residences are proposed for development at this time; as each lot is proposed for development, City review will focus on compliance with the Hillside Development Standards and Design Guidelines (identified below as a mitigation measure). A mitigation is also proposed that would prohibit placement of individual lot driveways (and related slope cuts) along Saint Andrews Drive.

The project will include outdoor lighting, and compliance will be required with the City of Santa Rosa's outdoor lighting standards that ensure that lighting does not generate glare onto adjacent parcels (including the wildlife corridor Parcel B) to the maximum extent feasible.

#### **Mitigation Measures:**

*1.1 Hillside Development. Prior to issuance of grading or building permits for each residential lot, the developer shall apply for and obtain Hillside Development Permits to ensure design and site planning for each new residence conforms to City Hillside Development Standards and Design Guidelines. The review for each lot shall include analysis of site planning options, intended to reduce tree removals or significant pruning.*

*1.2 Saint Andrews Drive Access. The Final Map shall include a notation restricting driveway access for individual lots to Saint Andrews Drive to ensure reduced driveway cuts and to minimize visual impacts as seen from the road.*

**(Sources: 1, 3, 6)**



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Less-Than-  
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No  
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## II. AGRICULTURE

Would the project:

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

☐☐☐☒

- b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

☐☐☐☒

- c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

☐☐☐☒

### Discussion

There are no important federal or state farmlands identified within the City limits of the City of Santa Rosa. The project site is not under a Williamson Act contract, nor would the project create a conflict to agricultural uses in the area.

The Santa Rosa 2020 General Plan does not identify any Agricultural land within the Urban Growth Boundary. This project is within the UGB and therefore will cause no impact to conversion of agricultural lands.

### **Mitigation Measures:**

None.

(Sources: 1, 4)

## III. AIR QUALITY

Would the project:

- a. Conflict with or obstruct implementation of the applicable air quality plan?

☐☐☒☐

- b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

☐☐☒☐

- c. Result in a cumulatively considerable net increase any criteria pollutant for which the project region is non – attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

☐☐☒☐

- d. Expose sensitive receptors to substantial

☐☐☒☐

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
pollutant concentrations?				
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Discussion

The City of Santa Rosa participates with the Bay Area Air Quality Management District (BAAQMD) to address improvements of air quality. The Pacific Ocean dominates the climate of Sonoma County as the summer winds blow contaminants south toward San Francisco and in the winter periods of stagnant air can occur, especially between storms. Air Quality in Santa Rosa has generally improved as motor vehicles have become cleaner, agricultural and residential burning has been curtailed, and consumer products have been reformulated or replaced.

Sonoma County is in attainment of federal standards and in compliance with the State Implementation Plan (SIP). The United States Environmental Protection Agency requires that air basins record no more than three exceedances of ozone at a single station, over a three-year period (no more than one exceedance per year, on average). Stations that record four or more exceedances in three years cause the region to violate the standard. According to the BAAQMD, pollutant monitoring results for the years 1996 to 2001 at the Santa Rosa ambient air quality monitoring station indicate that air quality in the project area has generally been good.

Construction-related emissions from the project could cause temporary adverse nuisance impacts to surrounding residential uses. Fine particulate matter associated with fugitive dust is the construction pollutant of greatest concern. Construction equipment would also produce exhaust emissions. The BAAQMD approved standard dust control practices would be required. Dust generated by construction activities will be mitigated through application of standard construction control measures of the City Code and conditioning of the project with those requirements.

The 30 new residential lots would generate approximately 300 new vehicle trips per day, and would not be expected to result in adverse air quality impacts. With the implementation of standard City conditions related to dust control measures stemming from project construction activities, the potential for construction-period dust (particulate matter) impacts would be less than significant. The cumulative impact is not expected to be significant as the project is not proposed in conjunction with any other approved or planned construction activities in the area.

#### **Global Climate Change [Updated Discussion on Page 31]**

~~Climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of Greenhouse Gas (GHG) emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code, section 38505(g).) The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide.~~

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences,

Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
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damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems. In order to avert these consequences, AB 32 establishes a state goal of reducing GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 25 percent from forecast emission levels) with further reductions to follow.

Per Senate Bill 97, enacted in 2007, lead agencies are required to make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO2 and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities. The State of California is currently in the process of developing draft CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directs the Resources Agency to certify and adopt the CEQA Guidelines by January 1, 2010.

The proposed project would generate up to 4.5 tons per day of carbon dioxide primarily in the form of vehicle exhaust. Even though it is speculative at this time to determine the significance of this project's contribution to global GHG emissions, it is significant that several aspects of the proposed project, identified below, would result in less GHG emissions than if the project were developed elsewhere. In the future, when it becomes reasonable based upon scientific and regulatory guidance to determine the significance of a land use project's GHG emissions, these aspects of the project likely would support a finding that the impacts of this project on climate change are not significant or cumulatively considerable. The following aspects of the project would lessen the GHG emissions:

- \* The proposed new development is within the City's Urban Growth Boundary and is in compliance with the General Plan for the site;
- \* The proposed project would incorporate design elements and other measures to reduce GHG emissions, as required by the City's Green Building Ordinance;
- \* The project will include landscape features that conserve water in compliance with the City's water-efficient residential landscaping requirements;

As discussed above, the project has been designed to minimize effects on global climate change.

#### Mitigation Measures

None required.

(Sources: 1)

#### IV. BIOLOGICAL RESOURCES

Would the project:

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

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- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

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	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

Vegetation on the project site consists of valley, black, Oregon and coast live oak, madrone, California bay, coyote brush, poison oak and bracken fern. A wide variety of wildlife occurs in the area, including bobcat, mountain lion, coyote, fox, raccoon, skunk and other mammals.

There are no known sensitive or protected plant species on the project site, nor are there riparian habitat or wetlands areas on the site. The project area, given its semi-rural residential densities and hillside setting, supports significant wildlife movement. In response to concerns about potential disruption to wildlife movement, WRA Consulting prepared an analysis of a proposed wildlife corridor (Parcel B), and included consultation with State Department of Fish and Game staff. The corridor is expected to be used by mule deer and the northern Pacific rattlesnake, though the entire region supports varied wildlife. In addition to limiting construction activities to daylight hours (construction hours are limited by City Code), the WRA assessment suggests use of downcast lighting on all residences (required by standard City conditions of approval), use of light sensors to limit constant glare, and avoiding use of street lighting by the corridor parcel. Additionally, speed limits of 25 mph and wildlife crossing signage are proposed for this stretch of Saint Andrews Drive by the corridor parcel, and advisory notices provided to homeowners to keep pets inside or on leashes. The report seeks a deed restriction prohibiting future development of the corridor parcel. These items are included as mitigation measures for the project.

Tree removals would occur in conjunction with road, utility, driveway and residence construction. An arborist's report (Becky Duckles, January 22, 2010, updated June 29, 2011) evaluated all trees of 4-inch diameter or greater on the project site.

Category	Not Including Manzanitas	Including Manzanitas
Number of Trees to be Saved	156 (53%)	156 (50%)
Number of Trees to be Evaluated for Preservation with Future	14 (5%)	14 (4%)

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
<i>Lot Development</i>				
<i>Number of Trees to be Removed with Road and Utility Construction</i>		59 (20%)	64 (21%)	
<i>Number of Trees to be Removed with Future Lot Development</i>		63 (22%)	77 (25%)	
<b><i>Total Number of Trees</i></b>		<b>292 (100%)</b>	<b>311 (100%)</b>	

A total of 320 292 trees were identified, consisting mainly of oaks and California bay. Based on the health status of the trees, the applicant incorporated various site plan changes (relocation of intended building footprints, driveways, grading, etc.) as a means of reducing potential tree loss. Under the redesigned plan, a total of 67-59 trees are proposed for removal across the project site to construct initial site improvements; up to 63 more trees would be removed as part of lot development and 14 trees would be further evaluated. The below-noted mitigation measure will ensure replacements occur consistent with the City's tree protection ordinance.

#### **Mitigation Measures**

The following mitigation measure will reduce potential impacts to biological resources to less than significant levels:

*IV.1 Wildlife Corridor. In order to ensure viability of the wildlife corridor on Parcel B is maintained, the following provisions shall apply to the project:*

- ◇ *A note shall be placed on the Final Map indicating Proposed Parcel B (Wildlife Corridor) may not be developed, fenced or landscaped.*
- ◇ *Parcel B shall be maintained by the homeowner's association for the project.*
- ◇ *No new street lights shall be placed along Saint Andrews Drive in front of Parcel B.*
- ◇ *Speed limits on Saint Andrews Drive approaching and in front of Parcel B shall be posted as 25 mph.*
- ◇ *Wildlife crossing signs shall be placed along Saint Andrews Drive approaching Parcel B.*
- ◇ *All homeowner's shall be provided with informational notices when purchasing properties requesting that pets (particularly dogs) be kept indoors or, when outdoors, on leashes or similarly restrained, and motion sensors be used for outdoor lighting.*

*IV.2 Tree Removals. The Planning Department shall review all Hillside Development permit applications for construction of new residences to ensure protection of existing trees. Where possible and practical, trees shall be protected by locating driveways away from trees, limiting the extent of grading and landscaping beneath tree driplines, and placing residences and structures away from trees. Any trees approved for removal shall be replaced consistent with requirements of the City's tree ordinance.*

**(Sources: 1, 2, 5, 6)**

#### **V. CULTURAL RESOURCES**

Would the project:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| c. Directly or indirectly destroy a unique paleontological resource or site or unique                         | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
geologic feature?				
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

There are no unique geological or paleontological features on the project site, though several small rock outcroppings occur across the project site. There are no known cultural or historical resources on the project site.

While no impacts are anticipated to historical/cultural or archaeological resources, a standard condition of project approval will require that improvement plans and building plans contain a note requiring notification of the City in the event of discovery of prehistoric or historic human activities. A qualified archaeologist or historian may be required to conduct further investigations, depending upon the nature of the discovery, prior to further site disturbance activities.

**Mitigation Measures**

None.

**VI. GEOLOGY AND SOILS**

Would the project:

e. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
(1994), creating substantial risks to life or property?				
i. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Discussion:

The City of Santa Rosa is subject to geological hazards related primarily to seismic events (earthshaking) due to presence of active faults. The project site does not contain evidence of any geologic activities such as faulting and landsliding.

The applicant provided a slope analysis exhibit that identifies slope constraints across the project site. The steepest slopes on the property (those in excess of 25%) occupy 19% of the property. The average slope of the site is 19%. Proposed building envelopes avoid significant intrusion into slope areas in excess of 25%. The original geologic investigation for the original 500-acre Skyfarm project (Hallenbeck & Associates, 1988) indicated that the site is underlain by volcanic lavas of the Sonoma Volcanics Formation, which include deposits of agglomerates and Glen Ellen formation rocks, fractured rock and surface soils. Slope stability was considered, and no landslides were identified on the proposed Skyfarm Unit 3 area, though with several isolated slope movement areas identified elsewhere in the original Skyfarm project area. The report concluded that avoidance of building envelopes and grading near ridge tops of the project site would minimize risk of landsliding during a severe seismic event. Chances of liquefaction were determined to be slight to nonexistent due to presence of dense, well-consolidated soils across the project site.

The applicant submitted an updated Geotechnical Report for the project prepared by Miller Pacific Engineering Group. The report concludes that the findings and conclusions of the 1988 Hallenbeck report are still valid and that project development is feasible from an geotechnical engineering and geologic viewpoint. The Miller Pacific Report was reviewed by Public Works – Engineering Development Services and found to be acceptable.

The project site is not located within any Alquist Priolo Special Study Zone as depicted in the General Plan 2010 (Figure 12-2), and is just beyond an area characterized as being subject to violent groundshaking from an earthquake due to proximity to the Rodgers Creek fault. The tentative map proposes only minimal grading activities on the project site's steeper slopes. Application of City and UBC construction standards will address any potential impacts related to possible area seismic activity; a design-level geotechnical investigation will be conducted prior to final design and construction of site improvements or homes. The project will include connection to City sewer systems for wastewater disposal, and therefore will not include use of a septic system.

#### **Mitigation Measures**

None.

**(Sources: 1, 8)**

## **VII. HAZARDS AND HAZARDOUS MATERIALS**

Would the project:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Create a significant hazard to the public or   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion:

Residential developments do not typically include use or storage of hazardous materials.

The proposed construction and use of 34-30 residential units is not expected to result in significant use or storage of hazardous materials. The project site is not listed on any sites maintained by the State of California (Regional Water Control Board, Department of Toxic Substances Control, and Integrated Waste Management Board). The project site is located over one mile from the closest school. The project site is not located within two miles of the Sonoma County Airport. Emergency access will be available through street connections to Saint Andrews Drive, which in turn connects to Skyfarm Drive to the northwest and Thomas Lake Harris Drive to the south.

The project site is located in an area containing wildland vegetation, and is characterized as having very high fire hazards. See discussion and mitigation contained under Public Services – Fire, Section XIII, below.



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### Mitigation Measures

See Section XIII, Fire Hazards mitigation.

(Sources: 1)

## VIII. HYDROLOGY AND WATER QUALITY

Would the project:

- |   |                          |                          |                                     |                                     |
|---|--------------------------|--------------------------|-------------------------------------|-------------------------------------|
| a. Violate any water quality standards or waste discharge requirements?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off- site?  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| e. 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?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| f. Otherwise substantially degrade water quality?   | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| h. Place within a 100-year flood hazard area structures which would impede or redirect  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
flood flows?				
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion:**

The developer will be required to install on- and related off-site improvements in connecting to City water and sewer systems. Storm drainage improvements will be necessary to respond to the installation of impervious surfaces in the project.

The project will be served with water from the Sonoma County Water Agency (SCWA). The City's Utility Division has indicated that there is sufficient water to serve the project site.

Sewer services would be provided by the City. The project would be required to connect to City wastewater collection and treatment systems. New storm drainage facilities will be required to accommodate runoff from the proposed project; standard City conditions will require compliance with the Storm Water Mitigation Plan Guidelines, use of best management practices and submittal of storm drainage plans to the Regional Water Quality Control Board. There is landfill capacity at County facilities to support the project.

**Mitigation Measures**

None.

(Sources: 1, 7)

**IX. LAND USE AND PLANNING**

Would the project:

a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion:**

The application proposes a 34-30-lot residential subdivision in an area planned for low density residential use.

The proposed residential project is consistent with the General Plan, which designates the site Low Density Residential. The project site's existing PD (Planned Development) zone would remain unchanged. The zone would be consistent with the range of other residential subdivisions in the area as part of the Skyfarm development. Applicable General Plan policies include:

Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
--------------------------------------	---	-------------------------------------	--------------

*Section 2.4, Low Density Land Use Designation: Development is intended for single-family residential dwellings, with a density range of 2-8 units/gross acre.*

*LUL-E-2: As part of planning and development review activities, ensure that projects, subdivisions, and neighborhoods are designed to foster livability. (This includes use of different housing types and locations to accommodate a diverse range of needs, and use of quiet, interconnected neighborhood streets to accommodate pedestrians and bicyclists.)*

*LUL-F-1: Do not allow development at less than the minimum density prescribed by each residential land use classification.*

*LUL-F-3: Maintain a balance of various housing types in each neighborhood and ensure that new development does not result in undue concentration of a single housing type in any one neighborhood.*

The project would result in a density of ~~2.98~~ 2.87 units per acre, within the prescribed range of the General Plan, and would be in keeping with the character of other residential projects in the immediate area. The project site is located along a public street (Saint Andrews Drive) that does not divide the established neighborhood. The project would not result in a conflict with any habitat conservation or natural community conservation plans.

#### **Mitigation Measures**

None.

**(Sources: 1, 2)**

## **X. MINERAL RESOURCES**

Would the project:

- |   |                          |                          |                          |                                     |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

#### Discussion:

The project site does not contain any locally- or regionally-significant mineral resources.

#### **Mitigation Measures**

None.

**(Sources: 1)**

## **XI. NOISE**

Would the project result in:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
ordinance, or applicable standards of other agencies?				
b. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion:**

The project would result in noise impacts related to construction of the proposed residential units. Residential uses do not typically generate substantial sources of noise. There are no major sources of noise generation near the project site.

The project will result in short-term noise impacts related to site grading and construction activities. Standard City conditions of project approval limit the hours of construction to 7 a.m. to 7 p.m. Monday through Friday and 8 a.m. to 6 p.m. Saturdays. No construction is permitted on Sundays and holidays. The project site is not located near a public or private airport, and therefore would not be subject to air-traffic related noise impacts.

**Mitigation Measures**

None.

**(Sources: 1)**

**XII. POPULATION AND HOUSING**

Would the project:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. Displace substantial numbers of existing housing, necessitating the construction of  | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
replacement housing elsewhere?				
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

The project would not induce substantial or unplanned levels of residential growth. The site was duly considered for the proposed levels of residential development (density) as part of the City's General Plan.

The project site's General Plan designation supports the proposed residential development. There are no residences currently located on the project site, and the project would therefore not result in displacement of housing units or residents.

**Mitigation Measures**

None.

**(Sources: 1)**

### XIII. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a. Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

The project site is located within a Very High Fire Severity Zone due to its slopes and presence of wildland vegetation. The City of Santa Rosa would provide all necessary public services including fire protection services.

Owners of each lot will be required to maintain minimum 30-foot firebreak clearances around residences, with clearances up to 100 feet possible where brush and other flammable materials occur (also noted below as a mitigation measure). The firebreak clearance requirement does not mean that sites must be cleared of existing healthy trees but does require a higher level of tree and brush maintenance; the project has been conditioned to require that the developer provide informational brochures to all homeowners with specifications for maintaining the firebreak clearances. The Fire Department will also impose standard conditions of approval. All residences are required to include fire sprinklers.

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### Recommended Mitigation Measures

*XIII.1 Vegetation Clearance. A note shall be placed on the Final Map requiring all residential development to ensure clearance (and subsequent maintenance) of fire-hazardous vegetation around structures. A minimum 30-foot clearance is required, with greater clearances required where lot conditions warrant. Landscape plans for construction of each residence shall be reviewed and approved by the Fire Department as part of the Hillside Development permit process to ensure consistency with this standard, considering tree protection/viewshed protection with the need for fire safety.*

(Sources: 1, 9)

### XIV. RECREATION

Would the project:

- a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- b. Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

☐☐☒☐☐☐☒☐

#### Discussion:

No on-site park or recreational facilities are proposed with the project. The project site adjoins the Fountaingrove Golf Course to the west, and is three-quarters of a mile from Fountaingrove Community Park and one-half mile from Fir Ridge Park, both of which are accessible to project residents by foot and bicycle. The project would be required to pay park impact fees to address increased demand on park facilities resulting from the creation of 34 new residences. Fees are required at time of building permit issuance.

#### Mitigation Measures

None.

(Sources: 1)

### XV. TRANSPORTATION/TRAFFIC

Would the project:

- a. Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?
- b. Exceed, either individually or cumulatively, a level of service standard established by the

☐☐☒☐☐☐☒☐

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
county congestion management agency for designated roads or highways?				
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Result in inadequate parking capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

The project is located on Saint Andrews Drive, a local collector street. The project will result in additional vehicle traffic along local roadways.

The projected level of service resulting from the development of the project would not result in changes to LOS on Saint Andrews Drive or other local streets. An estimated 340 300 new vehicle trips per day would result from the project. The City Traffic Engineer has reviewed the proposed Tentative Map and has determined that it would not generate a significant amount of traffic or present adverse impacts to traffic along local streets. The City's Engineering Department has proposed a wide range of conditions for project approval, requiring frontage improvements and for construction of the project interior streets. The applicant will seek variances for certain design features of the roadways involving road curvature and radius; the road design would not create unsafe driving conditions as adequate sight distance (approximately 250 feet) would be provided at encroachments onto Saint Andrews Drive. Emergency vehicle access improvements are also required by the Engineering Department. Lots will be required to take access from Roads 1 or 2, per a mitigation measure contained under Aesthetics, above. Parking for each residential lot will be provided on-site (garage and driveway parking). Saint Andrews Drive currently includes a Class III bicycle lane. The project is not located near a public or private airport, and would not impact air traffic patterns or safety.

**Mitigation Measures**

None.

**(Sources: 1)**

**XVI. UTILITIES AND SERVICE SYSTEMS**

Would the project:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Require or result in the construction of new	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

The project will be served by City water and sewer services; adequate water supplies and wastewater treatment plant capacity are available for the project. New storm drainage facilities will be required to accommodate runoff from the proposed project (see discussion above under Item VIII); standard City conditions will require compliance with the Storm Water Mitigation Plan Guidelines, use of best management practices and submittal of storm drainage plans to the Regional Water Quality Control Board. Adequate landfill capacity exists at County facilities to support the project.

**Mitigation Measures**

None.

**(Sources: 1)**



Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact

## **XVII. GREENHOUSE GAS EMISSIONS**

Would the project:

- |   |                          |                          |                                     |                          |
|---|--------------------------|--------------------------|-------------------------------------|--------------------------|
| h. <u>Generate Greenhouse Gas Emissions, either directly or indirectly, that may have a significant impact on the environment?</u>                    | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| i. <u>Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?</u> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

## **DISCUSSION**

### Global Climate Change

According to the US Environmental Protection Agency, climate change refers to any significant change in measures of climate, such as average temperature, precipitation, or wind patterns over a period of time. Climate change may result from natural factors, natural processes, and human activities that change the composition of the atmosphere and alter the surface and features of the land. Significant changes in global climate patterns have recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to accumulation of Greenhouse Gas (GHG) emissions in the atmosphere. Greenhouse gases trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted to the atmosphere through natural processes, while others are created and emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming. State law defines GHG to include the following: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (Health and Safety Code, section 38505(g).) The most common GHG that results from human activity is carbon dioxide, followed by methane and nitrous oxide.

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snow pack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems. In order to avert these consequences, AB 32 establishes a state goal of reducing GHG emissions to 1990 levels by the year 2020 (a reduction of approximately 25 percent from forecast emission levels) with further reductions to follow.

Lead agencies are required to make a good-faith effort, based on available information, to calculate, model, or estimate the amount of CO<sub>2</sub> and other GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities.

The proposed project has been reviewed in compliance with the BAAQMD's CEQA Guidelines and would generate the following emissions:

	Potentially Significant Impact	Less-Than- Significant With Mitigation Incorporation	Less-Than- Significant Impact	No Impact
<u>Pollutant</u>	<u>BAAQMD Threshold</u> Construction & operational	<u>Project Emissions</u>		
GHGs	1,100 MT/yr or 4.6 MT of CO <sub>2</sub> /yr** (residents & employees)	<b>581.91 MT/yr</b>		

\*\*Operational only

The proposed project is consistent with all the applicable local plans, policies and regulations and would not conflict with the provisions of AB 32, the applicable air quality plan, or any other State or regional plan, policy or regulation of an agency adopted for the purpose of reducing greenhouse gas emissions. As discussed above, the project has been designed to minimize effects on global climate change.

#### Sources:

- BAAQMD CEQA Guidelines 2010
- Urbemis
- BAAQMD's BGM Model
- US EPA; <http://www.epa.gov/climatechange/science/index.html>; June 17, 2010.

### **XVIII. MANDATORY FINDINGS OF SIGNIFICANCE**

Would the project:

- a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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#### Discussion:

The project site does not contain riparian areas or wetlands, nor is there indication the site contains threatened or protected plant species. In response to concerns to provide for sustained wildlife movement through the area, the project plans include a wildlife corridor (Parcel B). Mitigation is included under Biological Resources, above, to ensure the wildlife corridor is not threatened by the surrounding development. The site does not contain any significant examples of California history or prehistory.

#### **Mitigation Measures**

None

(Sources: 1, 2, 5, 6)

- 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,

☐
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Potentially  
Significant  
Impact

Less-Than-  
Significant With  
Mitigation  
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Significant  
Impact

No  
Impact

the effects of other current projects, and the effects of probable future projects)?

Discussion:

The project does not have the potential to create impacts which are individually limited but cumulatively considerable. The environmental effects of the project are generally negligible and will be mitigated through standard City construction standards and practices and, in the case of aesthetics and biological resources, through mitigation measures contained in this Initial Study that will reduce potential cumulative impacts to levels of insignificance. Traffic impacts are not anticipated to result in adverse cumulative conditions; the City has adopted circulation policies as part of its General Plan Transportation Element that regulate traffic movement and require construction of project improvements to ensure traffic safety. Long-term traffic impacts related to General Plan buildout (2035 scenario) and cumulative traffic conditions will be addressed by ongoing City efforts to pursue alternative transportation modes, including increased use of public transit and other Transportation Systems Management methods.

**Mitigation Measures**

None.

**(Sources: 1, 3, 4, 5, 6, 8)**

- c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

☐☒☐☐

Discussion:

The project generally does not present potentially significant impacts which may cause adverse impacts upon human beings, either directly or indirectly. Where such an impact may occur (with respect to Fire Hazards) mitigation is proposed to reduce the impact to levels of insignificance. The project will be conditioned to make City standard improvements with respect to geologic, noise impacts, roadways and storm drainage. Building and improvement plans will be reviewed to ensure compliance with applicable building codes and standards.

**Mitigation Measures**

None.

**(Sources: 1, 8, 9)**

## APPENDIX

### SOURCE REFERENCES

The following is a list of references used in the preparation of this document. Unless attached herein, copies of all reference reports, memorandums and letters are on file with the City of Santa Rosa Department of Community Development. References to Publications prepared by Federal or State agencies may be found with the agency responsible for providing such information.

- 1) City of Santa Rosa 2035 General Plan and EIR
- 2) City of Santa Rosa Zoning Code (Title 20 of the City of Santa Rosa's City Code).
- 3) Visual Analysis (Brelje & Race, August 24, 2005; September, 2007 – Updated July 2011).
- 4) California Department of Conservation Division of Land Resource Protection Farmland Mapping and Monitoring Program, Important Farmland in California, 2002.
- 5) Wildlife Corridor Assessment, WRA Consultants, October 12, 2006.
- 6) Arborist's Report, Skyfarm Unit 3, Becky Duckles (ISA Certified Arborist), January 22, 2010 – Updated June 29, 2011.
- 7) Preliminary Storm Water Mitigation Plan for Skyfarm Unit 3, Brelje & Race Consulting Engineers, January 2010.
- 8) Geologic Investigation, Skyfarm at Fountaingrove, Hallenback & Associates, September 22, 1988.
- 9) Preliminary Geotechnical and Engineering Geologic Evaluation, Miller Pacific Engineering Group, July 5, 2011
- 10) Fire Protection Calculations, Skyfarm Unit 3, Brelje & Race Consulting Engineers, October 30, 2006.
- 11) Manzanita Fuel Hazard Assessment, Skyfarm 3, Vern Losh and Associates, July 2011

### PROJECT SPONSOR'S INCORPORATION OF MITIGATION MEASURES

As the project sponsor or the authorized agent of the project sponsor, I, **Alfred Gotianan**, undersigned, have reviewed the Initial Study for the **Skyfarm Unit 3 project** and have particularly reviewed all mitigation measures and monitoring programs identified herein. I accept the findings of the Initial Study and mitigation measures and hereby agree to modify the proposed project applications now on file with the City of Santa Rosa to include and incorporate all mitigation measures and monitoring programs set out in this Initial Study.

Alfred Gotianan 8-1-11  
Property Owner (authorized agent) Date

### DETERMINATION FOR PROJECT

On the basis of this Initial Study and Environmental Checklist I find that the proposed project:

☒ could have a Potentially Significant Effect on the environment; however, the aforementioned mitigation measures to be performed by the property owner (authorized agent) will reduce the potential environmental impacts to a point where no significant effects on the environment will occur. A Mitigated Negative Declaration will be prepared.

Erin Morris July 27, 2011  
Erin Morris, Senior Planner Date

City of Santa Rosa, Community Development Department.

**DATE:** May 20, 2010  
**TO:** Public Agencies, Organizations and Interested Parties  
**FROM:** Erin Morris, Senior Planner  
**SUBJECT: NOTICE OF PUBLIC REVIEW AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION**

---

Pursuant to the State of California Public Resources Code and the "Guidelines for Implementation of the California Environmental Quality Act of 1970" as amended to date, this is to advise you that the Department of Community Development of the City of Santa Rosa has prepared an Initial Study on the following project:

**Project Name:**

Skyfarm Unit 3 Subdivision

**Location:**

Saint Andrews Drive, Santa Rosa, Sonoma County, California, APNs: 173-760-038 & 039

**Property Description:**

The project site consists of two parcels (Lots 1 and 2 of Skyfarm at Fountaingrove, Unit 1C) that collectively occupy 10.42 acres, located on the west side of Saint Andrews Drive, and east of the Fountaingrove Golf Course and Skyfarm Drive in north Santa Rosa. The project site is long and generally linear, and undeveloped. The site is located on hillside lands with slopes that generally range from near-level to over 25%. The average slope of the combined parcels is 19.52%. The portions of the site that have slopes greater than 25% are primarily the slopes along St. Andrews Drive that were graded in conjunction with the construction of that roadway in 1991, and would remain undisturbed by the proposed development.

Vegetation consists of numerous stands of oak and madrone trees, along with scattered shrubs and grasses. There are approximately 320 trees on the project site. Numerous small rock outcroppings are located through the site. The Saint Andrews Drive frontage is fully developed with public improvements and include contains utility lines for water, sewer and storm drainage, street lights and sidewalks.

The project site is designated Low Density Residential on the General Plan land use diagram and zoned CR – Cluster Residential on the Fountaingrove Development Concept Plan, which specifies a density range of 2.0 to 8.0 units per acre and allows for a range of detached and attached single family housing.

**Project Description:**

The project consists of a proposed subdivision to create 31 lots for single-family residential uses by subdividing two bulk lots of 5.19 acres and 5.23 that were originally created by the Skyfarm Unit 1C map in the early 1990's. The project would result in a density of 2.98 units per acre.

The subdivider is proposing to create the lots and install the public roadways and utilities with this subdivision, and sell the lots individually or in small groups to individuals or builders. No house construction, lot grading or tree removal on individual lots, with the exception of grading and tree removal associated with the construction of the roadways, would occur with the subdivision improvements. Initial improvements would involve removal of approximately 67 trees.

In order to illustrate the feasibility of and eventual impacts of the development of housing on the site, the project plans illustrated a range of housing footprints of various types (uphill split, downhill split, side to side split, etc) that can occur on the lots. It is expected that approximately 95 to 145 additional trees may be removed when individual homes are constructed, but these trees would be preserved until each lot develops and a separate Hillside Development Permit would be required to try to preserve as many of the existing trees as possible.

#### Northern Lot

The northern lot would be subdivided into 15 lots, ranging in size from 6,641 square feet to 40,868 square feet. This portion of the site has relatively uniform existing tree cover over most of the site. Trees were carefully evaluated by the project arborist for health and preservation value, and this information was used to guide the layout of roadways, lots, and future home placement. Building setback lines are proposed that would assure preservation of key trees on various lots, and a unique loop configuration is proposed at the north end of the public street in lieu of a typical cul de sac, so that a significant grove of trees can be preserved undisturbed in the center of the loop. The parcel enclosed by the loop road would be owned and maintained by the homeowner's association. Streets for both portions of the project are proposed using the hillside section with two 12 ft travel lanes, and parking bays where slope and tree conditions permit. Sidewalks are proposed on one side of the street and are proposed to be attached to the curb, again to minimize grading and tree removal.

#### Southern Lot

The southern parcel would be subdivided into 16 lots, a wildlife corridor, and a drainage infiltration parcel. Both common parcels would be owned and maintained by the homeowner's association. The purpose of the wildlife corridor is to provide for continued movement of wildlife between the Golf Course and St Andrews Dr and the open spaces beyond in both directions. Lot sizes in the southern portion of the project range from 6,035 square feet to 13,914 square feet. The existing tree cover on the southern parcel is concentrated on the top of the slope above St Andrews Drive, and in several groves along the golf course towards the north end. Two significant groves are proposed for preservation in large setback areas between lots 22 and 31. As with the northern parcel, the arborist identified preservation worthy trees, which formed the basis for the layout of the lots and streets. The plan currently proposed for approval consists of two cul de sacs, connected by an EVA drive that would also provide lot access for lots 20, 22, and 23, as well as access for public utility maintenance. A locked gate would prevent through traffic.

#### Stormwater Treatment

The preliminary SUSMP plan was updated recently to incorporate low impact development storm water treatment and retention features, consistent with the City's evolving storm water management plans, and the recently completed LID priority list.

#### Maintenance

The project has been identified as an annexable area in the Skyfarm Unit 2 Homeowner's Association document, and proposes to annex into that association for the ownership and maintenance of the parcel inside the loop road, the wildlife corridor parcel, and of a

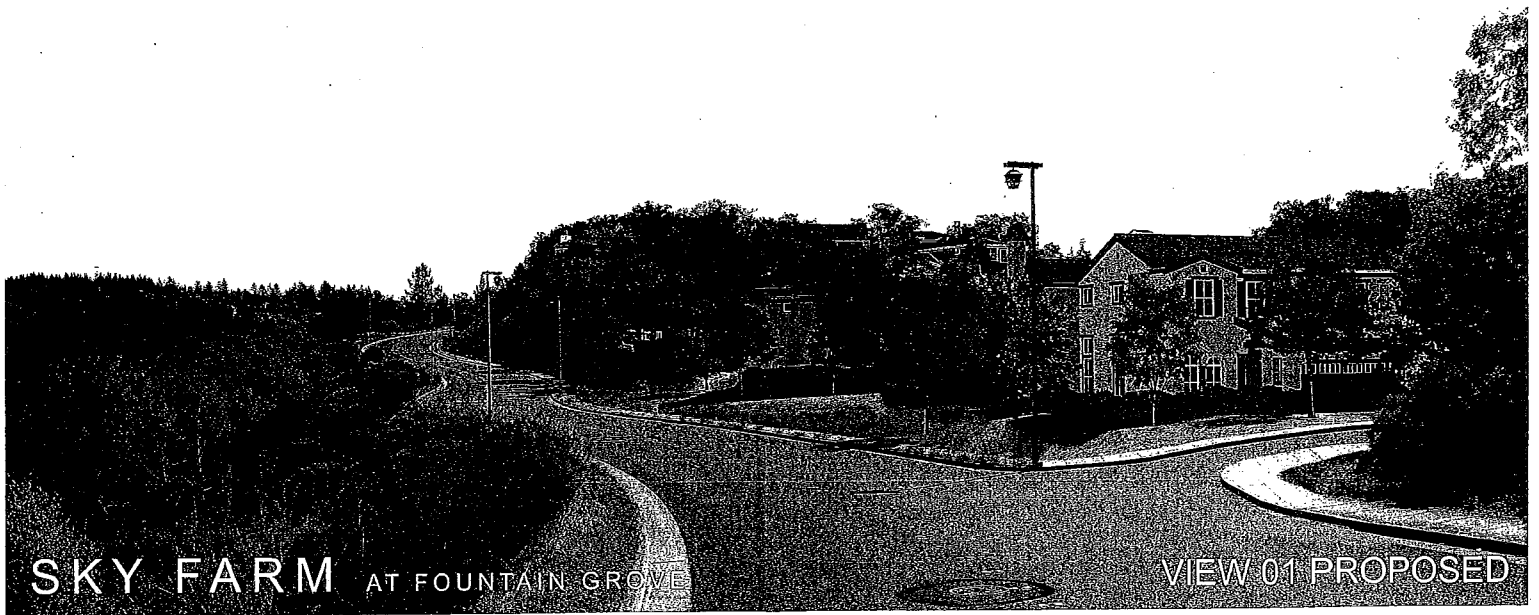
retention/infiltration parcel at the south end. The association would also be responsible for maintenance of the low impact development storm water treatment and infiltration devices. Skyfarm Unit 3 does not propose to be annexed into the Fountaingrove Ranch Master Association.

#### **Environmental Issues:**

The proposed project would result in potentially significant impacts in aesthetics, biological resources and wildland fire hazards. The project impacts would be mitigated to a less-than-significant level through implementation of recommended mitigation measures or through compliance with existing Municipal Code requirements or City standards. Recommended measures are summarized in the attached Mitigation Monitoring and Reporting Plan (MMRP) and Initial Study/Mitigated Negative Declaration. The Initial Study/Mitigated Negative Declaration document has been prepared in consultation with local, and state responsible and trustee agencies and in accordance with Section 15063 of the California Environmental Quality Act (CEQA). Furthermore, the Initial Study/Mitigated Negative Declaration will serve as the environmental compliance document required under CEQA for any subsequent phases of the project and for permits/approvals required by a responsible agency.

**A twenty-day (20-day) public review period shall commence on May 21, 2010. Written comments must be sent to the City of Santa Rosa, Community Development Department, Planning Division, 100 Santa Rosa Avenue, Room 3, Santa Rosa CA 95402 **by 4:00 p.m. on June 10, 2010**. The City of Santa Rosa Planning Commission will hold a public hearing on the Initial Study/Mitigated Negative Declaration and project merits on or after **June 10, 2010 in the Santa Rosa City Council Chambers at City Hall (address listed above)**. Correspondence and comments can be delivered to Erin Morris, project planner, phone: (707) 543-3273, email: [emorris@srcity.org](mailto:emorris@srcity.org)**





SKY FARM AT FOUNTAIN GROVE

VIEW 01 PROPOSED



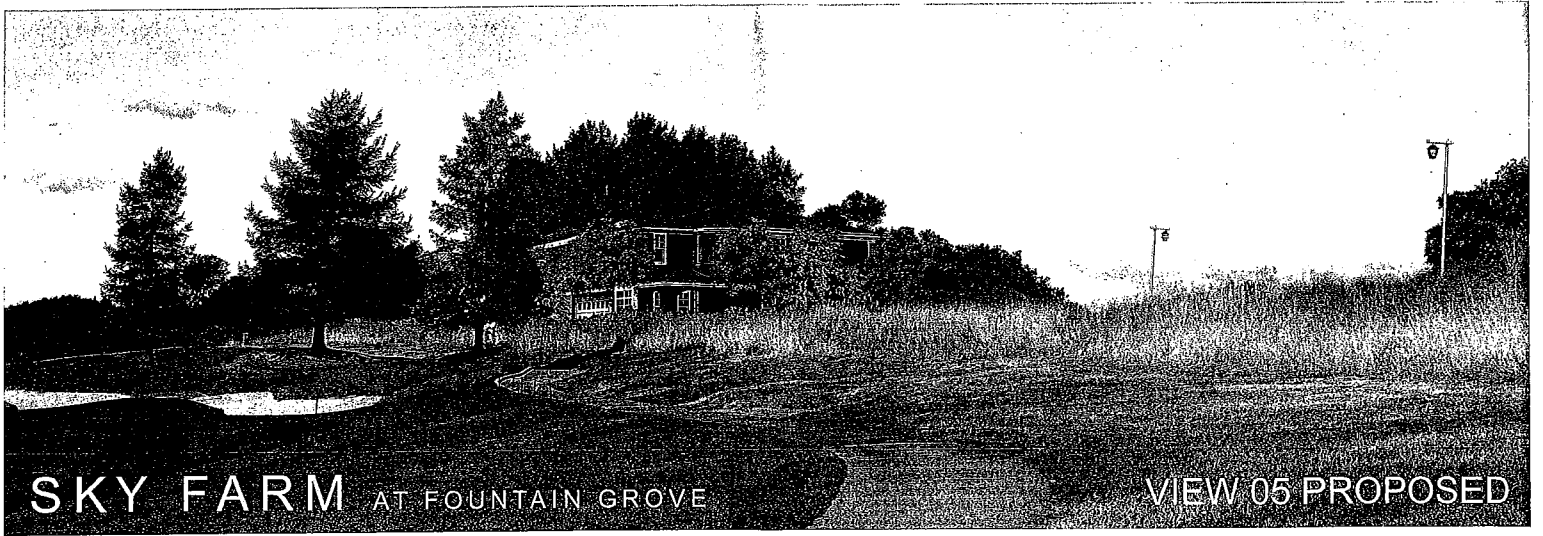




SKY FARM

AT FOUNTAIN GROVE

VIEW 03 PROPOSED



SKY FARM AT FOUNTAIN GROVE

VIEW 05 PROPOSED



October 12, 2006

Andremer Developers  
c/o Tom Jones  
Brelje & Race Engineers  
5570 Skylane Blvd.  
Santa Rosa, CA 95403

**RE: Skyfarm Unit 3, Wildlife Corridor Assessment, Santa Rosa, California**

Dear Tom:

The purpose of the assessment is to evaluate a specific site designated as "Wildlife Corridor" in order to define the type of wildlife corridor present and to determine potential impacts and recommend mitigation measures.

The Project Area is located on Saint Andrews Drive, southeast of Sky Farm Drive and south of Mark West Springs Road in Santa Rosa, California. The Project Area is approximately 0.17 acres and lies east of and adjacent to Hole 4 of the Fountain Grove Golf Club (Figure 1). To the east and west of the golf course lies limited residential development and open space. Additional residential housing development, as part of the Sky Farm Unit 3, is proposed to the north and south (Figure 1). The corridor measures approximately 80 feet by 90 feet in dimension (7200 square feet). The terrain within the corridor is a gentle slope, while east and west of the corridor, the slope is moderate.

The habitat of the Project Area and surrounding open space would be classified as mixed oak as defined by Sawyer and Keeler-Wolf<sup>1</sup> (Figure 2). Dominant plant species include valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*), California coffeeberry (*Rhamnus californica*), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and bracken fern (*Pteridium aquilinum*). Scattered rock outcrops are present in low densities. The Fountain Grove Golf Club is a links course and provides habitat features within the course.

A site visit was conducted on August 29, 2006 by a WRA wildlife biologist to evaluate the proposed corridor. As recommended in the letter from the City of Santa Rosa, WRA initially contacted Liam Davis at the California Department of Fish and Game (CDFG) to discuss the requirements of assessing a wildlife corridor. The type and condition of the existing habitat within the corridor and in the immediate vicinity was assessed and photographs of the site are included in this report (Appendix A). Potential usage of the corridor by wildlife (e.g., type and frequency) was also assessed. Available information from various sources, including the California Department of Fish and Game Natural Diversity Data Base (CNDDB), were reviewed for this evaluation.

---

<sup>1</sup>Sawyer, John O., and Todd Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society.

The proposed corridor is located adjacent to open space and habitat to the east and west and it provides appropriate connectivity between these areas. Dense tree canopy, coyote brush, and tall grasses provide suitable hiding cover for many mammals including deer, mountain lion, bobcat, coyote, fox, raccoon, skunk, rabbit, rodents, and shrews. The proposed corridor contains no water source. No barriers are present within or adjacent to the proposed corridor.

Numerous wildlife species may potentially benefit from use of the corridor based on existing habitat conditions. Two species, mule deer (*Odocoileus hemionus*) and the northern Pacific rattlesnake (*Crotalus viridis oreganus*), were observed in the Project Area and are likely to utilize the corridor. Rock outcrops provide cover for rattlesnakes and other reptile species. Bobcat scat was also identified within the corridor. A review of the CNDDB, found no special status or listed species are likely to use the proposed corridor.

Potential impacts to the corridor include light disturbances, increased traffic, human and pet encroachment, and future modification of habitat. To reduce these impacts to a less than significant level, the following mitigation measures should be implemented.

*To reduce potential impacts from increased lighting associated with construction:*

- Work immediately adjacent to the proposed corridor should be restricted to daylight hours, when there is less wildlife movement.

*To reduce potential impacts from increased lighting associated with residential use:*

- Downcast lighting on all homes adjacent to the corridor should be used.
- Light sensors should be employed to reduce constant glare.
- Street lighting should not be placed within or adjacent to the corridor space.

*To reduce potential impacts from increased traffic:*

- A wildlife crossing sign should be posted on Saint Andrews alerting drivers to the approaching corridor from both directions.
- A speed limit of 25 mph should be maintained through the corridor.

*To reduce potential impacts from human or pet encroachment:*

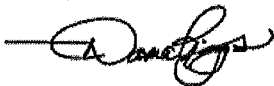
- Instructions advising homeowners to keep pets inside or on leashes should be provided by the homeowner's association. Special rules to residences adjacent to the golf course may already cover this measure.

*To protect the proposed corridor in perpetuity from future habitat modification:*

- A deed restriction, easement or other method of protecting the corridor from future development should be implemented.

Please call if you have questions.

Respectfully,



Dana Riggs  
Wildlife Biologist





**Photo Appendix A.** Upper photo shows proposed corridor from Saint Andrews Drive facing west.

Lower photo shows interior of corridor.







**Photo Appendix A.** Upper photo shows outer proposed corridor facing east, from the links.

Lower photo shows adjacent open space to the west of corridor.



**Photo Appendix A.** Upper photo shows open space to the east of the corridor, from Saint Andrews Drive.





CITY OF SANTA ROSA  
P.O. Box 1678  
Santa Rosa, CA 95402

JUL 06 2011

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

BECKY DUCKLES  
LANDSCAPE CONSULTANT & ARBORIST  
Sebastopol, CA 707.829.0555 Ph

SKYFARM – UNIT 3  
ARBORIST'S REPORT - MANZANITA

June 29, 2011

A question has been raised about the manzanitas on this site, and I have been asked to explain our reasoning as we developed the site plan and identified the trees to be preserved on this project. A couple of dozen manzanitas (*Arctostaphylos manzanita*) were included on our initial tree inventory by the surveyors as we looked at the whole site 6+ years ago, and as we assessed rock outcroppings, grades, soils, individual tree specimens and groves, and site resources. We have not included them in the tree inventory portion of the submittal for the current project redesign for reasons which will be described below.

The whole genus, *Arctostaphylos* is defined by the Sunset Western Garden Book, Revised 2007 Edition as evergreen shrubs, although some species do grow up to 20' tall. Even those are generally spreading and do not develop tree form. The 3<sup>rd</sup> Edition of Arboriculture – Integrated Management of Landscape Trees, Shrubs and Vines, Richard Harris, James Clark, & Nelda Matheny, 1999, (the most widely accepted reference for tree management in California), defines a tree as "A woody perennial, usually having one dominant vertical trunk and a height greater than 5 m (15 ft.)". I have never included manzanitas, regardless of trunk diameter, on a tree inventory in Santa Rosa or any other municipality in my 20+ years of arboricultural consulting. Another well-respected consulting arborist, James MacNair said he has never included or been asked to include manzanitas in his tree inventories or reports for the City of Santa Rosa either (his response enclosed).

Because manzanitas are multiple-trunked woody shrubs, rarely achieving a height over 8', they are not considered trees. However, the Santa Rosa Tree Ordinance does define tree as "...any woody plant having a single trunk...diameter of four inches or more." Taken to the extreme, this definition could apply as well to poison oak (*Toxicodendron* sp) and coyote brush (*Baccharis pilularis*) on this site. Further in the ordinance definitions however, manzanita (*Arctostaphylos*) is not listed on the list of protected native species of trees (Article II, 17-24.020 (L) (2)), lending support to what has been the practice in interpreting the City's tree ordinance over the past 20 years.

An important issue that has been considered as various sites plans were worked out for this project is fire safety. The fire department generally requires a 30' minimum clearance between homes and high fire-hazard (pyrophytic) vegetation. On the lists of pyrophytic plants for this area, all species of manzanita are listed as high-fire hazard native shrubs (Pyrophytic vs. Fire Resistant Plants, University of California Cooperative Extension, 1998). All manzanitas are highly flammable because their evergreen leaves and wood contain volatile oils and waxes. Because they are generally multi-trunked and branched low with foliage to the ground, they create a fuel ladder for fire to travel from the ground up. On a site like this with relatively small lots, we could not find the opportunity to include any of these shrubs without increasing the risk of fire to the new and established homes.

Another observation which led to our not preserving manzanita on this site is a disease issue. Most of the manzanitas I evaluated show symptoms of a fungal canker disease, most likely madrone canker (*Botryosphaeria dothidea*). This is manifested by lesions on, and dieback of

Skyfarm 3 – Arborist's Report  
June 29, 2011  
Page 2

Individual branches and stems, many of which turn black, then grey. It is a chronic, slowly progressive disease which is not considered treatable. It also infects madrone, a desirable, protected native tree species. Manzanita is also an intermediate host for Sudden Oak Death (*Phytophthora ramorum*), though it is not killed by the disease.

Though several manzanitas on this site are old and attractive native shrubs, there are very few that are candidates for preservation. On some of the undisturbed slopes adjacent to proposed homes it may be possible to retain some that would be sufficiently far from future structures to preserve them.

We worked to identify and preserve the best tree specimens wherever possible on this site, further refining this effort with the most recent redesign of the site plan that is currently being reviewed by the City. For the reasons stated above, in my professional opinion and based upon my substantial experience over 20 years working in Santa Rosa and other similar municipalities, the City's tree ordinance does not require manzanita to be included in the tree inventory, and that preservation decisions should give strong consideration to the site's classification as a high fire danger zone in Santa Rosa. Therefore we request that the City continue its long standing policy of interpreting its tree ordinance so that it does not include manzanitas.

Respectfully submitted,

*Becky Duckles*

Becky Duckles, Project Arborist

ISA Certified Consulting Arborist #WE-0796A  
Member, American Society of Consulting Arborists

CITY OF SANTA ROSA  
P.O. Box 1678  
Santa Rosa, CA 95402

JUL 06 2011

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

## **SKYFARM - UNIT 3**

**SANTA ROSA, CA.**

### **Arborist's Report Tree Inventory & Evaluation**

**June 29, 2011**

**Prepared For:**

**Skyfarm Estates, L.P.**

**Submitted By:**

**Becky Duckles, ISA Certified Arborist #WE-0796**

**Member, American Society of Consulting Arborists**

**Sebastopol, CA**

**707.829.0555 PH. 707.824.0516 FAX**

**BECKY DUCKLES**  
**LANDSCAPE CONSULTANT & ARBORIST**  
707.829.0555 ph 707.824.0516 fax

**SKYFARM – UNIT 3**

**ARBORIST'S REPORT - SUMMARY**

January 22, 2010 – Inventory revised June, 2011

**SUMMARY**

The following report provides an inventory and preliminary evaluations of all trees 4" diameter at breast height (at 54" above grade, unless noted otherwise) and larger, on the site of the Skyfarm – Unit 3 project in Santa Rosa, California. Tree locations are based on the Tentative Map, dated January 2010, prepared by Brelje & Race, the project engineers.

The project site, between St. Andrews Drive and the Fountaingrove Golf Course is gently sloping with all native trees. The area has been relatively undisturbed for years, with rocky outcroppings and a few open areas. The site is largely covered by groups of dense, crowded native evergreen and deciduous oaks, intermingled with other species. They vary widely in condition, ranging from sparsely-foliaged trees with extensive branch dieback to densely-foliaged, excellent specimens. This is common in areas with poor soil and crowded trees. The soil is generally shallow and rocky, volcanic in origin, with occasional deeper pockets of sandy loam.

During many site visits and meetings with the engineers, we have identified the best quality tree specimens and groups of trees to retain wherever possible. Grading, road alignment and parking bays, and building lots/footprints have been relocated to preserve these specimens.

During the development of the final plans, I will continue to work closely with the project design team to develop and refine solutions for preserving the existing trees on site. Final plans will reflect any changes for trees designated to be preserved or removed. As individual lots are developed, the trees to be removed or retained will be looked at closely, again to try to retain as many good specimens as possible.

Further discussions will be held to try to shift some utility locations to protect the few trees that were in conflict with their alignments. Additionally, some may be able to be retained with construction monitoring during trenching to retain roots – and trees.

In the following evaluation they are all rated for overall condition as well as structural integrity. They are tagged onsite, their ID numbers relating to the numbers on the Tentative Map as well as this inventory.

The format of the Arborist's Report – Skyfarm – Unit 3 is as follows:

**Summary** – Description of site and format of inventory

**Tree Inventory & Evaluation** - A listing and discussion of the trees shown on the Tree Location Map, including the following information:

**Tree Number** - The number assigned to a tree (tagged in the field) for location reference on the Tentative Map, generally the surveyor's reference number

Skyfarm – Unit 3  
January 22, 2010  
Page 2

**Species** - Common & Botanical Names

**Trunk Diameter** - Trunk diameter in inches at 54" above grade (d.b.h.), (unless noted otherwise). Multiple trunks are shown as (example) 4"/4"/6"

General Health - Rated Poor to Excellent. General comments about the tree's present condition. 'Poor' or 'Fair' may indicate severe loss of vigor, significant decay, possible disease, sparse foliage, branch dieback, suppressed growth due to competition, etc.

Trees which have died have been removed from the inventory. Field notes from all sites visits are kept and provide information for design team regarding future tree preservation decisions such as low branches (clearance), cavities in trunks, etc.

Structural Integrity - Rated Poor to Excellent, with specific comments regarding canopy development or angle of lean, significant defects or problems, etc.

To Be Removed or Preserved/Comments - Specific comments regarding tree potential for preservation; i.e. removal (if necessary for road construction and site development) or to be saved. Some trees within building envelopes shown as possibly removed, may be saved as house footprints change or are refined. The only trees shown to be removed at this time are the trees which would be removed for the infrastructure improvements for Phase 1, the roads and rough grading. Manzanitas, even though not usually considered a tree but a woody shrub, have been included in the inventory and removal totals (for Phase 1) at this time.

Tree Protection Measures - Preliminary notes; measures will be refined as Improvement Plans become finalized.

Tree Location Map - As part of the Tentative Map, tree locations, numbers, species, driplines and diameters are shown with symbols indicating whether they are to be preserved, removed in the first phase, potentially preserved or removed for home construction. Tree numbers are as they are listed in the enclosed inventory, and tagged on site.

Respectfully submitted,

*Becky Duckles*

Becky Duckles, Project Arborist

ISA Certified Consulting Arborist #WE-0796A  
Member, American Society of Consulting Arborists

## **SKYFARM – UNIT 3**

### **TREE PROTECTION MEASURES**

#### **GENERAL:**

If questions arise during construction relating to protected trees, the project arborist shall be consulted to recommend appropriate procedures, or asked to monitor construction activities expected to impact trees. Generally the project or monitoring arborist shall be notified to be present or to provide direction when construction activities will be occurring within Tree Protection Zones (TPZ).

Minimum 24 hours advance notice shall be given when scheduling site visits by project arborist.

No operation of equipment or vehicles, or storage of materials, or disposal of waste materials shall occur within the driplines of protected trees unless TPZ within original dripine .

In areas where construction activities must occur within the driplines of protected trees, the supervising arborist may require that protective wrap be placed around trunks or branches that may be damaged.

#### **PROTECTIVE FENCING:**

Temporary protective fencing shall be installed to restrict construction activity within the driplines of protected trees. It shall be placed at the outer edge of the driplines of trees or groups of trees, as shown on the Improvement Plans and the Tree Preservation Exhibit. Where grading or other operations must occur within the driplines, the fencing is placed as far as possible from the trunks, at the limit of required access. Fencing locations to be approved on site by the arborist.

#### **PRUNING:**

Any pruning shall be the minimum necessary to achieve hazard reduction and public safety, construction clearance, and to improve tree health.

All pruning shall be done according to ISA or ANSI standards, by qualified personnel.

Pruning shall be done by ISA certified tree workers or certified arborists, or under the direct supervision of a certified arborist.

Pruning for hazard reduction shall include: the removal of dead branches or stems 3" diameter and larger, broken, weakly-attached or crossing branches.

Pruning for construction clearance shall be the minimum necessary for the safe operation of equipment and construction activities. Branches shall be cut back to appropriate sized laterals or the parent stem. No stubs, broken ends, flush cuts, or wounds on trunks or branches are acceptable.

Pruning shall occur prior to start of construction activities near trees to be preserved.

Project arborist shall meet with tree service contractor prior to tree clearing and pruning to determine limits and goals of clearance and hazard reduction pruning.

#### **MULCHING:**

Within the dripline or TPZ of protected trees within 20' of disturbed areas or as shown on Landscape or Tree Preservation Exhibits, a 2" deep layer of arbormulch shall be spread and maintained as a permanent top dressing. Arbormulch is the product generated by chipping tree bark, foliage and small branches. It may be applied directly on top of existing vegetation.

#### **ROOT PROTECTION:**

Where utility trenching must occur within rootzones of trees to be preserved, project arborist (or designate) shall be present to monitor work. Roots 2"+ shall be preserved wherever possible. If roots larger than 1" diameter are encountered during grading or trenching which cannot be preserved, they shall be cut cleanly across the face of the root with a sharp saw, past any damaged portion.

In areas where roots are encountered and backfill will be placed, roots should be left exposed as short a time as possible to avoid drying out.

#### **MITIGATION:**

At the completion of construction activities there may be areas around protected trees that require treatment to insure future tree health.

Supplementary deep irrigation may be required within the root zones of individual specimens during or after construction, as directed by the arborist.

Areas within tree rootzones where soil has become compacted shall be loosened if required by arborist. Where needed, mulch shall be reapplied around trees near past construction activity.

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
100	California Bay/Umbellularia californica	5"	Excellent	Excellent	Tree to be removed for future lot development	Lot 26
101	California Bay/Umbellularia californica	5"	Excellent	Excellent	Tree to be removed for future lot development	Lot 25
102	California Bay/Umbellularia californica	6 1/8" 7"	Excellent	Excellent	Tree to be preserved	Lot 25
103	California Bay/Umbellularia californica	7 1/8 6 7/8"	Good/Excellent	Good	Tree to be removed for future lot development	Lot 25
104	California Bay/Umbellularia californica	7 1/5"	Good	Good	Tree to be removed for future lot development	Lot 17
105	Coast Live Oak/Quercus agrifolia californica	6"	Good	Good	Tree to be removed for future lot development	Lot 17
106	California Bay/Umbellularia californica	10 1/8"	Good/Excellent	Good	Tree to be preserved	Parcel B
107	California Bay/Umbellularia californica	7"	Good	Good	Tree to be removed for future lot development	Lot 13
108	California Bay/Umbellularia californica	8 7/8"	Good	Good	Tree to be preserved	Lot 10
109	Coast Live Oak/Quercus agrifolia	9"	Good/Excellent	Good	Tree to be preserved	Lot 10
110	Oregon Oak/Quercus garryana	8"	Good	Fair/Good	Tree to be preserved	Lot 7
111	Oregon Oak/Quercus garryana	6"	Good	Good	Tree to be preserved	Lot 6/7 Property Line
112	Oregon Oak/Quercus garryana	7"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
113	Oregon Oak/Quercus garryana	6"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
114	Oregon Oak/Quercus garryana	6"	Fair/Good	Fair/Good	Tree to be preserved	Lot 7
115	Madrone/Arbutus menziesii	4 1/4" 4"	Good/Excellent	Good	Tree to be preserved	Lot 3
116	Manzanita/Arcostaphylos manzanita *	7"	Good	Good	Tree to be removed to reduce fire hazard close to homes	Lot 3
117	Oregon Oak/Quercus garryana	6"	Good/Excellent	Good	Tree to be preserved.	Lot 4
118	Oregon Oak/Quercus garryana	7"	Good	Good	Tree to be preserved	Lot 4
119	Oregon Oak/Quercus garryana	6"	Good	Good	Tree to be preserved	Lot 4

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# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
120	Oregon Oak/ <i>Quercus garryana</i>	6"	Good	Good	Tree to be preserved	Lot 4
121	Oregon Oak/ <i>Quercus garryana</i>	6"	Good/Excellent	Good	Tree to be preserved	Lot 5
122	Manzanita/ <i>Arctostaphylos</i> manzanita *	4"6"	Good/Excellent	Good/Excellent	To be removed to reduce fire danger Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 4 Parcel A
123	Oregon Oak/ <i>Quercus garryana</i>	5"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 4
124	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good	Tree to be preserved	Lot 4
125	Oregon Oak/ <i>Quercus garryana</i>	5"	Good/Excellent	Good	Tree to be preserved	Lot 6
126	Oregon Oak/ <i>Quercus garryana</i>	6"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
127	Oregon Oak/ <i>Quercus garryana</i>	6"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 6
128	California Bay/ <i>Umbellularia</i> californica	5"5"1/4"	Good	Fair	Tree to be removed for future lot development	Lot 6
129	Oregon Oak/ <i>Quercus garryana</i>	7"	Excellent	Excellent	Tree to be removed for future lot development	Lot 5
130	Oregon Oak/ <i>Quercus garryana</i>	6"@3'	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 5
1800	Black Oak/ <i>Quercus kelloggii</i>	16"	Good	Good	Tree to be preserved	Lot 14
1801	Black Oak/ <i>Quercus kelloggii</i>	18"12"	Good	Good	Tree to be preserved	Lot 14
1802	Black Oak/ <i>Quercus kelloggii</i>	20"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 14
1804	California Bay/ <i>Umbellularia</i> californica	5"1/6"	Good	Good	Tree to be preserved	Lot 14
1805	Oregon Oak/ <i>Quercus garryana</i>	16"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 13
1806	Oregon Oak/ <i>Quercus garryana</i>	15"	Good	Good	Tree to be removed for future lot development	Lot 13
1807	Oregon Oak/ <i>Quercus garryana</i>	12"	Good	Good	Tree to be removed for future lot development	Lot 13
1808	Coast Live Oak/ <i>Quercus agrifolia</i>	9"	Poor	Poor	Tree to be removed for future lot development	Lot 13
1810	Manzanita/ <i>Arctostaphylos</i> manzanita *	8"8"	Good	Good	To be removed to reduce fire hazard close to homes	Lot 13/ Property Line

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# SKYFARM UNIT 3 SANTA ROSA

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1811	Coast Live Oak/ <i>Quercus agrifolia</i>	16"1/8"	Good/Excellent	Fair	Tree to be removed for future lot development	Lot 13
1812	Oregon Oak/ <i>Quercus garryana</i>	9"	Fair	Fair	Tree to be removed for future lot development	Lot 13
1813	California Bay/ <i>Umbellularia californica</i>	16"16"13"17"18"	Good	Fair/Good	Tree to be removed for future lot development	Lot 13
1814	Oregon Oak/ <i>Quercus garryana</i>	1"	Fair	Fair	Tree to be preserved	Lot 13
1815	Black Oak/ <i>Quercus kelloggii</i>	22"	Fair	Fair	Tree to be preserved	Lot 12
1816	Valley Oak/ <i>Quercus lobata</i>	17"14"17"	Good/Excellent	Good	Tree to be preserved	Lot 13
1817	Oregon Oak/ <i>Quercus garryana</i>	22"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Lot 1/Rd 1
1819	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 12
1821	Black Oak/ <i>Quercus kelloggii</i>	34"@2"	Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Lot 1
1822	Oregon Oak/ <i>Quercus garryana</i>	9"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 1
1823	Oregon Oak/ <i>Quercus garryana</i>	12"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 1/Rd 1
1824	Black Oak/ <i>Quercus kelloggii</i>	24"	Good	Good/Excellent	Tree to be preserved	Lot 12
1825	Black Oak/ <i>Quercus kelloggii</i>	16"122"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 11
1828	Oregon Oak/ <i>Quercus garryana</i>	15"@4"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 3
1829	Oregon Oak/ <i>Quercus garryana</i>	12"	Fair	Fair	Tree to be removed for future lot development	Lot 3
1830	Oregon Oak/ <i>Quercus garryana</i>	12"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 3
1831	Oregon Oak/ <i>Quercus garryana</i>	21"	Fair	Poor	Tree to be removed for future lot development	Lot 3
1832	Oregon Oak/ <i>Quercus garryana</i>	13"@4"	Good	Good	Tree to be preserved	Lot 3
1833	Black Oak/ <i>Quercus kelloggii</i>	8"	Good/Excellent	Good	Tree to be preserved	Lot 3
1834	Oregon Oak/ <i>Quercus garryana</i>	11"	Good/Excellent	Good	Tree to be preserved	Lot 2

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# SKYFARM UNIT 3 SANTA ROSA

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1835	Oregon Oak/ <i>Quercus garryana</i>	11"	Good/Excellent	Good	Tree to be preserved	Lot 2
1836	Oregon Oak/ <i>Quercus garryana</i>	7"	Good	Good	Tree to be preserved	Lot 2
1837	Oregon Oak/ <i>Quercus garryana</i>	12"	Good/Excellent	Good	Tree to be preserved	Lot 2
1838	Oregon Oak/ <i>Quercus garryana</i>	12"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 2
1839	Oregon Oak/ <i>Quercus garryana</i>	10"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 3
1840	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good	Tree to be preserved	Lot 2
1841	Oregon Oak/ <i>Quercus garryana</i>	9"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 2
1842	Oregon Oak/ <i>Quercus garryana</i>	14"115"	Good	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Road 1
1843	Oregon Oak/ <i>Quercus garryana</i>	15"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Road 1/Lot 11
1844	Oregon Oak/ <i>Quercus garryana</i>	14"12"13"	Good/Excellent	Good	Tree to be removed for Phase 1 infrastructure improvements	Parcel A
1845	Oregon Oak/ <i>Quercus garryana</i>	19"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Parcel A
1846	Oregon Oak/ <i>Quercus garryana</i>	10"	Good	Fair	Tree to be preserved	Parcel A
1847	Oregon Oak/ <i>Quercus garryana</i>	12"	Good/Excellent	Good	Tree to be preserved	Parcel A
1848	Oregon Oak/ <i>Quercus garryana</i>	9"13"	Good	Good	Tree to be preserved	Parcel A
1849	Oregon Oak/ <i>Quercus garryana</i>	19"	Good/Excellent	Good/Excellent	Tree to be preserved	Parcel A
1850	Oregon Oak/ <i>Quercus garryana</i>	11"	Fair	Fair	Tree to be preserved	Parcel A
1851	Oregon Oak/ <i>Quercus garryana</i>	18"	Good/Excellent	Good/Excellent	Tree to be preserved	Parcel A
1852	Oregon Oak/ <i>Quercus garryana</i>	16"@3'	Fair/Good	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 3
1853	Oregon Oak/ <i>Quercus garryana</i>	7"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 3
1854	Manzanita/ <i>Arctostaphylos</i>	5"6"	Fair/Good	Fair/Good	To be removed to reduce fire danger and disease inoculum from canker-infected shrubs	Rd 1/Lot 3

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1856	Oregon Oak/ <i>Quercus garryana</i>	12"	Excellent	Excellent	Tree to be preserved	Lot 4
1857	Oregon Oak/ <i>Quercus garryana</i>	17"	Good	Good	Tree to be removed for future lot development	Lot 4
1858	Oregon Oak/ <i>Quercus garryana</i>	14"	Good	Fair	Tree to be evaluated for preservation with future lot development	Lot 4
1859	Oregon Oak/ <i>Quercus garryana</i>	9"	Good	Good	Tree to be preserved	Lot 4
1860	Manzanita/ <i>Arctostaphylos</i> manzanita *	7"15"@3'	Good/Excellent	Good	To be removed to reduce fire hazard close to homes	Lot 4
1861	Manzanita/ <i>Arctostaphylos</i> manzanita *	7"110"@base	Fair	Fair	To be removed to reduce fire hazard close to homes and reduce disease inoculum	Lot 4
1862	Oregon Oak/ <i>Quercus garryana</i>	19"	Good	Good	Tree to be evaluated for preservation with future lot development	Lot 4
1863	Oregon Oak/ <i>Quercus garryana</i>	13"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/ Parcel A
1864	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/ Parcel A
1865	Oregon Oak/ <i>Quercus garryana</i>	16"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/ Parcel A
1866	Black Oak/ <i>Quercus kelloggii</i>	12"19"	Fair/Good	Fair/Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 4
1867	Oregon Oak/ <i>Quercus garryana</i>	22"	Good/Excellent	Good/Excellent	Tree to be evaluated for preservation with future lot development	Lot 4
1868	Black Oak/ <i>Quercus kelloggii</i>	12"	Good	Fair	Tree to be removed for future lot development	Lot 5
1869	Oregon Oak/ <i>Quercus garryana</i>	10"	Fair	Fair	Tree to be removed for future lot development	Lot 5
1870	Oregon Oak/ <i>Quercus garryana</i>	17"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 6
1871	Oregon Oak/ <i>Quercus garryana</i>	21"	Good	Good	Tree to be preserved	Lot 5
1872	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good	Tree to be preserved	Lot 5
1873	Oregon Oak/ <i>Quercus garryana</i>	7"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 4
1874	Oregon Oak/ <i>Quercus garryana</i>	7"	Fair/Good	Fair/Good	Tree to be preserved	Lot 4
1875	Oregon Oak/ <i>Quercus garryana</i>	9"	Fair/Good	Fair/Good	Tree to be preserved	Lot 4

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# **SKYFARM UNIT 3 SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1876	Oregon Oak/ <i>Quercus garryana</i>	14"	Fair/Good	Fair/Good	Tree to be preserved	Lot 4
1877	Oregon Oak/ <i>Quercus garryana</i>	10"	Fair	Fair	Tree to be preserved	Lot 4
1878	Oregon Oak/ <i>Quercus garryana</i>	8"	Fair	Fair	Tree to be preserved	Lot 4
1879	Oregon Oak/ <i>Quercus garryana</i>	21"	Good	Good/Excellent	Tree to be preserved	Lot 4
1880	Oregon Oak/ <i>Quercus garryana</i>	7"	Good	Good	Tree to be preserved	Lot 4
1881	Oregon Oak/ <i>Quercus garryana</i>	6 1/5"	Excellent	Excellent	Tree to be preserved	Lot 5
1884	<i>Manzanita</i> / <i>Arctostaphylos</i>	6 1/5" 8 1/8"	Good	Good	To be removed to reduce fire danger	Parcel A
1885	Oregon Oak/ <i>Quercus garryana</i>	12"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
1886	Oregon Oak/ <i>Quercus garryana</i>	18" @ 3'	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 6
1887	Oregon Oak/ <i>Quercus garryana</i>	13"	Excellent	Good/Excellent	Tree to be preserved	Lot 5
1888	Oregon Oak/ <i>Quercus garryana</i>	9"	Good	Good	Tree to be preserved	Lot 6
1889	Oregon Oak/ <i>Quercus garryana</i>	13"	Good	Fair	Tree to be preserved	Lot 6
1890	Oregon Oak/ <i>Quercus garryana</i>	15" @ 3'	Good/Excellent	Good/Excellent	Tree to be evaluated for preservation with future lot development	Lot 6
1891	Oregon Oak/ <i>Quercus garryana</i>	22"	Poor	Poor	Tree to be removed for future lot development (if alive at that time)	Lot 6
1892	Oregon Oak/ <i>Quercus garryana</i>	10"	Excellent	Excellent	Tree to be preserved	Lot 6
1893	Oregon Oak/ <i>Quercus garryana</i>	11" @ 4'	Good/Excellent	Good	Tree to be preserved	Lot 6
1894	Oregon Oak/ <i>Quercus garryana</i>	12"	Good	Good/Excellent	Tree to be preserved	Lot 6
1895	California Buckeye/ <i>Aesculus californica</i>	6"	Good	Good	Tree to be preserved	Lot 6
1896	Oregon Oak/ <i>Quercus garryana</i>	24" @ 4'	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
1897	Oregon Oak/ <i>Quercus garryana</i>	8"	Good	Good	Tree to be preserved	Lot 6

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1898	Black Oak/ <i>Quercus kelloggii</i>	15"	Good	Fair/Good	Tree to be preserved	Lot 6
1899	Oregon Oak/ <i>Quercus garryana</i>	10"	Good	Good	Tree to be preserved	Lot 6
1900	Oregon Oak/ <i>Quercus garryana</i>	17"18"	Fair/Good	Good	Tree to be preserved	Lot 7
1901	Oregon Oak/ <i>Quercus garryana</i>	10"	Good	Good	Tree to be preserved	Lot 7
1902	Oregon Oak/ <i>Quercus garryana</i>	13"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 7
1903	Oregon Oak/ <i>Quercus garryana</i>	12"	Good/Excellent	Good	Tree to be preserved	Lot 7
1904	Black Oak/ <i>Quercus kelloggii</i>	8"	Fair	Fair	Tree to be preserved	Lot 7
1905	Black Oak/ <i>Quercus kelloggii</i>	10"	Fair/Good	Good	Tree to be preserved	Lot 7
1906	Oregon Oak/ <i>Quercus garryana</i>	10"	Good/Excellent	Good	Tree to be preserved	Lot 7
1907	Oregon Oak/ <i>Quercus garryana</i>	7"	Fair/Good	Fair	Tree to be preserved	Lot 7
1908	Oregon Oak/ <i>Quercus garryana</i>	9"	Good	Good	Tree to be preserved	Lot 7
1909	Oregon Oak/ <i>Quercus garryana</i>	11"7"	Fair/Good	Fair/Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
1910	Manzanita/ <i>Arctostaphylos manzanita</i> *	6"7"6"6"7"5"	Good	Good/Excellent	To be removed to reduce fire hazard close to homes	Lot 7
1911	Oregon Oak/ <i>Quercus garryana</i>	13"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
1912	Oregon Oak/ <i>Quercus garryana</i>	9"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Lot 6
1914	Oregon Oak/ <i>Quercus garryana</i>	11"	Excellent	Excellent	Tree to be removed for Phase 1 infrastructure improvements	Lot 5
1915	Oregon Oak/ <i>Quercus garryana</i>	12"	Excellent	Excellent	Tree to be preserved	Parcel A
1916	Oregon Oak/ <i>Quercus garryana</i>	14" @ 3'	Good	Good	Tree to be preserved	Parcel A
1917	Oregon Oak/ <i>Quercus garryana</i>	28"	Excellent	Excellent	Tree to be preserved	Parcel A
1918	Oregon Oak/ <i>Quercus garryana</i>	8"	Good	Good	Tree to be preserved	Parcel A

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# SKYFARM UNIT 3 SANTA ROSA

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1919	Oregon Oak/ <i>Quercus garryana</i>	9"	Excellent	Excellent	Tree to be preserved	Parcel A
1920	Oregon Oak/ <i>Quercus garryana</i>	11"	Good/Excellent	Good/Excellent	Tree to be preserved	Parcel A
1921	Oregon Oak/ <i>Quercus garryana</i>	17"	Good	Good/Excellent	Tree to be preserved	Parcel A
1922	Oregon Oak/ <i>Quercus garryana</i>	12"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 9
1923	Oregon Oak/ <i>Quercus garryana</i>	13"13"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 9
1924	Oregon Oak/ <i>Quercus garryana</i>	12"	Fair/Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 8
1925	Oregon Oak/ <i>Quercus garryana</i>	17"	Fair	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 7
1926	Oregon Oak/ <i>Quercus garryana</i>	20"	Good	Good	Tree to be removed for future lot development	Lot 7
1927	California Bay/ <i>Umbellularia californica</i>	8"7"	Good	Good	Tree to be preserved	Lot 7
1928	Oregon Oak/ <i>Quercus garryana</i>	16"	Good	Good	Tree to be preserved	Lot 7
1929	Oregon Oak/ <i>Quercus garryana</i>	14"	Good	Good	Tree to be preserved	Lot 7
1930	Oregon Oak/ <i>Quercus garryana</i>	7"	Fair/Good	Fair	Tree to be evaluated for preservation with future lot development	Lot 7
1931	Oregon Oak/ <i>Quercus garryana</i>	8"	Fair/Good	Fair/Good	Tree to be evaluated for preservation with future lot development	Lot 7
1932	Oregon Oak/ <i>Quercus garryana</i>	10"	Fair/Good	Fair/Good	Tree to be preserved	Lot 7
1933	Oregon Oak/ <i>Quercus garryana</i>	12"	Fair	Fair/Good	Tree to be preserved	Lot 8
1934	Oregon Oak/ <i>Quercus garryana</i>	8"	Poor	Poor/Dying	Tree to be preserved	Lot 8
1935	Oregon Oak/ <i>Quercus garryana</i>	12"	Fair/Good	Fair/Good	Tree to be removed for future lot development	Lot 8
1936	Oregon Oak/ <i>Quercus garryana</i>	11"	Good	Good	Tree to be removed for future lot development	Lot 8
1937	Oregon Oak/ <i>Quercus garryana</i>	10"	Good	Good	Tree to be removed for future lot development	Lot 8
1938	Manzanita/ <i>Arctostaphylos manzanita</i> *	7"	Fair	Fair	To be removed to reduce fire danger	Lot 7

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1939	Oregon Oak/ <i>Quercus garryana</i>	12"1/3"	Good	Good	Tree to be removed for future lot development	Lot 8
1940	Madrone/ <i>Arbutus menziesii</i>	14"1/6"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 8
1941	Oregon Oak/ <i>Quercus garryana</i>	11"	Good	Good	Tree to be preserved	Lot 8
1942	Oregon Oak/ <i>Quercus garryana</i>	7"	Fair/Good	Fair/Good	Tree to be preserved	Lot 9
1943	Oregon Oak/ <i>Quercus garryana</i>	8"	Good	Good	Tree to be preserved	Lot 9
1944	Oregon Oak/ <i>Quercus garryana</i>	11"	Good	Good	Tree to be evaluated for preservation with future lot development	Lot 9
1945	Oregon Oak/ <i>Quercus garryana</i>	11"1/1"1/4"	Fair/Good	Fair/Good	Tree to be removed for future lot development	Lot 9
1946	Oregon Oak/ <i>Quercus garryana</i>	19"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 9
1947	Oregon Oak/ <i>Quercus garryana</i>	12"1/2"	Good/Excellent	Good/Excellent	Tree to be evaluated for preservation with future lot development	Lot 9
1948	Oregon Oak/ <i>Quercus garryana</i>	13"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 9
1949	Oregon Oak/ <i>Quercus garryana</i>	22"@3'	Fair/Good	Good	Tree to be evaluated for preservation with future lot development	Lot 10
1950	Manzanita/ <i>Arctostaphylos manzanita</i> *	8"	Good	Good	To be removed to reduce fire hazard close to homes	Lot 9
1952	Oregon Oak/ <i>Quercus garryana</i>	15"	Good	Good	Tree to be preserved	Lot 9
1954	Oregon Oak/ <i>Quercus garryana</i>	16"1/5"	Good	Good	Tree to be removed for future lot development	Lot 10
1955	Oregon Oak/ <i>Quercus garryana</i>	17"	Good	Good	Tree to be removed for future lot development	Lot 10
1956	Oregon Oak/ <i>Quercus garryana</i>	10"1/0"	Fair/Good	Fair	Tree to be removed for future lot development	Lot 10
1957	Oregon Oak/ <i>Quercus garryana</i>	20"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 10
1958	Oregon Oak/ <i>Quercus garryana</i>	16"9"9"1/4"	Fair/Good	Fair	Tree to be removed for future lot development	Lot 10
1959	Black Oak/ <i>Quercus kelloggii</i>	24"	Good	Good	Tree to be removed for future lot development	Lot 12
1960	Black Oak/ <i>Quercus kelloggii</i>	24"	Poor	Fair	Tree to be removed for future lot development	Lot 12

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# **SKYFARM UNIT 3 SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
1961	Manzanita/Arctostaphylos manzanita *	2 1/4"	Good	Good	To be removed to reduce fire danger	Rd 1/Lot 11
1962	Manzanita/Arctostaphylos manzanita *	7"	Good	Good	To be removed to reduce fire danger	Lot 1
1963	Oregon Oak/Quercus garryana Manzanita/Arctostaphylos	11 1/10" 9 1/4"	Good/Excellent	Good	Tree to be preserved	Lot 1
1964	Manzanita *	7"	Fair	Good	To be removed to reduce fire danger and disease inoculum from canker-infected shrubs	Lot 2
1966	Manzanita/Arctostaphylos manzanita *	8 1/5" 8"	Fair	Fair	To be removed to reduce fire danger and disease inoculum from canker-infected shrubs	Lot 2
1967	Manzanita/Arctostaphylos manzanita *	4 1/8" 8"	Fair	Fair	To be removed to reduce fire danger and disease inoculum from canker-infected shrubs	Lot 2
1968	Manzanita/Arctostaphylos manzanita *	6 1/3" 4 1/4"	Good	Good	To be removed to reduce fire hazard close to homes and reduce disease inoculum	Lot 2
1969	Manzanita/Arctostaphylos manzanita *	8"	Good	Fair	To be removed to reduce fire hazard close to homes and reduce disease inoculum	Lot 2
1970	Manzanita/Arctostaphylos manzanita *	4 1/4"	Fair	Fair	To be removed to reduce fire danger and disease inoculum from canker-infected shrubs	Lot 2
1971	Oregon Oak/Quercus garryana	10"	Fair	Fair	Tree to be removed for Phase 1 Infrastructure improvements	Rd 1/Lot 11
1972	Oregon Oak/Quercus garryana Manzanita/Arctostaphylos	17"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 Infrastructure improvements	Rd 1/Lot 11
1973	Manzanita *	6 1/9"	Fair	Fair	To be removed to reduce fire hazard close to homes and reduce disease inoculum	Lot 11
1974	Oregon Oak/Quercus garryana	13"	Good	Fair	Tree to be preserved	Lot 10
1975	Oregon Oak/Quercus garryana	30"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 10
1976	Oregon Oak/Quercus garryana	8 1/7"	Good	Good	Tree to be preserved	Lot 10
1977	Oregon Oak/Quercus garryana	13"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 10
2009	Valley Oak/Quercus lobata	11"	Fair	Fair	Tree to be preserved	Lot 21
2010	Coast Live Oak/Quercus agrifolia	23 1/2"	Good	Fair	Tree to be preserved	Lot 21
2011	Coast Live Oak/Quercus agrifolia	14"	Good	Fair	Tree to be preserved	Lot 21
2012	Coast Live Oak/Quercus agrifolia	15 1/8" 19 1/8" 21"	Excellent	Excellent	Tree to be preserved	Lot 30

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2013	California Buckeye/Aesculus californica	7"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 3/Lot 30
2014	Coast Live Oak/Quercus agrifolia	23"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 3/Lot 30
2015	Coast Live Oak/Quercus agrifolia	20"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 3/Lot 30
2016	Oregon Oak/Quercus garryana	14"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 24
2017	Coast Live Oak/Quercus agrifolia	15 7/11"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 24
2018	Coast Live Oak/Quercus agrifolia	10"	Good	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Lot 24
2019	Coast Live Oak/Quercus agrifolia	14"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 24
2020	Coast Live Oak/Quercus agrifolia	11"	Good	Good	Tree to be preserved	Lot 24
2021	California Bay/Umbellularia californica	9 1/17"	Good	Good	Tree to be preserved	Lot 24
2022	Coast Live Oak/Quercus agrifolia	22"	Fair	Fair	Tree to be removed for future lot development	Lot 25
2023	Coast Live Oak/Quercus agrifolia	23 1/17"	Good	Good	Tree to be removed for future lot development	Lot 25
2024	Coast Live Oak/Quercus agrifolia	17"	Fair	Fair	Tree to be removed for future lot development	Lot 25
2025	Coast Live Oak/Quercus agrifolia	12 1/19"	Good	Good	Tree to be removed for future lot development	Lot 25
2026	Coast Live Oak/Quercus agrifolia	34"	Good	Good	Tree to be removed for future lot development	Lot 26
2027	Oregon Oak/Quercus garryana	30"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 26
2028	Coast Live Oak/Quercus agrifolia	26"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 27
2029	Coast Live Oak/Quercus agrifolia	34"	Excellent	Excellent	Tree to be preserved	Lot 27
2030	Coast Live Oak/Quercus agrifolia	30" @ 3'	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 28
2031	Coast Live Oak/Quercus agrifolia	12 1/15" 18"	Good	Good	Tree to be evaluated for preservation with future lot development	Lot 28
2032	Valley Oak/Quercus lobata	26"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 27

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# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2033	California Bay/Umbralaria californica	19"	Good	Good	Tree to be preserved	Lot 27
2034	Coast Live Oak/Quercus agrifolia	19"	Good	Good	Tree to be preserved	Lot 26
2035	Coast Live Oak/Quercus agrifolia	21"	Fair/Good	Fair	Tree to be preserved	Lot 26
2037	Coast Live Oak/Quercus agrifolia	19 1/8"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Rd 1/Lot 23
2038	California Buckeye/Aesculus californica	12"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 22
2039	California Buckeye/Aesculus californica	11 1/10"	Good/Excellent	Good	Tree to be preserved	Lot 22
2040	California Buckeye/Aesculus californica	10 1/12 1/9"	Fair	Good/Excellent	Tree to be preserved	Lot 23
2041	Coast Live Oak/Quercus agrifolia	11 1/13"	Good	Good	Tree to be removed for future lot development	Lot 23
2042	California Buckeye/Aesculus californica	7 1/8"	Fair	Fair	Tree to be removed for future lot development	Lot 22
2044	California Buckeye/Aesculus californica	11 1/2 1 1/2 1/8 7"	Good/Excellent	Good	Tree to be removed for Phase 1 Infrastructure improvements	Lot 22
2046	Oregon Oak/Quercus garryana	13"	Good	Good	Tree to be preserved	Lot 22
2047	Oregon Oak/Quercus garryana	21"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 22
2048	Coast Live Oak/Quercus agrifolia	15"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 19
2049	Coast Live Oak/Quercus agrifolia	19"	Fair	Fair	Tree to be preserved	Lot 22
2050	California Buckeye/Aesculus californica	10"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 22
2051	Black Oak/Quercus kelloggii California Buckeye/Aesculus californica	20"	Good	Good/Excellent	Tree to be preserved	Lot 22
2052		7"	Good/Excellent	Good	Tree to be preserved	Lot 22
2054	Coast Live Oak/Quercus agrifolia	14"	Good/Excellent	Good/Excellent	Tree to be removed for future lot development	Lot 17
2055	Coast Live Oak/Quercus agrifolia	9"	Fair	Fair	Tree to be evaluated for preservation with future lot development	Lot 17
2057	Oregon Oak/Quercus garryana	16"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 17
2058	Oregon Oak/Quercus garryana	19"	Good	Good	Tree to be preserved	Lot 18

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# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2059	Oregon Oak/ <i>Quercus garryana</i>	24"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 19
2060	Black Oak/ <i>Quercus kelloggii</i>	18"	Good	Good	Tree to be preserved	Lot 19
2061	Oregon Oak/ <i>Quercus garryana</i>	12"10"10"18"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 18
2062	Oregon Oak/ <i>Quercus garryana</i>	35"@2'	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 infrastructure improvements	Rd 2
2063	Coast Live Oak/ <i>Quercus agrifolia</i>	16"	Good/Excellent	Good/Excellent	Tree to be preserved	W/Rd 2
2064	Coast Live Oak/ <i>Quercus agrifolia</i>	16"	Fair/Good	Fair/Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 2/Lot 18
2065	Coast Live Oak/ <i>Quercus agrifolia</i>	14"13"	Good/Excellent	Good/Excellent	Tree to be preserved	W/Rd 2
2066	Coast Live Oak/ <i>Quercus agrifolia</i>	14"12 1"	Fair	Fair	Tree to be preserved	W/Rd 2
2067	Oregon Oak/ <i>Quercus garryana</i>	14"@3'	Good	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 2/Lot 17
2068	Oregon Oak/ <i>Quercus garryana</i>	19"@3'	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 2/Lot 17
2069	Coast Live Oak/ <i>Quercus agrifolia</i>	15"7"	Good	Good	Tree to be removed for future lot development	Lot 17
2070	Coast Live Oak/ <i>Quercus agrifolia</i>	7"12"	Good/Excellent	Good	Tree to be removed for future lot development	Lot 17
2071	Valley Oak/ <i>Quercus lobata</i>	17"@4'	Good/Excellent	Good/Excellent	Tree to be evaluated for preservation with future lot development	Lot 16
2072	Coast Live Oak/ <i>Quercus agrifolia</i>	13"8"	Good	Good	Tree to be removed for future lot development	Lot 17
2073	Coast Live Oak/ <i>Quercus agrifolia</i>	14"@4'	Good	Good	Tree to be preserved	Lot 17
2074	Coast Live Oak/ <i>Quercus agrifolia</i>	8"10"13"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 17
2075	Coast Live Oak/ <i>Quercus agrifolia</i>	12"14"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 2
2076	Oregon Oak/ <i>Quercus garryana</i>	17"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Lot 16
2077	Coast Live Oak/ <i>Quercus agrifolia</i>	7"13"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 2
2078	Black Oak/ <i>Quercus kelloggii</i>	21"20"	Poor	Poor	Tree to be removed for Phase 1 infrastructure improvements	Lot 15

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# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2079	Oregon Oak/ <i>Quercus garryana</i>	20"	Good	Good	Tree to be removed for future lot development	Lot 15
2080	Black Oak/ <i>Quercus kelloggii</i>	14"x23"	Good/Excellent	Good	Tree to be preserved	Lot 15
2083	Oregon Oak/ <i>Quercus garryana</i> California Bay/ <i>Umbellularia californica</i>	18"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 1
2084		14"x15"x16"	Fair/Good	Fair/Good	Tree to be preserved	Lot 1
2085	Black Oak/ <i>Quercus kelloggii</i>	17"	Fair	Fair	Tree to be preserved	Lot 1
2086	Oregon Oak/ <i>Quercus garryana</i>	24"	Good	Fair	Tree to be removed for future lot development	Lot 1
2087	Black Oak/ <i>Quercus kelloggii</i>	10"x13"	Good/Excellent	Good	Tree to be preserved	Lot 1
2088	Black Oak/ <i>Quercus kelloggii</i>	26"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 1
2089	Black Oak/ <i>Quercus kelloggii</i> California Bay/ <i>Umbellularia californica</i>	21"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 1
2090		16"x20"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 Infrastructure improvements	Lot 1
2091	Oregon Oak/ <i>Quercus garryana</i>	14"	Fair/Good	Good	Tree to be removed for Phase 1 Infrastructure improvements	Lot 1
2092	Oregon Oak/ <i>Quercus garryana</i>	13"	Fair/Good	Good	Tree to be removed for Phase 1 Infrastructure improvements	Rd 1/Lot 1
2093	Black Oak/ <i>Quercus kelloggii</i>	9"	Fair	Poor	Tree to be removed for Phase 1 Infrastructure improvements	Rd 1/Lot 14
2094	Black Oak/ <i>Quercus kelloggii</i>	17"	Good/Excellent	Good/Excellent	Tree to be removed for Phase 1 Infrastructure improvements	Rd 1/Lot 13
2095	Black Oak/ <i>Quercus kelloggii</i>	6"	Fair	Fair	Tree to be removed for Phase 1 Infrastructure improvements	Lot 13
2096	Oregon Oak/ <i>Quercus garryana</i>	10"	Fair	Good	Tree to be removed for Phase 1 Infrastructure improvements	Lot 13
2097	Black Oak/ <i>Quercus kelloggii</i>	21"	Fair	Fair	Tree to be removed for future lot development	Lot 14
2098	Black Oak/ <i>Quercus kelloggii</i> California Bay/ <i>Umbellularia californica</i>	30"	Good	Good	Tree to be removed for future lot development	Lot 14
2099		23"	Good	Excellent	Tree to be removed for future lot development	Lot 14
2102	Coast Live Oak/ <i>Quercus agrifolia</i>	13"	Fair/Good	Fair	Tree to be preserved	Lot 24

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2103	Coast Live Oak/ <i>Quercus agrifolia</i>	9"	Fair	Fair	Tree to be preserved	Lot 24
2104	Coast Live Oak/ <i>Quercus agrifolia</i>	14"	Good	Good	Tree to be preserved	Lot 24
2105	Coast Live Oak/ <i>Quercus agrifolia</i>	15"	Good	Poor	Tree to be preserved	Lot 24
2106	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Good	Good	Tree to be preserved	Lot 23
2107	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Good	Good	Tree to be removed for future lot development	Lot 23
2108	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Fair/Good	Good	Tree to be evaluated for preservation with future lot development	Lot 23
2109	Coast Live Oak/ <i>Quercus agrifolia</i>	13"	Good/Excellent	Good	Tree to be preserved	Lot 23
2110	Coast Live Oak/ <i>Quercus agrifolia</i>	5'12"	Fair	Good	Tree to be preserved	Lot 23
2111	Black Oak/ <i>Quercus kelloggii</i>	11'13"	Fair	Poor	Tree to be removed for Phase 1 infrastructure improvements	Lot 24
2112	California Buckeye/ <i>Aesculus californica</i>	8'5"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 24
2113	Black Oak/ <i>Quercus kelloggii</i>	13"	Good	Good	Tree to be removed for Phase 1 infrastructure improvements	Rd 3
2114	Black Oak/ <i>Quercus kelloggii</i>	37"	Fair	Fair	Tree to be removed for future lot development	Lot 24
2115	Coast Live Oak/ <i>Quercus agrifolia</i>	15'16"	Good	Good	Tree to be removed for future lot development	Lot 24
2116	Black Oak/ <i>Quercus kelloggii</i>	24"	Good	Fair/Good	Tree to be preserved	Lot 24
2117	Coast Live Oak/ <i>Quercus agrifolia</i>	11"@3'	Good	Good	Tree to be preserved	Lot 24
2118	California Bay/Umbellularia <i>californica</i>	8'14"	Good	Good	Tree to be preserved	Lot 24
2120	Coast Live Oak/ <i>Quercus agrifolia</i>	23"	Fair	Fair	Tree to be removed for future lot development	Lot 25
2361	California Bay/Umbellularia <i>californica</i>	21'14/2'11/8/35'12"	Good/Excellent	Good/Excellent	Tree to be evaluated for preservation with future lot development	Lot 28
2362	Coast Live Oak/ <i>Quercus agrifolia</i>	22"@3'	Good	Good	Tree to be preserved	Lot 28
2363	Coast Live Oak/ <i>Quercus agrifolia</i>	8"	Good	Good	Tree to be preserved	Lot 28

September 2006 Revised December 2009 and June 2011

# **SKYFARM UNIT 3** **SANTA ROSA**

TREE #	SPECIES	TRUNK DIAMETER (in.)	GENERAL HEALTH	STRUCTURAL INTEGRITY	TO BE REMOVED OR PRESERVED	LOCATION
2364	Black Oak/ <i>Quercus kelloggii</i>	24"	Fair/Good	Fair	Tree to be evaluated for preservation with future lot development	Lot 28
2365	Coast Live Oak/ <i>Quercus agrifolia</i>	12"	Poor	Poor	Tree to be preserved	Lot 28
2366	California Bay/ <i>Umbellularia californica</i>	8"8"	Good	Good	Tree to be preserved	Lot 28
2367	Coast Live Oak/ <i>Quercus agrifolia</i>	11"	Fair	Poor	Tree to be preserved	Lot 28
2368	Coast Live Oak/ <i>Quercus agrifolia</i>	10"11"10"10"	Good/Excellent	Good	Tree to be preserved	Lot 29
2369	Coast Live Oak/ <i>Quercus agrifolia</i>	14"17"	Good/Excellent	Good/Excellent	Tree to be preserved	Lot 29
3001	California Bay/ <i>Umbellularia californica</i>	4"14"15"15"	Good	Good	Tree to be preserved	Lot 25
3001	California Bay/ <i>Umbellularia californica</i>	5"	Good/Excellent	Good	Tree to be preserved	Lot 22
3003	California Bay/ <i>Umbellularia californica</i>	16"	Fair	Fair	Tree to be removed for Phase 1 infrastructure improvements	Rd 21, lot 17
3004	California Bay/ <i>Umbellularia californica</i>	4"16"16"17"	Fair	Fair	Tree to be preserved	Lot 15

\* Note: Asterisk denotes manzanita shrubs included in the inventory from past investigations, but not included in tree totals or summaries because it is a shrub, and not shown to be preserved on this site because of its high potential for fire hazard

From: James MacNair <james.macnair@earthlink.net>  
Date: June 5, 2011 7:06:23 PM PDT  
To: Becky Duckles <bduckles@comcast.net>  
Subject: Manzanita and Santa Rosa Tree Ordinance Requirements

CITY OF SANTA ROSA  
P.O. Box 1678  
Santa Rosa, CA 95402

JUL 06 2011

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

Hello Becky,

Regarding your question pertaining to municipal requirements for capturing manzanita species (*Arctostaphylos* spp.) during tree inventories.

I do not recall ever being requested, or seeing on a tree protection list, the requirement to include manzanita in a tree inventory or tree protection plan. It is typically considered a shrub, or, for certain larger growing species an "arboreal shrub", similar to toyon (*Heteromeles arbutifolia*). Both can reach small tree size in stature in maturity (with greater than 4" diameter stems), but most plants are smaller and much more shrub like in form compared to the more typical native tree species.

There are numerous other California native plants besides manzanita and toyon that would qualify for this arboreal shrub category whose stems are capable of obtaining 4 inches or greater in diameter. Wild lilac (*Ceanothus arboreus*), western redbud (*Cercis occidentalis*), silk tassel (*Garrya elliptica*), flannel bush (*Fremontodendron*), Pacific wax myrtle (*Myrica californica*), holly leaf cherry (*Prunus illicifolia*), *Rhus* spp., and elderberry (*Sambucus* spp.) all would fit this description.

My opinion is that the 4 inch diameter threshold for capturing trees in the Santa Rosa ordinance was established not to define what qualifies as a tree, but to establish a lower limit for capturing significantly sized trees. This opinion is supported by the fact that manzanita is not shown in the protected native tree list included in the Santa Rosa Tree Ordinance.

Please contact me if further discussion is required.

Regards,

James MacNair  
Consulting Arborist and Horticulturist  
707-938-1822 (office)  
707-328-9504 (cell)



CITY OF SANTA ROSA  
P.O. Box 1678  
Santa Rosa, CA 95402

**JUL 06 2011**

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

July 5, 2011  
File: 1750.01rpt.doc

Brelje & Race, Consulting Civil Engineers  
5570 Skylane Boulevard  
Santa Rosa, California 95403

Attention: Mr. Thomas Jones

Re: Preliminary Geotechnical and Engineering Geologic Evaluation  
Proposed Residential Subdivision  
Roughly 10.42 Acre Property  
Skyfarm at Fountaingrove Unit 3  
St. Andrews Drive  
Santa Rosa, California

### Introduction

This report presents the results of our preliminary geotechnical and engineering geologic evaluation of the planned residential subdivision known as Skyfarm at Fountaingrove Unit 3, located on St. Andrews Drive in northeastern Santa Rosa, California.

### Planned Project

According to the Tentative Map for Skyfarm Unit 3 prepared by Brelje & Race, Consulting Civil Engineers dated April 2011, the project will consist of 30 lots for single family homes and three common parcels on a 10.42+/- acre property situated on an approximately one-half mile long intermediate ridge located north of Thomas Lake Harris Drive and south of Fawnglen Place. The property is bordered on the east by St. Andrews Drive and on the west by a portion of the Fountaingrove Golf Course.

### Purpose and Scope

The purpose of our study was to provide an evaluation of the geotechnical and geologic conditions at the project site, with particular attention to possible geologic hazards that may require mitigation prior to the planned development. Geologic hazards addressed in other similar developments in Fountaingrove, including Skyfarm Units 1 and 2, have included landslides, expansive soil, and seismically active faults.

The scope of our evaluation consisted of a review of two previous geologic investigations in the site vicinity, published geologic reports and maps by the U.S.

Geological Survey and the California Geological Survey, review of aerial photographs, and geologic reconnaissance mapping of the site using the Tentative Map for reference. The results of the field mapping are presented on the Geologic Reconnaissance Map, Figure 1. An overview of the geology in the project area and surrounding region is presented on the Geologic Map of the North Fountaingrove Area, Figure 2.

### Background

The entire Skyfarm property (500+ acres) was included in a geologic evaluation of the 1,200+ acre Teachers Management Investment Corporation (TMI) property in 1980 by Harding-Lawson Associates (HLA), conducted for the purpose of providing information for an environmental impact report. The HLA evaluation consisted of geologic mapping, aerial photo interpretation, research of geologic reports and maps, and subsurface exploration consisting of 46 backhoe-excavated trenches. The HLA report, dated May 12, 1980, concluded that geologic hazards on the TMI property included a risk of future ground rupture on the Healdsburg/Rodgers Creek Fault (located about one kilometer west of Unit 3), strong earthquake shaking, landslides, and expansive soil. The report also concluded that all the identified geologic hazards could be mitigated by appropriate measures including avoidance, grading design, and proper foundation construction.

Hallenbeck & Associates (HA) performed a geologic investigation of the entire Skyfarm property for the Andremar Development Corporation in 1988 for the purpose of evaluating geologic hazards that may impact the proposed residential development. The Skyfarm property consists of 500+ acres located between Fountaingrove Parkway and Mark West Springs Road. Their investigation consisted of geologic mapping, review of geologic/geotechnical reports pertinent to the site, examination of aerial photographs, and subsurface exploration consisting of 38 backhoe-excavated trenches. The HA report, dated September 22, 1988, concluded that the property is underlain by volcanic lavas and pyroclastic rocks of the Sonoma Volcanic Group and sedimentary deposits of the Glen Ellen Formation, that the seismically active Healdsburg/Rodgers Creek Fault zone is present along the west margin of the overall Skyfarm property, and that landslides are present along the east and west sides of the overall Skyfarm property. The HA report also concluded that the property is suitable for the proposed residential development, and areas of shallow soil creep or slope instability can be treated using standard engineering and grading techniques.

### Site Conditions

Skyfarm Unit 3 is located in the northeast central part of the overall Skyfarm property and consists of two tree-covered adjoining parcels of land on a low, narrow intermediate ridge between St. Andrews Drive and the 3rd and 4th fairways of the Fountaingrove Golf Course. Portions of the ridge contain abundant oak trees and numerous volcanic rock boulders, especially on the topographic knolls. The existing cut slope along St. Andrews drive exposes volcanic flow rock that is deeply weathered. The cut also

exposes pyroclastic tuff deposits that are also deeply weathered and, as evidenced at several locations, shallow sloughing and erosion of shrinkage cracks have occurred over the past 19 years since the roadway was constructed, mostly along the steep, top of cut.

### Geologic Setting

As indicated on Figure 2, the Skyfarm Unit 3 project site is underlain by mostly volcanic deposits of the Sonoma Volcanic Group, an extensive accumulation of complex lavas, pyroclastics, and occasionally inter-bedded sedimentary deposits. The Sonoma Volcanics (map symbols Tsb and Tst) are late Miocene to Pliocene; the lavas in the Fountaingrove and Mark West Springs areas are thought to be about 5 million years old. The lava flow rocks are mostly andesites and basalts, although there are many variations. The pyroclastics consist of vitric and lithic tuffs, andesitic breccia, bedded and pumicitic tuff, and occasionally welded tuff. The inter-bedded sediments consist of tuffaceous sandstone, pebble conglomerate, and claystone. The Glen Ellen Formation, previously mapped in the northeast part of the overall Skyfarm site, is now considered part of an un-named fluvial and lacustrine deposit in the Mark West Springs area (map symbol QTg). Sedimentary deposits of the Petaluma Formation (Tp) are present in the southwest part of the Fountaingrove area. Although the Fountaingrove area does contain landslides, most are too small to be shown on the Map; however, several are shown in the Mark West Springs area to the north.

As shown on Figure 2, many bedrock faults are present in the area. These faults are typically ancient and developed during mountain-building and structural folding during the Pliocene. The seismically active Healdsburg/Rodgers Creek fault is present in the southwest part of the area (approximately one kilometer west of Skyfarm Unit 3), also as shown on Figure 2. The fault is likely an extension of the Hayward fault to the south, and is considered to be a major active fault in the San Francisco Bay Region. The Rodgers Creek fault is thought to have the potential to generate future earthquakes with Moment magnitudes as high as 7.0.

### Site Geology

Surface soil conditions on the two parcels (Skyfarm Unit 3) consist of from zero to a few feet of light to dark red-brown gravelly silt and clay. The gravels consist of fresh to deeply weathered andesite or basalt. As shown on the Geologic Reconnaissance Map, Figure 1, the existing cut slope along St. Andrews Drive at the eastern edge of the project site provides good exposures of the andesite and basalt rock unit Tsb and the pyroclastic unit Tst. Here, the andesites and basalts occur as numerous boulders on the ridge top, and occasionally as fractured, hard flow rock in the cut slope and in exposures on the east side of St. Andrews Drive. In contrast, the pyroclastic rock is more massive, generally weak, of low hardness, and where deeply weathered, can produce expansive soil with high shrink/swell characteristics. As previously mentioned,

several locations on the roughly twenty year old roadway cut slope have indications of shallow sloughing and erosion (typically less than one foot deep). The level area between the two parcels is underlain by artificial fill, placed during road grading.

### Landslides

Our field reconnaissance did not observe any landslides on the Skyfarm Unit 3 property. As shown on Figure 1, several landslides (map symbol QIs) have been mapped on the steep, heavily wooded area downslope (east) of St. Andrews Drive. These landslides were previously identified in both the Hallenbeck and Harding-Lawson reports, and our reconnaissance confirmed the landslide areas. There are a few sealed cracks on the St. Andrews road pavement upslope of the landslide area, possibly related to slope creep above the landslides. There was no evidence of fresh cracks on the road pavement or curb.

### Faults

As shown on Figure 1, a fault has been reported at the south end of Skyfarm Unit 3 that was identified in the trenching for the previous reports. As reported, the trace of the fault crosses St. Andrews Drive in a north-south direction. The Hallenbeck report mentions that the fault trench data was reviewed by the California Geological Survey, who concluded that there was insufficient evidence to designate the fault as seismically active according to their criteria. However, the Hallenbeck report recommends a 20-foot building set-back from the fault, which as shown, does not affect Skyfarm Unit 3.

### Conclusions

Based on our evaluation of the previous geologic reports, the published geologic reports and maps shown in the attached List of References, and the results of our site reconnaissance and mapping, we conclude that the findings and conclusions presented in the previous Hallenbeck & Associates report are valid and applicable to the proposed Skyfarm Unit 3 development. We also conclude that lot development, as shown on the referenced Tentative Map for Skyfarm Unit 3, is feasible from a geotechnical engineering and geologic viewpoint.

We did not observe geologic hazards that would preclude developing the property as planned. Where present, as determined from future design level geotechnical investigations, expansive soil in proposed building areas and streets will require treatment or replacement. We observed no landslides within the Skyfarm Unit 3 project area. Mapped landslides located east of the project site will not impact the development of Skyfarm Unit 3. No known active faults are located within the project area. The active Rodgers Creek fault is located approximately one kilometer west of the site, and the site will be subject to strong ground shaking during a future seismic event on this or other faults in the region. Building design based on the latest edition of the CBC will

Brelje & Race, Consulting Civil Engineers  
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July 5, 2011

limit damage to improvements caused by strong ground shaking.

It is our understanding that, consistent with standard practice, a design level geotechnical investigation will be conducted prior to the design and construction of site improvements or homes.

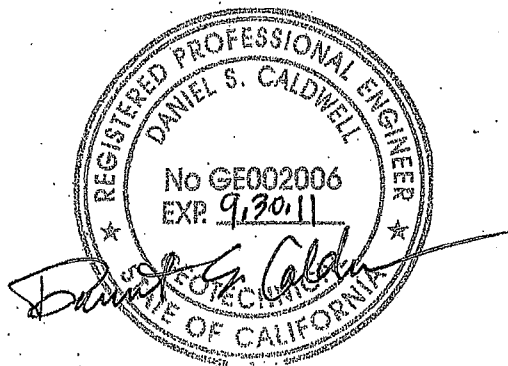
#### Limitations

The conclusions and opinions expressed in this report are based on the scope of work described above. While we believe the conclusions are well founded, there is a slight possibility that additional subsurface investigation could disclose different soil, bedrock, and groundwater conditions that would cause us to revise our opinions and conclusions. This report should be considered preliminary, and is subject to modification as additional subsurface information and more specific project planning becomes available.

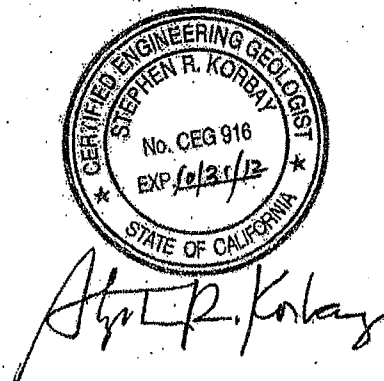
This report was prepared in accordance with generally accepted standards of the geotechnical/geologic engineering profession. No other warranty, either expressed or implied, is given.

We trust that this report provides the information required at this time. If you have any questions, please do not hesitate to call.

Yours very truly,  
MILLER PACIFIC ENGINEERING GROUP



Daniel S. Caldwell  
Geotechnical Engineer No. 2006  
(Expires 9/30/11)



Stephen R. Korbay  
Certified Engineering Geologist, CEG 916  
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#### Attachments: List of References

Figure 1, Geologic Reconnaissance Map

Figure 2, Geologic Map of the North Fountaingrove Area

List of References

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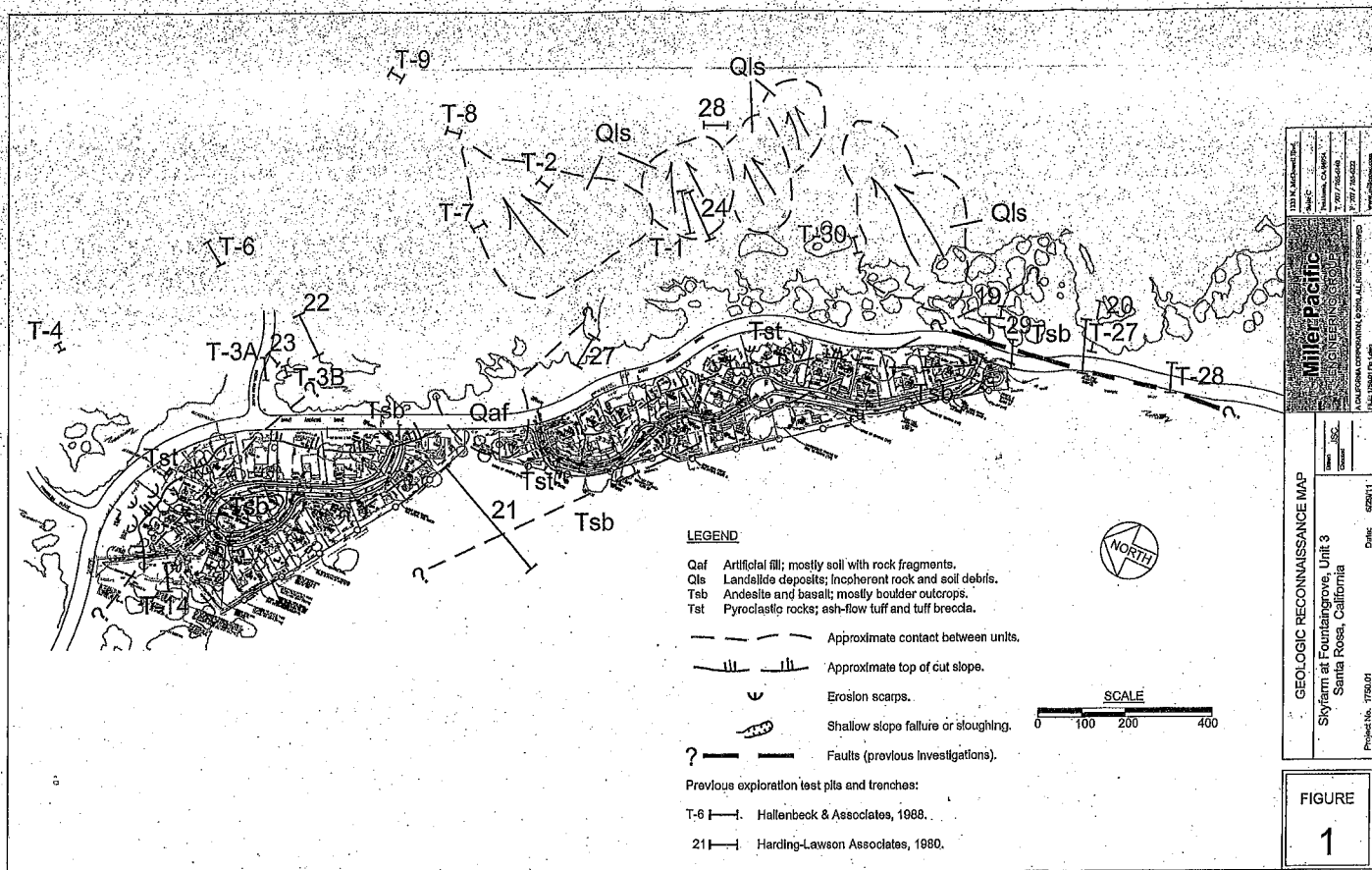
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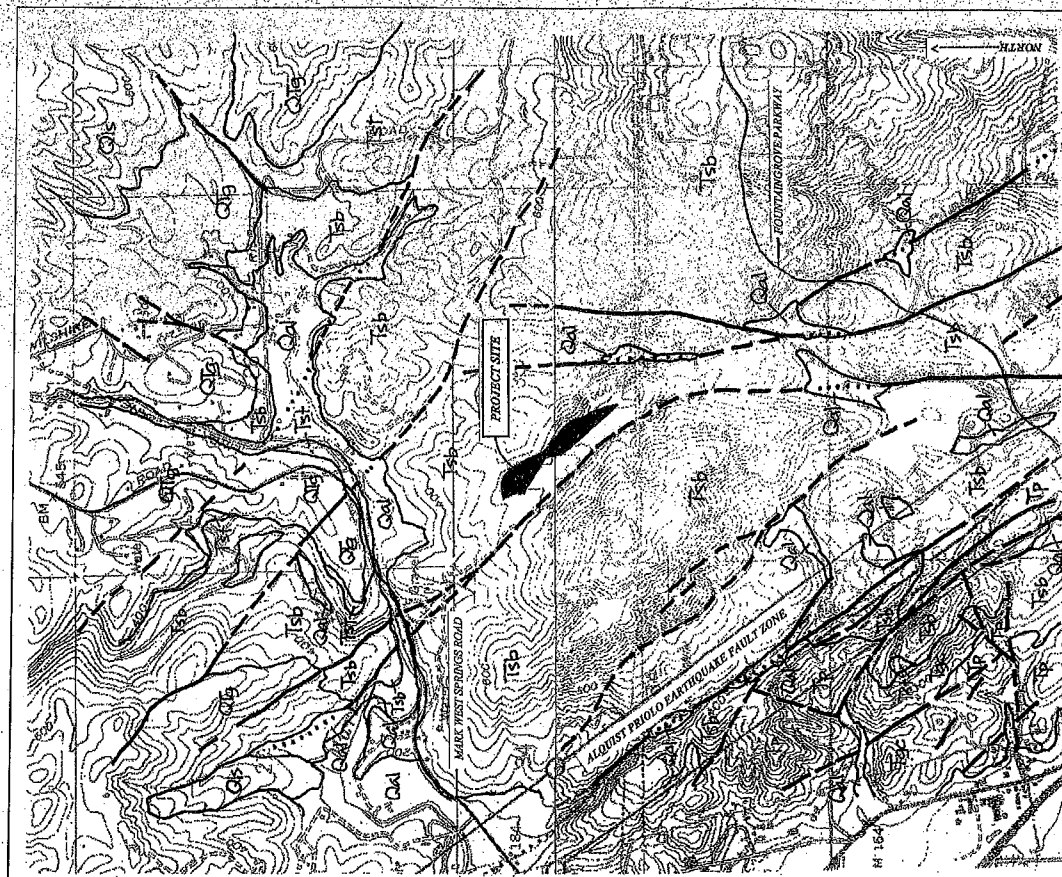
July 5, 2011

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# EXPLANATION

- Qd Alluvium undifferentiated (Quaternary); unconsolidated soil deposits
- Qa Landslide deposits (Quaternary); talus, debris, and soil
- Qs Gravel and boulders (Quaternary); gravel, sandstone, siltstone, mudstone, and
- Qg Gravel of the Cretaceous (Quaternary); gravel, sand, mudstone and siltstone
- Tp Sonoma Volcanics (Pliocene and Miocene); tuffaceous and basalt flows, and ash-flow tuff
- Ts Sonoma Volcanics (Pliocene and Miocene); tuffaceous and basalt flows, and ash-flow tuff
- Tp Penultimate Formation (Pliocene and Miocene); sandy to silty-gravel, silty sandstone, and mudstone

contacts between geologic units, approximately located

faults, dashed where approximate or suspect, dotted where concealed

Ref. USGS 30-388-073 300-100

## GEOLOGIC MAP OF THE N. FOUNTAIN GROVE AREA

Skyfarm at Fountaingrove, Unit 3  
Santa Rosa, California

Project No. 1769-01

Date: 02/01/11

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FIGURE

2

Job No. 5056-8805  
September 22, 1988

**GEOLOGIC INVESTIGATION**

**Skyfarm at Fountaingrove**

**Santa Rosa, California**

Prepared for:

Andremer Development Corporation  
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Attention: Dick Dorr

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September 22, 1988  
Job No. 5056-8805

Andremer Development Corporation  
4012 Garnet Place  
Santa Rosa, California 95405

Attn: Dick Dorr

As authorized, we have conducted a geologic investigation of the site of the proposed Skyfarm at Fountaingrove development in Santa Rosa, California.

The purpose of our investigation was to evaluate the subsurface soil, groundwater, and bedrock conditions beneath the site and to evaluate geologic and seismic hazards on the site that may impact the proposed site development. The accompanying report is based on a series of exploratory trenches, as well as on a number of site reconnaissances, a review of published geologic and seismic literature, and a review of aerial photographs of the site vicinity.

The report presents our conclusions regarding geologic and seismic hazards on the property and provides conclusions regarding activity of discovered fault zones and approximate depths and magnitude of unstable slope areas.

The Senior Staff Geologist assigned to this project was Stephen Lucas. If you have any questions regarding the report, please contact our office at your convenience.

Very truly yours,

HALLENBECK & ASSOCIATES

*Dan Caldwell* <sup>MG</sup>

Daniel S. Caldwell  
GE #2006

reviewed by:

*Kiyoshi Tanamachi* <sup>MG</sup>

Kiyoshi Tanamachi  
CEG #986

**GEOLOGIC INVESTIGATION**  
**Skyfarm at Fountaingrove**  
**Santa Rosa, California**

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**GEOLOGIC INVESTIGATION**  
**Skyfarm at Fountaingrove**  
**Santa Rosa, California**

**SCOPE**

This report presents the results of our geologic and seismic investigation of the proposed 500+ acre Skyfarm at Fountaingrove development, located within the northernmost limits of the City of Santa Rosa, California. The goal of this study was to map site geology and locate geologic hazards and potentially active faults for the purpose of developing an acceptable tentative map. To meet this goal, we reviewed published geologic literature, geologic and geotechnical reports relevant to the site, as well as performed independent geologic field mapping, aerial photographic interpretations, and subsurface trenching.

**SITE LOCATION AND PHYSIOGRAPHY**

The proposed Skyfarm at Fountaingrove development consists of approximately 500+ acres located within the foothills bordering the eastern edge of the Santa Rosa Valley, immediately south of Mark West Springs Road. In general, the terrain in this region is

characterized by more or less rounded, north-northwest trending valleys and ridges with moderate to steep slopes. The grain of these ridges is bisected along the northern boundary of the site by a relatively well-incised drainage containing the waters of Mark West Springs Creek. The site is occupied by one prominent peak near the center of the proposed development, and by the northern greens of the Fountaingrove Golf Course. This peak has an elevation of approximately 906 feet (above mean sea level) and descends to approximately 400 feet in a southwesterly direction along a well-developed spur to the north shore of the nearby Fountaingrove Lake. The summit area occupies relatively gently rolling terrain with topographic terraces or benches to the south and west. A subsidiary, parallel ridge borders the western edge of the site and is connected to the dominant peak by a relatively narrow saddle. The eastern portion of the site is characterized by knob and saddle topography and is bound by a small ephemeral stream which drains into Mark West Springs Creek to the north, near Relbli Road.

### REGIONAL GEOLOGY

The County of Sonoma is located within the Coast Range Geologic Province which spans approximately 600 miles, from the Oregon border to San Luis Obispo, and has a maximum width of about 80 miles. The Coast Ranges have been, and continue to be, one of the

most seismically active and tectonically diverse geologic settings in North America. During the past 200 million years at least three different tectonic regimes, involving 3 separate crustal plates, have left a unique signature along western California.

During Jurassic-Cretaceous time the ancient Farallon oceanic plate was being thrust (subducted) beneath the western margin of North American (N.A.) Continental Plate. At this time there was seaward growth of the California continental margin through the mass transfer of marine sediments from the Farallon Plate to the N.A. Plate (by offscraping and accretion), along what is known as the Coast Range Thrust. Accumulation and deformation of a thick prism of accreted marine sediments (known as the Franciscan Assemblage) formed a N-NW trending linear submarine ridge, behind which contemporaneous sediments derived from the erosion of the Sierran Arc Terrane were deposited (the Great Valley Sequence).

From the end of the Cretaceous and continuing through Eocene time, the geotectonic setting changed from one of subduction to oblique-subduction and then possibly back to normal subduction. It was not until approximately 30 to 40 million years before present, when the N.A. Plate intersected the Pacific Plate, that this plate boundary entered its present day tectonic configuration. At this point in geologic time the Farallon Plate was bisected forming two triple



junctions between the N.A. Plate, Pacific Plate and the two fragments of the Farallon Plate now separated by the juvenile San Andreas Fault. The northward and southward migration of these junctions marked the termination of subduction and the expansion of transform faulting. During the last 20 to 30 million years right-lateral transform motion between the N.A. and the Pacific crustal plates has been distributed across a broad zone of NW trending faults, collectively referred to as the San Andreas Fault System.

Right-lateral shearing along faults of the San Andreas system has induced zones of compression and tension which have shaped the present landscape. These pressures cause local and region mountain uplift and valley subsidence along subsidiary dip-slip faults. McLaughlin (1981) has postulated that northward migration of the Mendocino Triple Junction (the intersection between the Pacific, N.A., and Juan De Fuca plates) has imposed a component of tension along the San Andreas Fault System which triggered abundant late Cenozoic volcanism in the north coast ranges (eg. Sonoma and Clear Lake Volcanics). He suggests that magma was either vented along leaky transform faults or along north-northeast oriented extensional normal faults between right-lateral shear couples.

Since Quaternary time the Coast Ranges geomorphology has largely been controlled by continued faulting, regional uplift and subsidence,

and the northward advancement of vulcanism. Concurrently, young volcanic rocks, as well as older basement terranes have undergone prolonged erosion, forming thick fine to coarse-grained continental deposits such as those found in the Glen Ellen formation.

### SITE GEOLOGY

The site is predominantly underlain by gently to moderately dipping volcanic lavas and pyroclastic rocks of the Sonoma Volcanic Group which have been truncated and mildly warped by relatively recent episodes of deformation within the vicinity of the Healdsburg-Rodgers Creek Fault Zone. The volcanic deposits form the resistant ridges which extend from the Sonoma Mountains into the study site and beyond. Similar and perhaps contiguous volcanic rocks at the Petrified Forest, approximately 5 miles to the northeast, have yielded radiometric dates of about 3.4 million years old, or upper Pliocene age, (Evernden and James, 1964).

### STRATIGRAPHY

#### Sonoma Volcanics Formation

The Sonoma Volcanics Group in the vicinity of the Fountaingrove Ranch is represented by gently to moderately deformed, interbedded

andesitic to basaltic lava flows and associated pyroclastic tuffaceous units. Thick deposits of agglomerates and volcanic breccias at various locations throughout the site suggest the presence of multiple vents in the local area.

Basalt and andesite lava flows are the most volumetrically important rock type in the study area and are found capping nearly every prominent ridge at the site. At the surface these lavas typically appear as a fractured, rubbly mass of resistant blocks, up to and greater than one meter in size, which support a thick growth of oak. Lava textures include aphyric (without visible crystals), porphyritic (with visible crystals) and vesicular flows. However, no attempt was made to map individual flow units based on these criteria. The intervening canyons or benches separating basalt ridges are for the most part underlain by a variety of more readily erodible tuffaceous deposits. The tuffaceous deposits include light gray ash-flow tuffs, gray, pink and maroon crystal-lithic tuffs, and maroon and brown lapilli tuffs.

Trenching indicates that andesite and basalt flows are also present at shallow depths beneath numerous slopes and some topographic benches or steps throughout the site. In these areas the lavas are often moderate to deeply weathered and mantled by a reddish-brown residual soil.

### Glen Ellen Formation

Deposition of the continentally derived strata of Glen Ellen formation began during the latest phase of Sonoma Group volcanism (Late Pliocene) and continued into the beginning of the Pleistocene epoch. The Glen Ellen formation conformably overlies, as well as locally interfingers with the Sonoma Volcanics. Locally the Glen Ellen formation is represented by various waterlain tuffaceous sandstones, siltstones and localized polymictic pebble and boulder conglomerates. The clast composition of gravel deposits is dominated by moderately well-rounded volcanic rock fragments with a minor component of red Franciscan chert pebbles.

Exposures of the Glen Ellen formation are restricted to the northeastern portion of the site (see Plate 1). In some areas, such as the topographic knob near the northeast end of trench T-3a, the Glen Ellen is found to conformably overlie a lithic-crystal tuffaceous deposit at the top of the Sonoma Group. At other locations this unit unconformably overlies, or is in fault contact with, older Sonoma Volcanics rocks. In general, however, bedding within the Glen Ellen formation dips gently to the east-northeast, towards the axis of the Kenwood-Sonoma synclinal trough.

### Surficial Deposits

With the exception of boldly outcropping ridges and some very steep slopes, the majority of the site is mantled with a thin layer of well consolidated residual soil or slope-wash colluvium of moderate to low plasticity. Localized, unstratified deposits of alluvium, colluvium and man-made fill exist, however, throughout the site. In most cases these units can be identified based upon topographic expression in aerial photographs and in the field. However, in some cases, exploratory trenching is warranted. The areas underlain by these less consolidated colluvial (slide) deposits are typically identified by surface features such as head scarps, hummocky topography and a lobate toe deposit of disturbed debris. The landslide morphotypes identified on-site range from debris flows and rotational slides to dip-slope block slides and possibly topples. In general, the slide deposits appear to be relatively shallow, probably less than ten feet deep, with few notable exceptions. Individual slide areas are discussed in more detail in the following section on slope stability.

A thin layer of recent alluvial material is located in an area adjacent to Mark West Springs Creek as well as near numerous

smaller ephemeral feeder creeks within the site. These deposits tend to consist of unstratified, fairly coarse-grained sands and gravels. A thin layer of silty to sandy alluvium mantles a low-lying terrace at the north end of the site, near the intersection of Mark West Springs and Reibli roads.

Man-made fill has been placed in two locations on the site. One of the fills consists of bouldery material excavated from the cut-pad which was built for the water tank. The second is a fill placed at the north entrance to the property to provide an access road to the site from Reibli Road. A 6 foot culvert was installed within this fill for the waters of Mark West Springs Creek.

### SLOPE STABILITY

Overall, the slopes at the site are underlain at shallow depths by moderately resistant and generally stable volcanic bedrock with a few localized areas of instability. For the most part, trenching has proven that many suspect topographic escarpments are the result of differential weathering of less resistant tuffaceous deposits over more resistant lava flows, rather than landsliding. The major slide areas on the site are referred to as S-1 through S-4 in the following discussion and on Plate 1.

Slope movement in the area of S-1 appears to be a combination slump-earth flow complex, which probably has resulted from the removal of lateral support at the toe of the slope, and possibly seismic groundshaking, associated with faulting along the Healdsburg-Rodgers Creek fault. The rupture surfaces beneath these slides are probably relatively deep-seated, at least 30+ feet below the mass. At present these slide areas do not appear to affect the proposed upslope development.

The slide area marked S-2 appears to be a relatively shallow debris flow with some lateral spreading at depth. In trench T-34, bedrock was found only a few feet below the surface. However, soil-filled fissures extended to some depth. The majority of this slide, however, lies within the powerline easement and therefore will not impact the development. Shallow movement or creep also appears active to the north near trench T-35. The material underlying this area appears highly strained and deformed (see trench log for T-35). The lack of a discrete slip plane or rupture surface suggests that the deformation of this material may have resulted from tectonic uplift and folding rather than recent mass movement event.

The slide area marked S-3 is underlain at a shallow depth by basalt and basaltic tuff bedrock which has apparently moved downslope as a fairly coherent block slide. In trench T-31 a small topple of

basaltic tuff was found within sheared colluvial deposits and above zones of seepage. It appears that the entire slide mass may be less than ten feet deep. Deeper and more extensive trenching or drilling is necessary for positive verification. A second trench, T-32, and a cut slope directly below the slide appear to be underlain by relatively stable bedrock. There may, however, be some lateral spreading as far downslope as trench T-32. Although this slide area encroaches on the lower portions of several building lots, we understand that the building envelopes for these lots are near the ridgetop in an area that appears unthreatened by the mapped landslide.

The S-4 slide area is a complex zone of instability that involves shallow, relatively young debris flows and a fairly large ancient rotational slide complex that presently appears to be in a relatively stable configuration. The shallow debris flow slides extend from an area just north of trench T-29 to near T-30 and is separated from the larger ancient slide to the north by an east-west trending basalt spur or dike. A fairly dense and coherent tuffaceous deposit was found beneath a thin layer of colluvial soil in trench T-30. Trenches in the larger slide mass (T-1 & T-2) indicate that there is a fairly thick mass of slide debris which may have been partially eroded away, forming a small amphitheater or bowl-like feature. In general, the slides in the S-4 area are either old and inactive or



shallow. In our opinion, relatively minor remedial grading and/or proper foundation design will allow safe development of future building sites in this area.

## FAULTING

### Previous Fault Studies

Numerous fault strands which are collectively included within the Healdsburg-Rodgers Creek Fault Zone have been mapped on or near the proposed development site (Fox and others; 1973; Huffman, 1971; Huffman and Armstrong, 1980; Hart, 1983; Harding Lawson Assoc., 1980; Herzog & Assoc., 1988).

### "Active" Holocene Faults

As with most right-lateral strike-slip faults within the San Andreas Fault System, the Healdsburg-Rodgers Creek Fault consists of numerous subparallel fault strands. Some of these strands can potentially be reactivated and cause surface rupture if a major earthquake occurred in the immediate vicinity. Potential fault-rupture hazard zones have been delineated by geologists from the California Division of Mines and Geology (CDMG) in accordance with the Alquist-Priolo Special Studies Zones Act of 1972 (APSSZ).

Original APSSZ maps included all Quaternary faults (faults active within the past 2 million years). However, presently the criteria for fault activity is "surface displacement within Holocene time (about the last 11,000 years)". Current APSSZ maps show that the active trace of the Healdsburg-Rodgers Creek fault occurs in a linear valley which borders and includes a portion of the west edge of the development. The eastern edge of the APSSZ zone is approximately 1/4 mile away from the closest proposed building site.

Harding Lawson Associates (HLA; 1980; Fault B, plate 1) located a fault (through trenching) with apparent Holocene movement trending in roughly a north-south direction and extending into the eastern part of the proposed development. We excavated three trenches (T-27, T-28 & T-29) in the vicinity of this fault. In T-27 and T-28 we found a fissure with a slight offset in the underlying bedrock filled with soil. The overlying soil horizon was generally thin and well vegetated by grasses, hence the recency of displacement is difficult to assess. As part of the North Coast fault evaluation program (Hart and others, 1983) Staff at CDMG reevaluated this fault trace as well as numerous other faults in the area. As part of this process they reviewed available trench logs, including those in the HLA report, reviewed aerial photographs, and performed field reconnaissance. They concluded that these faults mapped crossing the center of the site show no evidence of Holocene offset.

However, due to the slight uncertainty with respect to the recency of movement on so-called Fault B (HLA, 1980), we have recommended that a building set-back zone be established at this fault. In our opinion, a 20 foot setback is appropriately conservative for this fault.

#### Pre-Holocene Faults

Four previously unmapped, presumably Pre-Holocene, faults were discovered on-site during our investigation. All of these faults were found during exploratory trenching, with the exception of a fault in a cut-slope next to the existing water tank. The fault exposure in the road cut trends north-northwest and shows an apparent dip-slip motion placing old alluvium to the west in juxtaposition with thinly bedded basaltic lava flows to the west.

Evidence of faulting was present in trenches T-3a, T-11, T-17 & T-18, generally in the form of soil filled fissures and offset bedrock or intense shearing. In our opinion, these faults are not active, and therefore building offsets are not necessary. In our opinion, the presence of these faults will not affect development of the site.

#### SEISMICITY

### General

Seismic activity in Sonoma County, as well as the entire San Francisco Bay region, is the result of opposing forces along the North American and Pacific crustal plate boundary. Release of accumulated intercrustal stress is accomplished either through abrupt, sudden earth movements (earthquakes) or continuously reduced through gradual, seismic creep along the wide belt of northwest trending faults, collectively known as the San Andreas Fault system.

Nearby faults of the San Andreas system that could potentially produce a significant groundshaking event, and that have been addressed by the Alquist-Priolo Special Studies Zone (APSSZ) Act of 1972 include: the San Andreas Fault proper; the Maacama Fault; the Rodgers Creek-Healdsburg Fault (Hart, 1983 and 1985).

### Rodgers Creek-Healdsburg Fault

The Rodgers Creek-Healdsburg Fault, which is possibly the northern extension of the "active" Hayward Fault, borders the southwest side of the site. This fault has been responsible for the two moderate earthquakes just north of Santa Rosa of magnitude 5.7 and 5.6 on the

Richter Scale, on October 1, 1969. The maximum credible earthquake is believed to be a magnitude 7.0. It should be noted that several previous investigators have mapped strands of this fault zone within the boundaries of the site. However, based on apparent lack of compelling geomorphic features, these segment have been designated as inactive during Holocene time (Hart, 1983).

#### San Andreas Fault

The San Andreas Fault, which is located approximately 20 miles southwest of the site, has produced a maximum historical earthquake of 8.25 on the Richter scale. This fault is considered capable of producing a maximum credible earthquake of 8.5 and has an estimated recurrence interval of 100 to 1000 years (Wesson and others, 1975). This fault is not confined to a single trace; it consists of a wide zone of anastomosing fault planes and is approximately 750 miles in total length.

#### Maacama Fault

The southernmost extension of the Maacama Fault is located approximately 6 miles northeast of the site. Although this fault was responsible for a 4.8 magnitude earthquake (Richter Scale) centered in Willits on November 22, 1977, APSSZ Geologists have

recommended that the southernmost 7 to 8 miles of the fault (closest to the site) be reclassified as not active during Holocene time, (approximately the last eleven thousand years).

#### Primary Seismic Effects

Potentially active faults have been previously mapped within the eastern portion of the proposed development site (Harding Lawson Assoc., 1980). Our trenches have confirmed that there is a step in the bedrock in this vicinity. However, we were unable to trace it to the surface. Furthermore, we found no geomorphic evidence of surface rupture during our site visits. Based on these criteria we believe that there is little probability of fault rupture occurring at the surface of the proposed development.

#### Secondary Seismic Effects

Based on our analysis of the site conditions, the potential secondary geologic hazards due to ground shaking are as follows:

##### A. Landsliding

Since competent, relatively strong bedrock generally occurs within one foot of the ground surface in suggested building envelopes and the majority of grading is presumed to occur on or

near the ridge tops, we believe that the chance of landsliding during a severe seismic event will be minimized. Precautions should be taken to stabilize potentially threatening landslides if they occur near or upslope of proposed improvements.

#### B. Seismic Settlement

The possibility of settlement of the ground surface due to densification of less cohesive layers during seismic shaking appears relatively remote, based on visual inspection of trench excavation spoils in the field. In areas where there are thick accumulations of subsurface soils such as the ancient landslide deposits, there is generally enough fine-grained material to prevent densification of coarser-grained layers during short term loading events associated with earthquakes. There is a slight potential for settlement in local areas underlain by poorly consolidated deposits of the Glen Ellen formation.

#### C. Liquefaction

Due to the prevalence of dense, well consolidated bedrock at shallow depths, we feel that the risk of potential liquefaction is slight to nonexistent over most of the site. There is a slight potential for liquefaction in local areas underlain by poorly consolidated sand rich deposits of the Glen Ellen formation.

D. Flooding

The proposed site is not located within an area that is prone to flooding during a 100 year (recurrence interval) storm (Limerinos and others, 1973).

CONCLUSIONS

In our opinion, the site is suitable for the proposed residential development. Based upon the results of our study, it is our opinion that the currently proposed layout of streets and building lots is acceptable from a geologic and seismic viewpoint. As discussed in this report, certain portions of this site are effected by relatively shallow soil creep or slope instability. In our opinion, these unstable slope conditions can be treated using standard engineering and grading techniques to allow safe and economical development of the site as currently proposed. One potentially active fault zone has been delineated near the southern portion of the site, as shown on the site plan, Plate 1. In our opinion, it is very unlikely that future fault movement will occur at this location. However, due to the slight uncertainty regarding the recency of movement on this fault, we have recommended a 20 foot building offset from this fault line, as indicated on the site plan. Other shear zones or faults on the property are inactive in our opinion.



Further geotechnical and geologic engineering investigation will be undertaken when more detailed grading and development plans are available for the project. Additional geotechnical work will include drilling test borings and excavation of additional test pits to obtain more detailed information regarding the soil and rock profile in various areas of the site. Once a detail grading plan is available for the roadways and improvements that are proposed, geotechnical engineering design criteria can be prepared and specific design recommendations given for cut and fill slope inclinations, grading techniques and compaction specifications, and other aspects of the project related to soil and foundation engineering. We anticipate providing grading observation services during improvement of the site. As part of these services, we plan to map the "as-built" geology so that any unforeseen problems can be addressed in a timely manner.

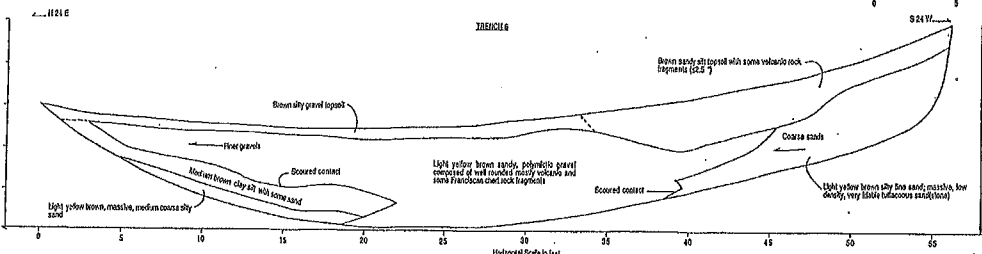
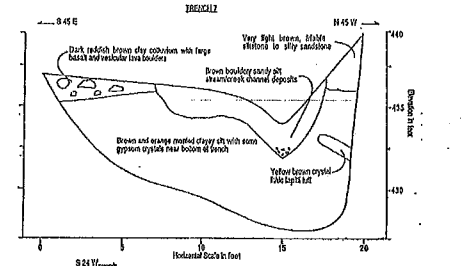
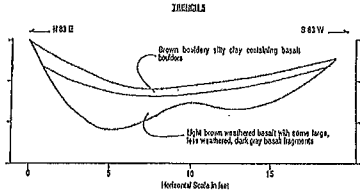
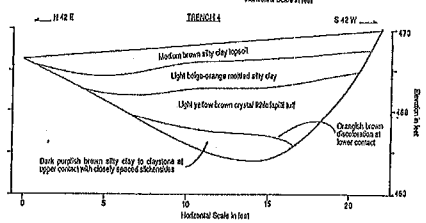
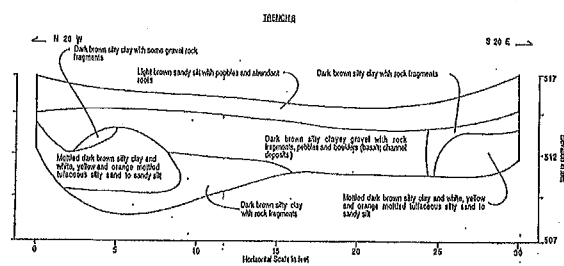
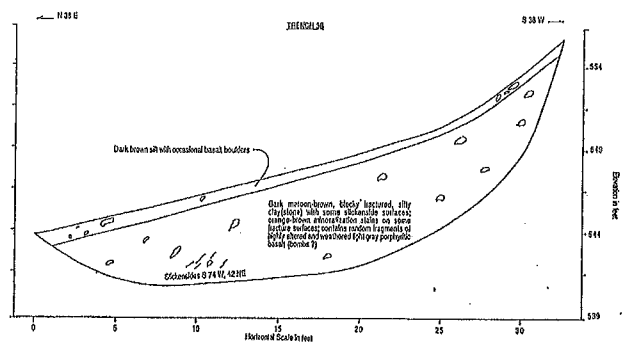
We are pleased to have been of service to you. If you have any questions, please feel free to call us at your convenience.

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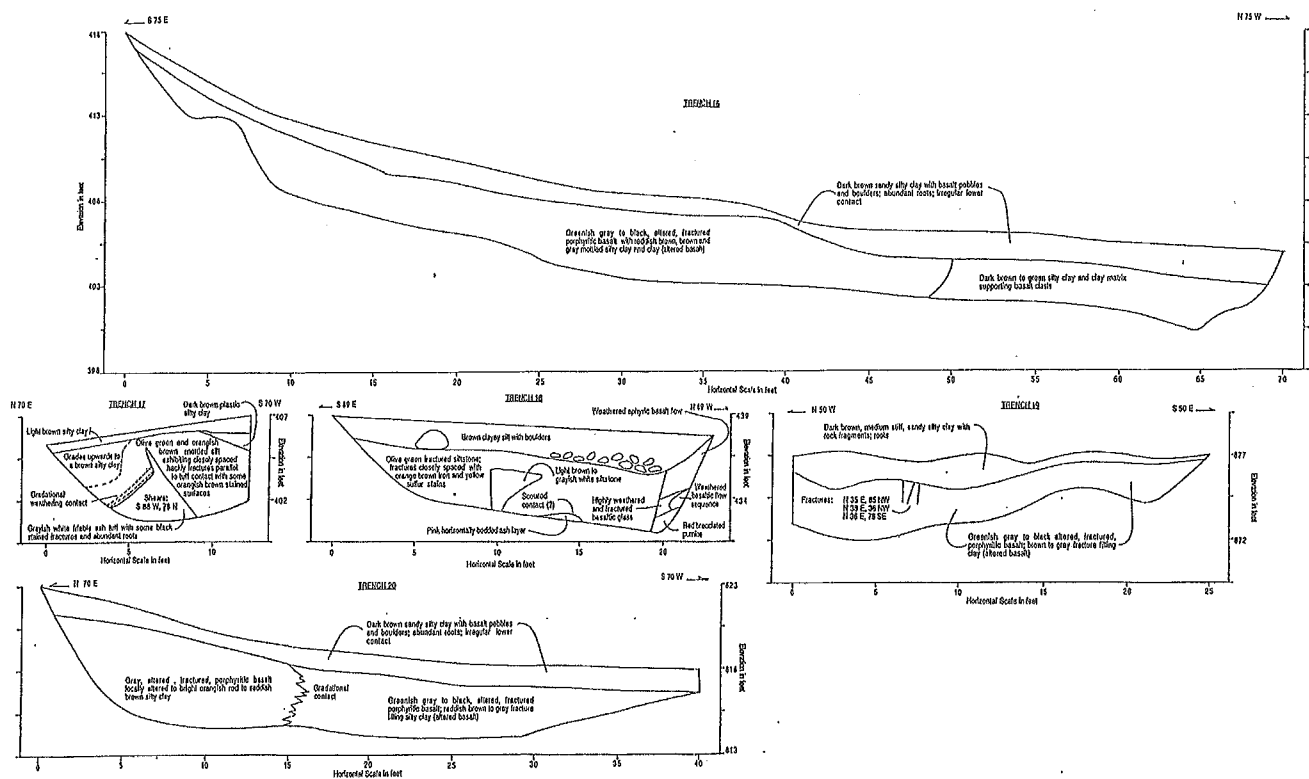


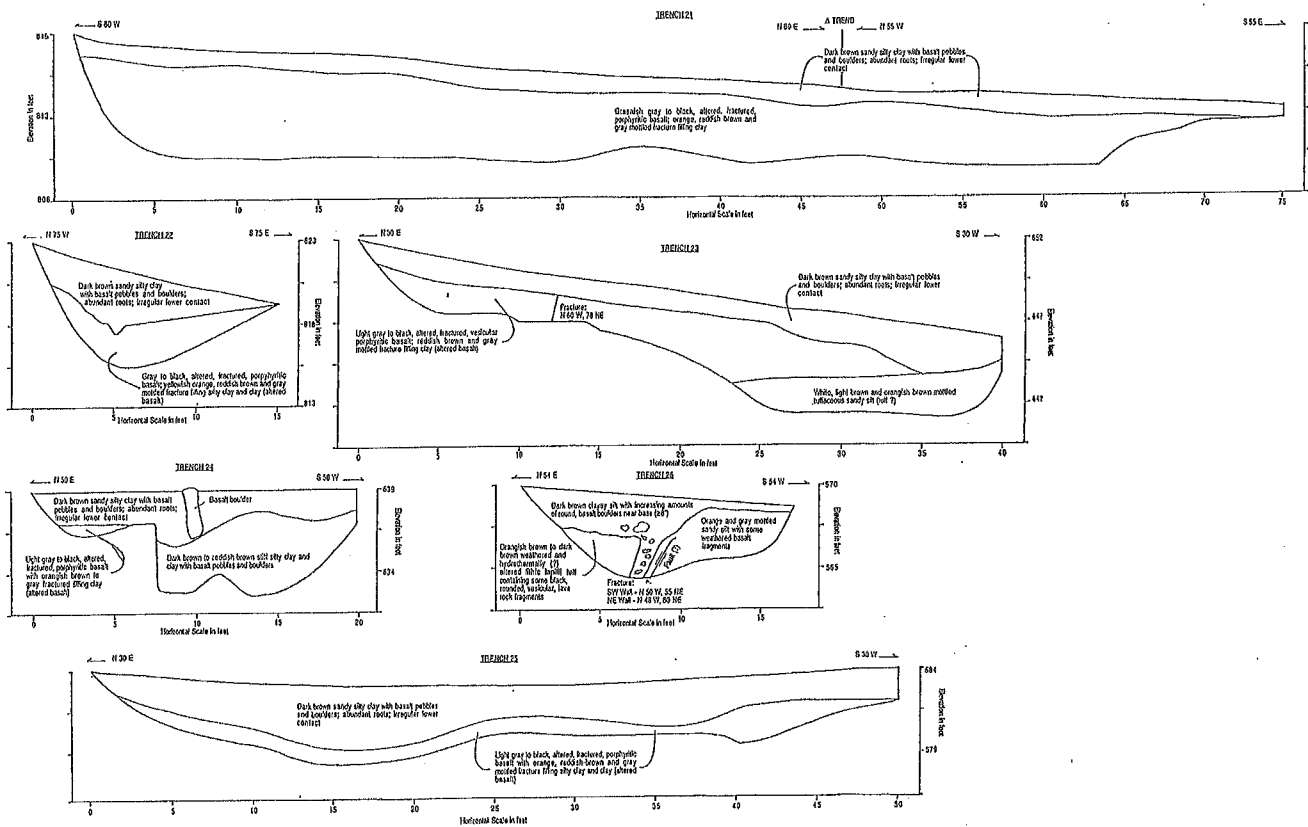
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HALLENBECK and ASSOCIATES

Figure 2

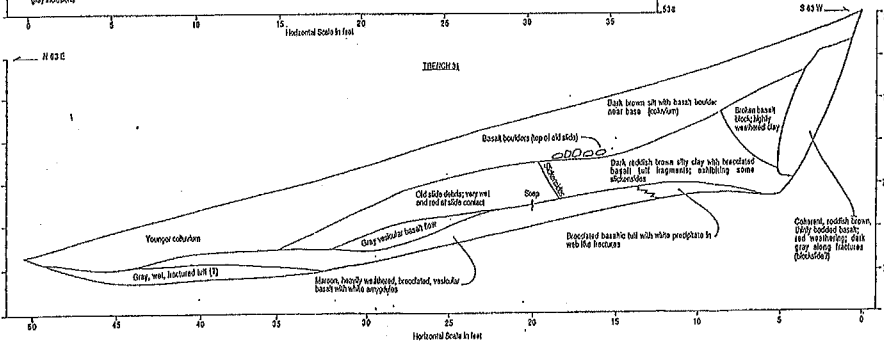
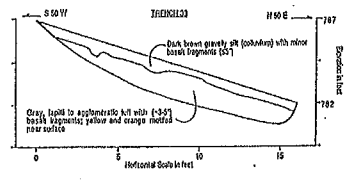
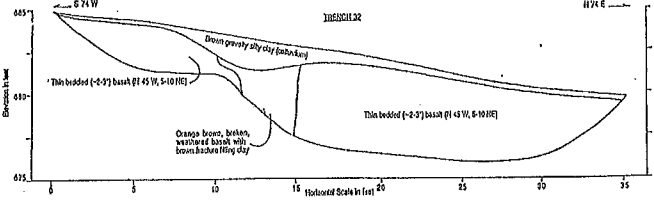
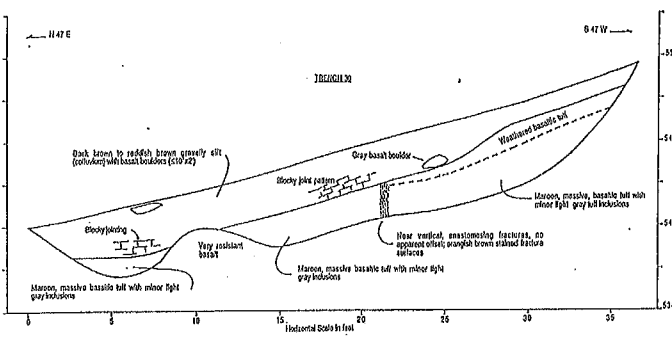
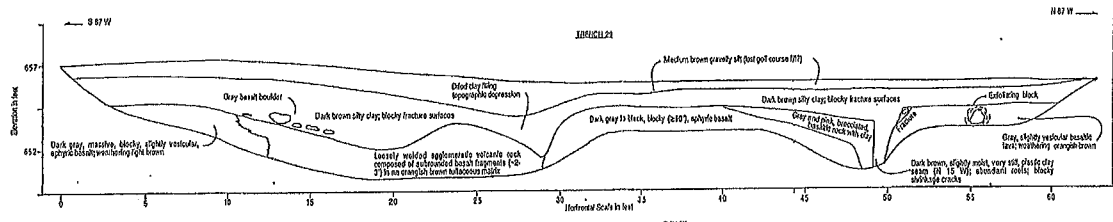


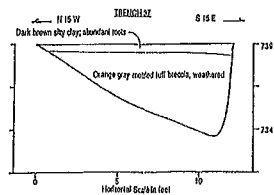
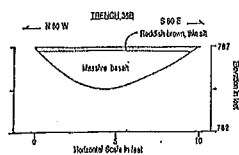
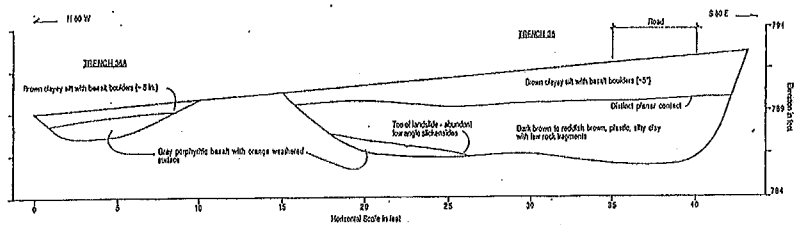
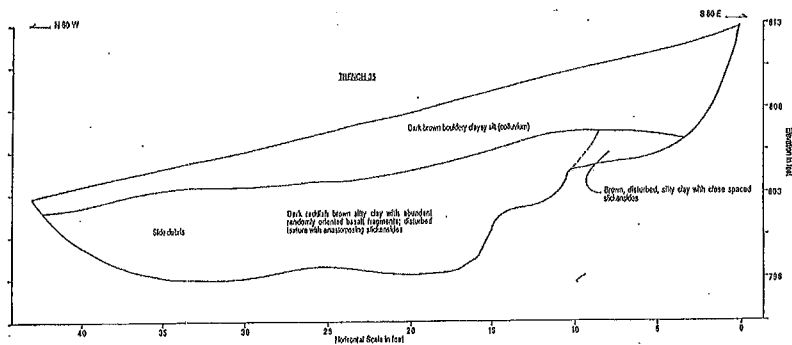
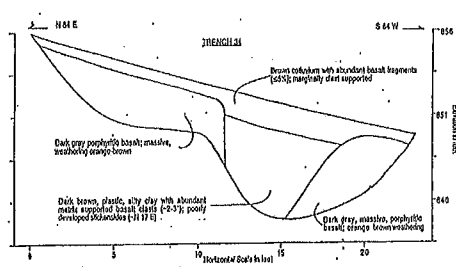












5050-8805

HALLENBECK and ASSOCIATES

Figure 6

SKY FARM AT FOUNTAIN GROVE  
GEOLOGIC MAP

Topographic map showing contour lines and geological features. The map includes a legend in the bottom left corner and a scale bar in the bottom right corner.

Legend:

- Topographic contours
- Geological units (e.g., Tsv, Qv, Qg)
- Structural features (e.g., faults, folds)
- Other features (e.g., roads, water bodies)

Scale: 1 in. = 500 ft.

PLATE 1.

REACTIVE MAP  
SKYFARM - UNIT 1  
UTILITY PLAN

PLATE 1.

CITY OF SANTA ROSA  
P.O. Box 1678  
Santa Rosa, CA 95402

JUL 06 2011

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

# **Manzanita Fuel Hazard Assessment**

## **Sky Farm 3**

**July 2011**

**Prepared by Vern Losh  
Vern Losh and Associates**

### **PROPOSED DEVELOPMENT**

The Sky Farm 3 Development is located in Santa Rosa within the Fountain Grove Ranch Planned Development originally established in 1972. It is located in the north eastern part of the City in an area designated by the City Council as a "Wildland Urban Interface Fire Area." This designation was adopted in March of 2009 by Ordinance 3907, based on the recommendation of the Chief of the Fire Department. This ordinance requires that all development comply with certain sections of the Public Resources Code, Government Code and other local requirements.

The land adjacent to the project in the unincorporated area of the County to the north and east is also considered to be a High Fire Severity Zone and is within the Rincon Valley Fire Protection District.

### **FIRE HISTORY**

The most significant fire on record in the area of Sky Farm 3 was the Hanley Fire in September of 1964. The fire burned almost 56,000 acres from Calistoga to the area of Sutter Hospital in Santa Rosa. Like most significant fires in Sonoma County, the Hanley fire occurred during the fall and it was reported to be driven by hot, dry north and east winds.

### **WEATHER**

The weather in Sonoma County is typical of a Mediterranean type climate. This climate includes long hot summers with minimal amounts of moisture. This climate provides ideal conditions for wildland fires. There is an average of 29 days per year where the temperatures exceed 90 degrees. This is typically in late summer and early fall.

### **BUILDING CONSTRUCTION**

There has been a dramatic change in building standards in the last 8 to 10 years for construction in Wildland Urban Interface (WUI) areas of California. These changes have been a direct result of findings from several major fires in the State. The changes have been incorporated into building and fire codes on a local and state level.

All buildings constructed within the Sky Farm 3 Development will comply with all building standards as adopted by the State of California and the City of Santa Rosa for WUI areas. This includes but not limited to: interior fire sprinklers, ignition-resistant building materials, protected vents and gutters, enclosed roof eaves and roof eave soffits, fire resistive doors and windows, and ignition-resistant decking material.

hazard fuel reduction in the City of Santa Rosa.<sup>8</sup> There have been other documents produced discussing the Wildland Urban Interface Area fire threat to the City of Santa Rosa including: *Fountain Grove II, Community Wildfire Protection Plan (2009)*, *District 7 Wildland Urban Interface Threat Assessment (Ricci, Santa Rosa Fire Department 2003)*, and the *City of Santa Rosa: Hazard Analysis Threat Summary (Santa Rosa Fire Department, 1999)*.

Far and away the most dangerous of the fuel types are those dominated by brush or shrubs. Shrubs and/or brush fuels have similar characteristics. These plants will burn rapidly with high intensities under severe burning conditions. Fires late in the growing season (fall) have the greatest intensities and spread rates under strong winds and when the live fuel moistures are at their lowest.<sup>9</sup> From the flames come burning embers which can ignite homes and other vegetation. All of these factors results in a setting where aggressive defensible space clearing requirements are necessary.<sup>10</sup>

Fire Behavior Fuel Model 4 is brush; head high (6 feet or more) with continuous, inter-linking crowns. This is best represented by California mixed chaparral (Manzanita). Flame lengths can exceed 50 feet. The fire behavior includes extreme rates of spread making control efforts difficult.<sup>11</sup>

The earliest fire behavior model developed by the U.S. Forest Service is the BEHAVE system. It has been used for the past 20 years to provide a planning tool for firefighting operations during wildland fires. Using the BEHAVE Fire Modeling System, fuel model 4 brush burns with great intensity. The rate of spread can be up to up to 85% greater than an oak hardwood forest, particularly when the fuel is on a slope greater than 20%.

Manzanita produces more ground litter than other chaparral shrubs. The leaves, twigs, and fruits contain flammable resins. Manzanita fires are severe and typically consume all standing material down to ground level.<sup>12</sup>

Properties with greater fire hazards will require more clearing. Clearing requirements will be greater for those lands with steeper terrain, larger and denser fuels, and fuels that burn with great intensity.<sup>13</sup>

## DISCUSSION CONCLUSION

After extensive review, it is the conclusion of the author that Manzanitas are considered brush, shrubs or chaparral by experts in the field of plant identification, not trees. Further, it was found that Manzanitas can increase the fire intensity in a Wildland Urban Interface Area of any community.

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<sup>8</sup> *Wildland Urban Interface Fuel Risk Assessment: City of Santa Rosa, California, Fire Management Concepts Inc. (2004)*

<sup>9</sup> *Will Your Home Survive, William Tele (2001)*

<sup>10</sup> *California Wildfire Landscaping, Maureen Gilmer (1994)*

<sup>11</sup> *BEHAVE Fire Modeling System*

<sup>12</sup> *U.S. Forest Service database*

<sup>13</sup> *General Guidelines for Creating Defensible Space, State Board of Forestry and Fire Protection (2006)*

**FIRE SAFETY EXPERTS CONSULTED WHILE PREPARING THIS ASSESSMENT**

*Jeff Brand, Battalion Chief, Cal Fire*

*Ronny Coleman, Chief Deputy Director of Cal Fire and former California State Fire Marshal*

*Ethan Foote, Chief, California Department of Forestry and Fire Protection, Cal Fire*

*Chelsea Fox, Fire Prevention Specialist, Cal Fire*

*Ray Moritz, Fire Ecologist, Urban Forester, Urban Forestry Associates, Inc.*

*Kim Thompson, Battalion Chief, Cal Fire*



JUL 6 2011

## Vernon A. Losh II

1306 Creekside Court Healdsburg, CA 95448

Home: 707.431.1994

DEPARTMENT OF  
COMMUNITY DEVELOPMENT

Email: [vlosh@aol.com](mailto:vlosh@aol.com)

### BIOGRAPHY

Chief Losh started his fire service career in 1974 in Placer County with the South Placer Fire Protection District. With South Placer Chief Losh held every rank from firefighter to Battalion Chief.

In 1992 he became the first fulltime Chief of the City of Lincoln, California.

In 1995 Chief Losh came to Sonoma County as Deputy Chief/Fire Marshal for the Department of Emergency Services.

Chief Losh was promoted to the position of Director of the Sonoma County Department of Emergency Services in 1999.

From 2000 to 2005 Chief Losh also served as the Chief of the Rancho Adobe Fire Protection District through an administrative contract.

Chief Losh retired from Sonoma County in November of 2008. At retirement he became a volunteer Battalion Chief for the Healdsburg Fire Department offering his background and experience to his local community.

He has been involved with developing fire codes and ordinances for several government agencies. In Sonoma County alone he was involved with several fire code adoptions that included the Fire Safe Standards and requirements of the Public Resources Code for all of unincorporated Sonoma County.

Chief Losh has an emergency response history that spans four decades. That history includes responding to hundreds of incidents involving structure fires and wildland emergencies. He has responded to major wildland urban interface incidents throughout California as an engine Captain and a Strike Team leader responsible for multiple engines and crews.

His education in emergency management includes being one of first twelve people certified in the State of California as a Fire Chief, has completed the Executive Fire Officer Program at the National Fire Academy, and is designated a Chief Fire Officer by the Commission on Chief Fire Officer Designation.

He is currently serving his third term as a director for the California State Firefighters Association (CSFA), past Chair of the CSFA Volunteer Committee, past president of the Northern California Firefighters Association, past President of the Sonoma County Fire Chiefs Association, past President of the Sonoma County Department Heads Association, and over 30 years as a volunteer for Red Cross including past Board Chair for the American Red Cross-Sonoma/Mendocino County Chapters.

## CERTIFICATION

Chief Fire Officer-Commission on Chief Fire Officer Designation

California State Certified Fire Chief

California State Certified Chief Officer

Executive Fire Officer-National Fire Academy

## MEMBERSHIP IN ASSOCIATIONS

American Red Cross-Sonoma/Mendocino Chapters-Past Board Chair

Sonoma County Fire Chiefs Association-Past President

Sonoma County Department Heads Association-Past President

California State Firefighters Association-Northern Director

Past Chair-Volunteer Committee for the California State Firefighters Association

International Association of Fire Chiefs – Volunteer/Combination Officer's Section

Northern California Firefighters Association-Past President

California Fire Muster Association

National Fire Protection Association

North Bay Official's Association

Healdsburg Kiwanis Club

## REFERENCES

Chief Doug Williams, Rincon Valley Fire District

707.696.7500

Mr. Jim Ford, former Director for the Rancho Adobe Fire District

707.484.1688

Chief Ronny Coleman, Retired State Fire Marshal and Deputy Director of the California Department of Forestry and Fire Protection (Cal Fire)

916.799.5363

Paul Kelley, Former 4<sup>th</sup>. District Supervisor, County of Sonoma

707.953.5166



# Summary Results

Project Name: Skyfarm 3 2011

Project and Baseline Years:

2013

N/A

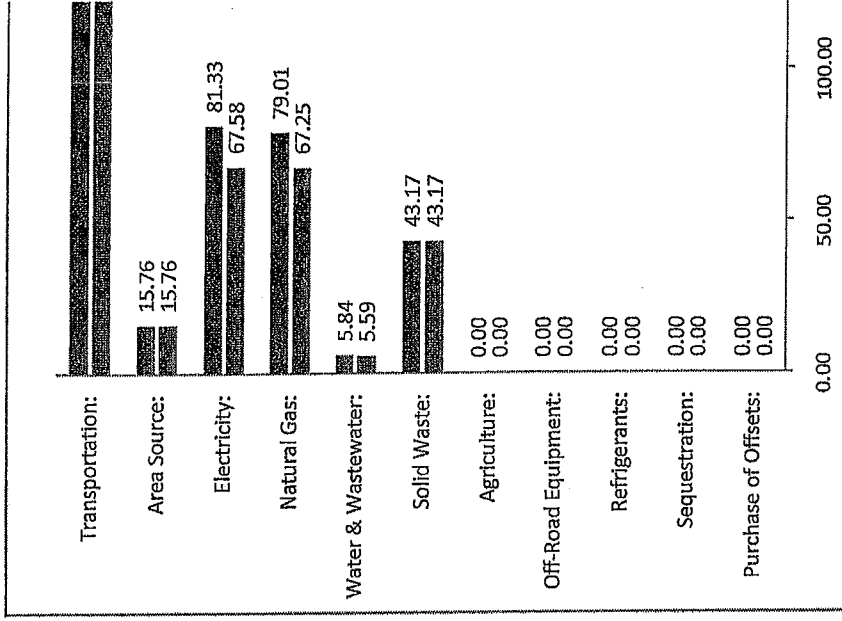
Unmitigated Project-  
Baseline CO2e (metric  
tons/year)

Results	Unmitigated Project- Baseline CO2e (metric tons/year)	Mitigated Project- Baseline CO2e (metric tons/year)
Transportation:	382.57	382.57
Area Source:	15.76	15.76
Electricity:	81.33	67.58
Natural Gas:	79.01	67.25
Water & Wastewater:	5.84	5.59
Solid Waste:	43.17	43.17
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	N/A	0.00
Purchase of Offsets:	N/A	0.00
Total:	607.67	581.91

Baseline is currently: **OFF**

Baseline Project Name:

Go to Settings Tab to Turn On Baseline



## Detailed Results

Unmitigated	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				382.57	62.96%
Area Source:	14.58	0.05	0.00	15.76	2.59%
Electricity:	81.20	0.00	0.00	81.33	13.38%
Natural Gas:	78.81	0.01	0.00	79.01	13.00%
Water & Wastewater:	5.83	0.00	0.00	5.84	0.96%
Solid Waste:	0.32	2.04	N/A	43.17	7.10%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				607.67	100.00%

\* Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley"

regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air cond

Finally, CO2e is adjusted to account for th low carbon fuels rule.

# Mitigated

	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:				382.57	65.74%
Area Source:	14.58	0.05	0.00	15.76	2.71%
Electricity:	67.47	0.00	0.00	67.58	11.61%
Natural Gas:	67.08	0.01	0.00	67.25	11.56%
Water & Wastewater:	5.58	0.00	0.00	5.59	0.96%
Solid Waste:	0.32	2.04	N/A	43.17	7.42%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				581.91	100.00%

## ***Mitigation Measures Selected:***

**Transportation:** Go to the following tab: Transp. Detail Mit for a list of the transportation mitigation measures selected (in URBE

**Electricity:** The following mitigation measure(s) have been selected to reduce electricity emissions.

Cool Roofs/Green Roofs  
5000 kwh/year reduced

**Natural Gas:** The following mitigation measure(s) have been selected to reduce natural gas emissions.

Cool Roofs/Green Roofs  
2

**Water and Wastewater:**

The following mitigation measure(s) have been selected to reduce water and wastewater emissions.

Drought Tolerant Landscaping  
Low Flush Toilets  
10 % Reduction Outdoor Use  
2 % Reduction Indoor Use

**Solid Waste:** The following mitigation measure has been selected to reduce solid waste related GHG emissions.

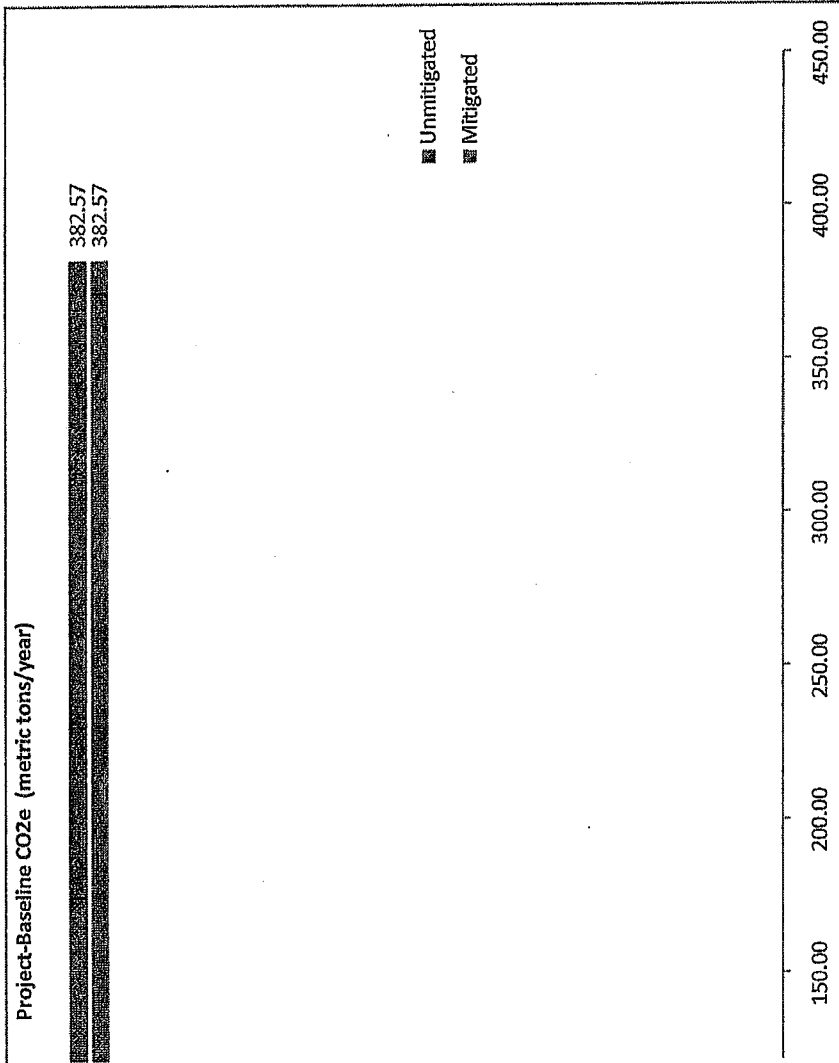
**Ag:** No existing mitigation measures available.

**Off-Road Equipment:** No existing mitigation measures available.

**Refrigerants:** The following mitigation measure has been selected to reduce refrigerant emissions:

**Carbon Sequestration:** Project does not include carbon sequestration through tree planting.

**Emission Offsets/Credits:** Project does not include purchase of emission offsets/credits.





Baseline	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation*:					
Area Source:	0.00	0.00	0.00	0.00	N/A
Electricity:	0.00	0.00	0.00	0.00	N/A
Natural Gas:	0.00	0.00	0.00	0.00	N/A
Water & Wastewater:	0.00	0.00	0.00	0.00	N/A
Solid Waste:	0.00	0.00	N/A	0.00	N/A
Agriculture:	0.00	0.00	0.00	0.00	N/A
Off-Road Equipment:	0.00	0.00	0.00	0.00	N/A
Refrigerants:	N/A	N/A	N/A	0.00	N/A
Sequestration:	N/A	N/A	N/A	N/A	N/A
Purchase of Offsets:	N/A	N/A	N/A	N/A	N/A
Total:				0.00	0.00%

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