

APPENDIX

B

INITIAL STUDY

**COUNTY OF BUTTE
DEPARTMENT OF DEVELOPMENT SERVICES
INITIAL STUDY FOR
DURHAM VILLAS SUBDIVISION**

PROJECT INFORMATION

- | | |
|--|--|
| 1. Project Title: | Creekside Estates Subdivision (TSM18-0001) |
| <hr/> | |
| 2. Lead Agency Name and Address: | Butte County – Department of Development Services
Planning Division
7 County Center Drive
Oroville, CA 95965 |
| <hr/> | |
| 3. Contact Person and Phone Number: | Mark Michelena, Senior Planner
530.552.3684
mmichelena@buttecounty.net |
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| 4. Project Location: | The project site encompasses 40 acres located at 5000 Will T Road, 3,000 feet west from Meridian Road, and 4 miles north of the City of Chico. Township 23N, Range 1W, Section 13; MDB&M. APN: 047-100-202. Latitude 39.854361, Longitude -121.92999 |
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| 5. Project Sponsor's Name and Address: | Morris Keeney
2243 Durham-Dayton Highway
Durham, CA 95938 |
| <hr/> | |
| 6. General Plan Designation: | Very Low Density Residential (VLDR) |
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| 7. Zoning: | VLDR-1.0 (Very Low Density, 1-acre minimum) |
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| 8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.) | |
| <i>[insert text here]</i> | |
| 9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings) | The site is bordered on the west by an almond orchard, on the south by almond orchards, on the east by almond orchards and single-family residences on large rural style lots and on the north along Durham Dayton Highway, almond orchards and single-family residences on medium to large rural style lots |
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| 10. Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement) | <u>Butte County Development Services: Building Permits:</u> (Future Construction).

<u>Butte County Public Works Department:</u> Road, Grading and Drainage Improvement Plans.

<u>Butte County Environmental Health Department:</u> Septic systems. |

Durham Irrigation District (DID) "Verification of the availability of a sufficient water supply pursuant to California Government Code §66473.7(b)(1).

Butte Local Agency Formation Commission (LAFCo)

1. Formation of a Community Services District and Landscape and Lighting District, including preparation and approval of a Municipal Service Review and a Sphere of Influence Plan.
2. Formation of a County Service Area.
3. Annexation of the project site into the Durham Irrigation District.

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

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

[insert text here]

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. Where checked below, the topic with a potentially significant impact will be addressed in an environmental impact report.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality |
| <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology / Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input 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 | <input type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

- ☐ I find that the proposed project could not have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- ☐ I find that although the proposed project **COULD** have a significant effect on the environment, there **WILL NOT** be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- ☒ I find that the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- ☐ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Mark Michelena, Senior Planner

Date

Charles Thistlethwaite, Planning Manager

Date

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

1.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics.				
Except as provided in Public Resources Code section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), 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) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Have a substantial adverse effect on a scenic vista?
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?
- c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

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

1.2 AGRICULTURE AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.				
In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

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

- b) Conflict with existing zoning for agricultural use or a Williamson Act contract?
- c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d) Result in the loss of forest land or conversion of forest land to non-forest use?
- e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

1.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. Air Quality.

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

Are significance criteria established by the applicable air district available to rely on for significance determinations? ☒ Yes ☐ No

Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

1.3.1 Discussion

- a) Conflict with or obstruct implementation of the applicable air quality plan?
- b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
- c) Expose sensitive receptors to substantial pollutant concentrations?
- d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

1.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>

Environmental Setting

Discussion

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?
- b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

1.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources.				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?
- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
- c) Disturb any human remains, including those interred outside of formal cemeteries?

1.6 ENERGY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy.				
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?
- b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

1.7 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Geology and Soils.				
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)
 - ii) Strong seismic ground shaking?
 - iii) Seismic-related ground failure, including liquefaction?
 - iv) Landslides?
- b) Result in substantial soil erosion or the loss of topsoil?
- c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?
- d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?
- e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?
- f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

1.8 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions.				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

1.9 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) 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"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?
- f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

1.10 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Hydrology and Water Quality.				
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial on- or offsite erosion or siltation;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

- b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - i) Result in substantial on- or offsite erosion or siltation;
 - ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
 - iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - iv) Impede or redirect flood flows?
- d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
- e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

1.11 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning.				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Physically divide an established community?
- b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

1.12 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. 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 checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

1.13 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII.Noise.				
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Discussion

- a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?
- b) Generation of excessive groundborne vibration or groundborne noise levels?
- c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

1.14 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. Population and Housing.				
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Discussion

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

1.15 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services.				
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

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

Fire protection?

Police protection?

Schools?

Parks?

Other public facilities?

1.16 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- 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 that might have an adverse physical effect on the environment?

1.17 TRANSPORTATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. Transportation.				
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
- b) Conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to vehicle miles travelled?
- c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- d) Result in inadequate emergency access?

1.18 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code section 21080.3.1(b)?	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

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

1.19 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems.				
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider that 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?
- b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

- c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?
- d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?
- e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

1.20 WILDFIRE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire.				
Is the project located in or near state responsibility areas or lands classified as high fire hazard severity zones?				
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
	<input type="checkbox"/> Yes		<input checked="" type="checkbox"/> No	
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Environmental Setting

Discussion

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?
- b) Due to slop, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

- c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

1.21 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Setting

Discussion

- a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?
- b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

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

Authority for the Environmental Checklist: Public Resources Code Sections 21083, 21083.5.

Reference: Government Code Sections 65088.4.

Public Resources Code Sections 21080, 21083.5, 21095; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Supplemental Initial Study Information
from a Previous Project

Notice of Preparation

Notice of Preparation

To: OPR State Clearinghouse

1400 Tenth Street

Sacramento, CA 95814 (Address)

From: Butte County c/o Dept. of Development Services

7 County Center Drive

Oroville, CA 95965 (Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

Butte County c/o Development Services will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (☒ is ☐ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Charles Thistlethwaite, Planning Manager at the address shown above. We will need the name for a contact person in your agency.

Project Title: Durham Villas Planned Development - Rezone REZ 06-02 and Tentative Subdivision Map TSM10-0001

Project Applicant, if any: Morris Keeney c/o Dick Jones

Date April 23, 2014

Signature

Title Planning Manager

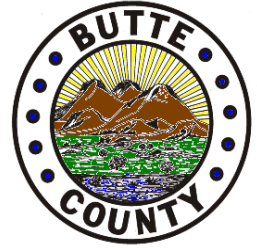
Telephone (530) 538-6572

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Butte County Department of Development Services

TIM SNELLINGS, DIRECTOR | PETE CALARCO, ASSISTANT DIRECTOR

7 County Center Drive
Oroville, CA 95965
(530) 538-7601 Office
(530) 538-7785 Fax
www.buttecounty.net
www.buttegeneralplan.net



NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT DURHAM VILLAS PLANNED DEVELOPMENT

NOTICE IS HEREBY GIVEN that BUTTE COUNTY as Lead Agency pursuant to the California Environmental Quality Act (CEQA) has prepared a Notice of Preparation for an Environmental Impact Report (EIR) for the following project: DURHAM VILLAS PLANNED DEVELOPMENT Rezone REZ06-02 and Tentative Subdivision Map TSM10-0001 – Morris “Bud” Keeney

Project Location and Overview: The project site is located in unincorporated Butte County east of Durham, between Durham and Butte Creek, on the south side of Durham-Dayton Highway across the street from Van Ness Way. The project site consists of a single 118-acre parcel that contains a producing almond orchard, the residence of the property owner and associated outbuildings. The site is bordered on the west by Durham Pump Shop and almond orchards, on the south by almond orchards, on the east by almond orchards and single-family residences on very low density residential lots, and on the north by Durham-Dayton Highway, almond orchards and single-family residences on very low density residential lots.

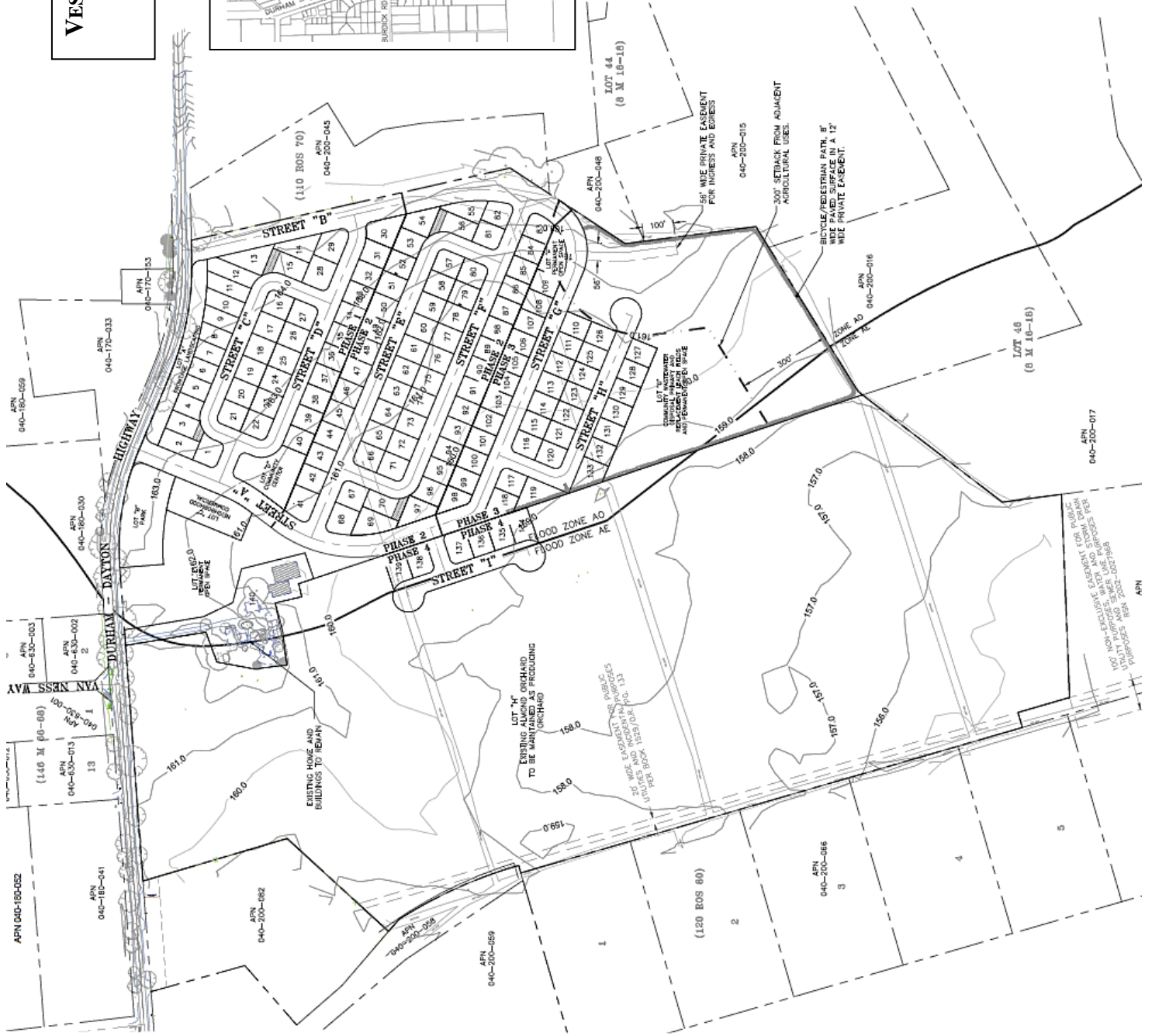
The subdivision of the project site will create 139 new single-family residential lots (ranging in size from 5,173 to 9,313 square feet each), a lot containing the property owner’s current residence, and several larger parcels intended for a commercial site, a park, landscaping and permanent open space, including a major portion of the orchard and one lot that separates the landowner’s residence from the new residential development. The project will provide housing for seniors (age 55+) at a 20% density increase in housing as allowed by State law and local ordinances.

Entitlements include: a rezone to Planned Development; a phased Tentative Subdivision Map; annexation into, and a Sphere of Influence amendment to, the Durham Irrigation District for water service; formation of a County Service Area for collection of wastewater from individual septic tanks and disposal in a community leachfield; and the formation of a Landscape and Lighting District and a Community Services District for maintenance of a proposed community center, park, walking path around the project site and public open space areas.

The Notice of Preparation is available at the offices of the Butte County Department of Development Services, 7 County Center Drive, Oroville, CA 95965, or online at www.buttecounty.net/dds. A scoping meeting will be held to receive verbal comments on May 22, 2014 at 2:00 p.m. in the Board of Supervisors Chambers, Butte County Administrative Center, 25 County Center Drive, Oroville, CA 95965.

Comments on the Notice of Preparation should be sent at the earliest possible date but received no later than May 23, 2014. Comments should be addressed to Chuck Thistlethwaite, Planning Manager, Butte County Department of Development Services, 7 County Center Drive, Oroville, CA 95965. Comments may also be submitted by e-mail to cthistlethwaite@buttecounty.net.

The map shows a network of streets. At the top, Cummings Rd. runs horizontally. Below it, Butte Creek flows diagonally. Stamford Dr. runs horizontally below the creek. Van Ness Way and Jones Ave. are vertical streets. Midway runs diagonally. The Durham - Dayton Highway runs diagonally at the bottom. Burdick Rd. runs vertically on the right side. A black arrow points to a location on the Durham - Dayton Highway, labeled 'PROJECT LOCATION'.



GRAPHIC SCALE



(IN FOOT)
1 inch = 200 ft.

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613

For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #**Project Title:** Durham Villas Planned Development - Rezone REZ 06-02 and Tentative Subdivision Map TSM10-0001Lead Agency: Butte County c/o Department of Development ServicesContact Person: Charles ThistlethwaiteMailing Address: 7 County Center DrivePhone: (530) 538-6572City: OrovilleZip: 95965County: Butte**Project Location:** County: Butte City/Nearest Community: DurhamCross Streets: Durham Dayton Highway & Van Ness Way (south side) Zip Code: 95938Longitude/Latitude (degrees, minutes and seconds): 39 ° 38 ' 35 " N / 124 ° 47 ' 31 " W Total Acres: 118Assessor's Parcel No.: 040-200-083-000Section: 30 Twp.: 21 N Range: 02 E Base: MDB&MWithin 2 Miles: State Hwy #: 99Waterways: Butte Creek

Airports: _____

Railways: Union Pacific R. R. Schools: Durham Unified Schools**Document Type:**

CEQA: ☒ NOP ☐ Draft EIR NEPA: ☐ NOI Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) 2012092020 ☐ Draft EIS ☐ Other: _____
☐ Mit Neg Dec Other: _____ ☐ FONSI

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☒ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☒ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☒ Land Division (Subdivision, etc.) ☐ Other: _____

Development Type:

☒ Residential: Units 140 Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☒ Commercial: Sq.ft. 28,593 Acres _____ Employees _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
☐ Educational: _____
☒ Recreational: Neighborhood Park 44,295 sq. ft.
☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type _____
☐ Mining: Mineral _____
☐ Power: Type _____ MW _____
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☐ Other: _____

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☒ Agricultural Land ☒ Flood Plain/Flooding ☐ Schools/Universities ☒ Water Quality
☒ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☒ Water Supply/Groundwater
☒ Archeological/Historical ☐ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☒ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☐ Noise ☐ Solid Waste ☒ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☒ Public Services/Facilities ☒ Traffic/Circulation ☐ Other: _____

Present Land Use/Zoning/General Plan Designation:

Almond Orchard/VLDR-1.0 (Very Low Density Residential - one-acre minimum)/Very Low Density Residential (0.2 - 1 D.U./acre)

Project Description: (please use a separate page if necessary)

Please see attached project description.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with an "X".
If you have already sent your document to the agency please denote that with an "S".

<input type="checkbox"/> Air Resources Board	<input type="checkbox"/> Office of Historic Preservation
<input type="checkbox"/> Boating & Waterways, Department of	<input type="checkbox"/> Office of Public School Construction
<input type="checkbox"/> California Emergency Management Agency	<input type="checkbox"/> Parks & Recreation, Department of
<input type="checkbox"/> California Highway Patrol	<input type="checkbox"/> Pesticide Regulation, Department of
<input checked="" type="checkbox"/> Caltrans District # <u>3</u>	<input type="checkbox"/> Public Utilities Commission
<input type="checkbox"/> Caltrans Division of Aeronautics	<input checked="" type="checkbox"/> Regional WQCB # <u>5</u>
<input type="checkbox"/> Caltrans Planning	<input type="checkbox"/> Resources Agency
<input checked="" type="checkbox"/> Central Valley Flood Protection Board	<input type="checkbox"/> Resources Recycling and Recovery, Department of
<input type="checkbox"/> Coachella Valley Mtns. Conservancy	<input type="checkbox"/> S.F. Bay Conservation & Development Comm.
<input type="checkbox"/> Coastal Commission	<input type="checkbox"/> San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
<input type="checkbox"/> Colorado River Board	<input type="checkbox"/> San Joaquin River Conservancy
<input type="checkbox"/> Conservation, Department of	<input type="checkbox"/> Santa Monica Mtns. Conservancy
<input type="checkbox"/> Corrections, Department of	<input type="checkbox"/> State Lands Commission
<input type="checkbox"/> Delta Protection Commission	<input type="checkbox"/> SWRCB: Clean Water Grants
<input type="checkbox"/> Education, Department of	<input checked="" type="checkbox"/> SWRCB: Water Quality
<input type="checkbox"/> Energy Commission	<input type="checkbox"/> SWRCB: Water Rights
<input checked="" type="checkbox"/> Fish & Game Region # <u>2</u>	<input type="checkbox"/> Tahoe Regional Planning Agency
<input type="checkbox"/> Food & Agriculture, Department of	<input type="checkbox"/> Toxic Substances Control, Department of
<input checked="" type="checkbox"/> Forestry and Fire Protection, Department of	<input type="checkbox"/> Water Resources, Department of
<input type="checkbox"/> General Services, Department of	<input checked="" type="checkbox"/> Other: <u>Butte County AQMD</u>
<input type="checkbox"/> Health Services, Department of	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Housing & Community Development	
<input type="checkbox"/> Native American Heritage Commission	

Local Public Review Period (to be filled in by lead agency)

Starting Date April 23, 2014 Ending Date May 23, 2014

Lead Agency (Complete if applicable):

Consulting Firm: <u>W. Gilbert Engineering</u>	Applicant: <u>Dick Jones</u>
Address: <u>140 Yellowstone Dr., Suite 140</u>	Address: <u>P.O. Box 907</u>
City/State/Zip: <u>Chico, CA 95973</u>	City/State/Zip: <u>Durham, CA 95938</u>
Contact: <u>Wesley Gilbert, P.E.</u>	Phone: <u>(530) 898-1701</u>
Phone: <u>(530) 809-1315</u>	

Signature of Lead Agency Representative:  Date: April 23, 2014

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.



**DEVELOPMENT SERVICES
DEPARTMENT**

BUTTE COUNTY

**REVISED INITIAL STUDY FOR
DURHAM VILLAS PLANNED DEVELOPMENT:
TENTATIVE SUBDIVISION MAP TSM10-0001
AND REZONE REZ10-0001**

April 21, 2014

**COUNTY OF BUTTE
DEPARTMENT OF DEVELOPMENT SERVICES
INITIAL STUDY FOR
DURHAM VILLAS SUBDIVISION**

1.0 PROJECT INFORMATION

- A. **Applicant/Owner:** Morris “Bud” Keeney
- B. **Representative:** Dick Jones
- C. **Staff Contact:** Chuck Thistlethwaite, Planning Manager, cthistlethwaite@buttecounty.net. Phone: 530-538-6572
- D. **Lead Agency Name and Address:** Butte County c/o Butte County Department of Development Services
7 County Center Drive, Oroville, CA 95965
- D. **Project Name:** Durham Villas Subdivision
- E. **Project Location:** The subject property is located along Durham-Dayton Highway and immediately east of the unincorporated community of Durham, Butte County.
- F. **Type of Application(s):** Tentative Subdivision Map (TSM 10-0001) Rezone Application (REZ 10-0001)
- G. **Assessor’s Parcel Number(s):** 040-200-083 (Sec. 30, T.21.N., R.02.E., M.D.B.& M.)
- H. **Project Site Size:** +/-118 ac.
- I. **Current Zoning:** VLDR (Very Low Density Residential - 1 acre minimum)
Proposed Zoning: PD (Planned Development)
- J. **Current General Plan Designation:** VLDR (Very Low Density Residential 0.2 to 1 unit per acre)
- K. **Environmental Setting:** The project site is located in the northern Sacramento Valley on the eastern side of the Valley between Durham and Butte Creek, east of Durham and on the south side of Durham-Dayton Highway (Figure 1.1, Figure 1.2). The Sacramento River lies approximately 10 miles to the west, with Butte Creek approximately .15 miles east and the Sierra Nevada foothills beginning approximately 5-6 miles to the east. The land is flat floodplain and dominated by agricultural uses, predominantly almond and nut crops, interspersed with small rural communities and rural residences.
- L. **Surrounding Land Uses:** The site is bordered on the west by the Durham Pump Shop and almond orchards, on the south by almond orchards, on the east by almond orchards and single-family residences on large rural style lots and on the north along Durham Dayton Highway, almond orchards and single-family residences on medium to large rural style lots (Figure 1.3).

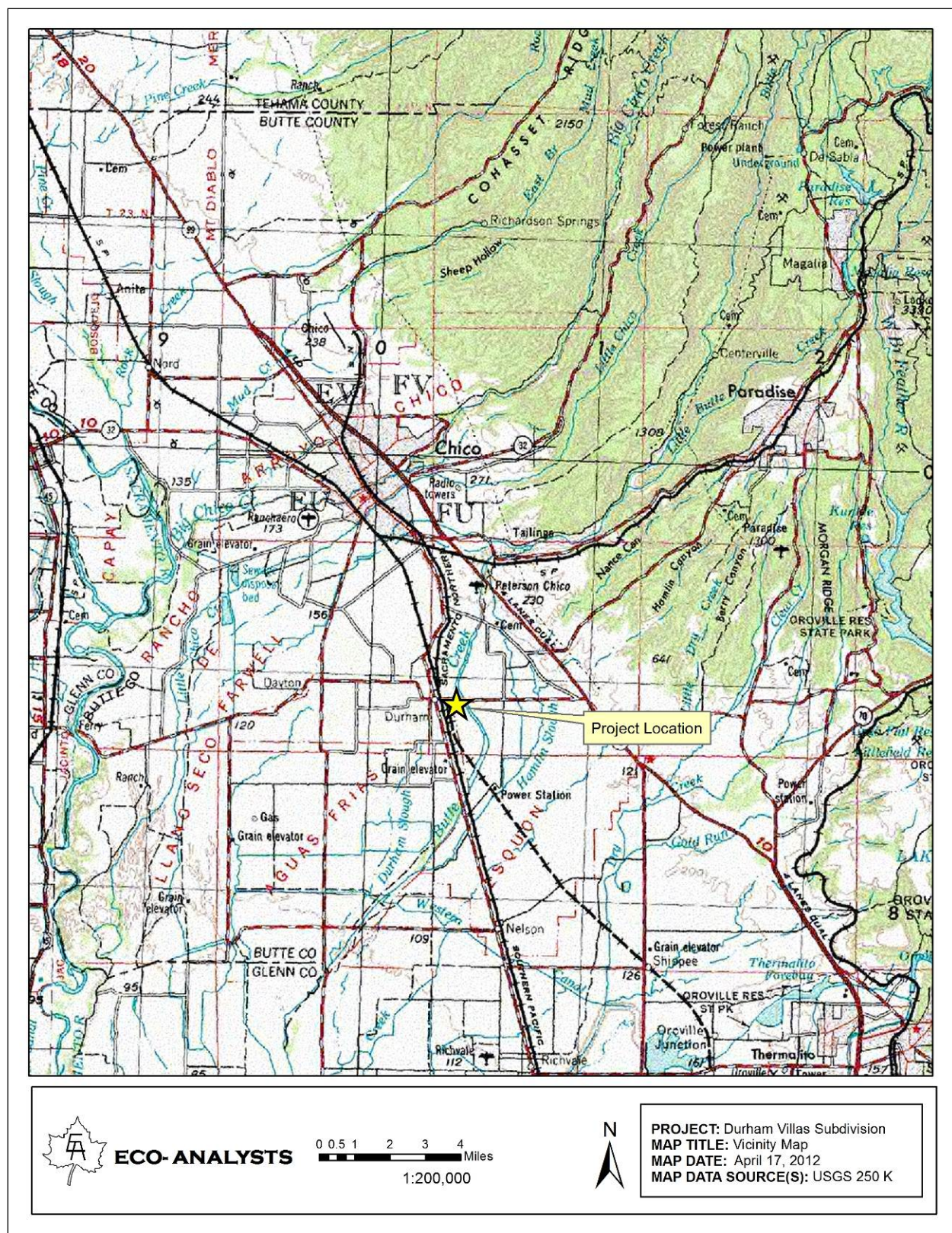


Figure 1.1 Vicinity Map

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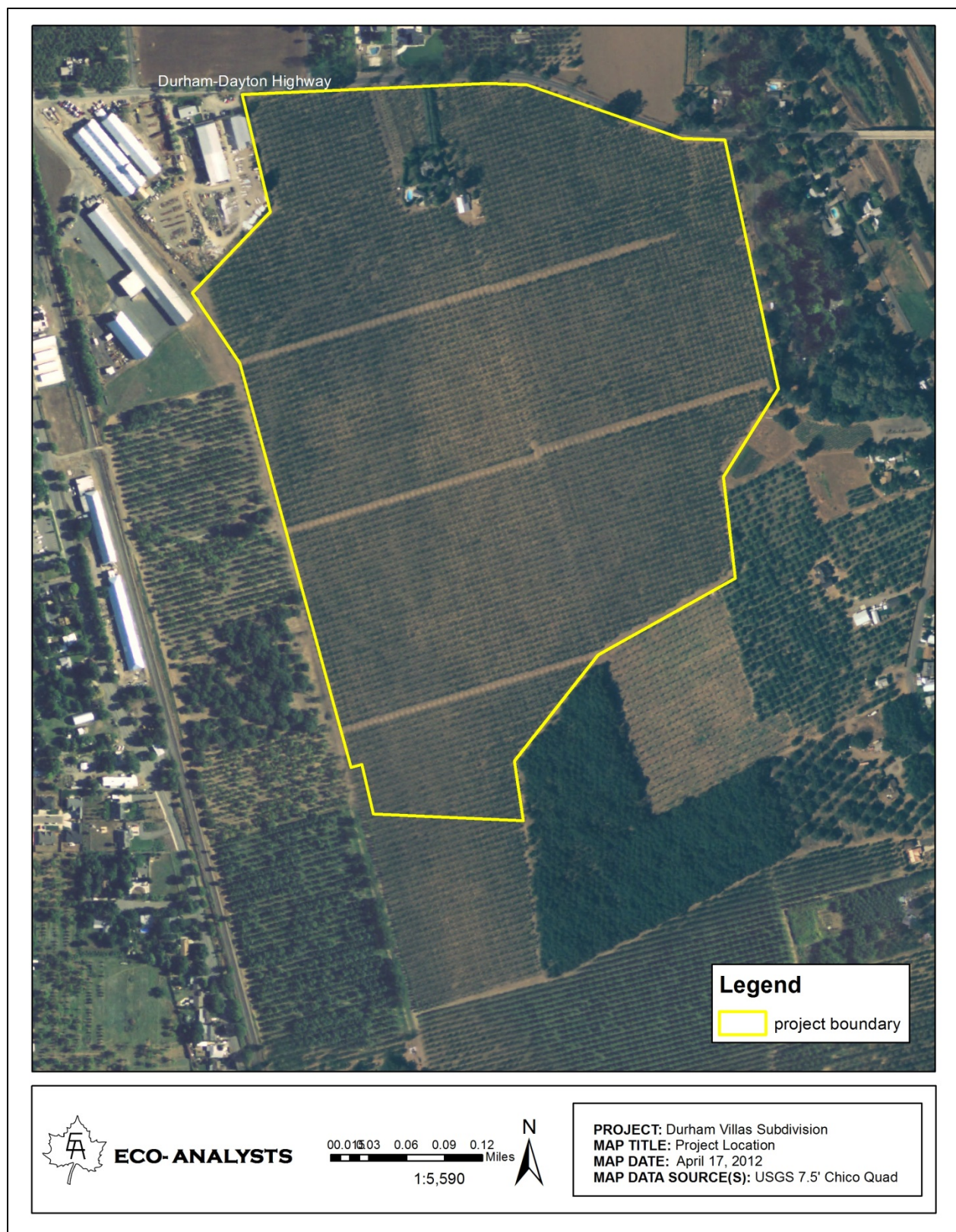


Figure 1.3. Aerial photo of project site

M. Project Description:

The project site consists of a single 118-acre parcel with a producing almond orchard, the residence of the property owner and associated outbuildings (Figure 1.4). The subdivision of the project site will create a total of 140 residential lots (139 senior residential lots and the existing farm residence) and several larger parcels intended for a commercial site, a park, landscaping and permanent open space, including a major portion of the orchard and one lot that separates the landowner's residence from the new residential development. The project will provide housing for seniors (55+) at a 20% density increase in housing as mandated by State law and local ordinances.

The project site is designated *Very Low Density Residential* in the 2030 Butte County General Plan and is currently zoned VLDR (Very Low Density Residential (one-acre minimum parcel size)) in the Butte County Zoning Ordinance. The property is adjacent to the "Urban Area" as defined by the Durham Dayton Nelson Community Plan and within the Durham "Urban Reserve" area. The project application includes rezoning the property to PUD (Planned Unit Development) and proposes a 20% density bonus for senior (ages 55+) housing in accordance with State law and local ordinances. California density bonus law requires local governments to provide a density bonus to developers of housing who commit to providing a certain percentage of dwelling units to persons who are members of target income or age groups (Government Code §65915 – 65918).

The boundaries of the "Durham Urban Reserve" area were delineated in the 1992 Durham Dayton-Nelson Plan and incorporated into Section I of the Area and Neighborhood Plans Element of the Butte County General Plan 2030. The project complies with the following policies adopted for the Durham – Dayton – Nelson Planning Area as outlined below.

1. Circulation

- Design local residential streets for access to properties and for discouraging through, non-local traffic (Policy D2N-P1.1);
- Minimize conflicts between vehicular, pedestrian and bicycle traffic (Policy D2N-P1.4);
- Restrict residential development from locating adjacent to streets carrying or expected to carry 10,000 vehicle trips per day because of adverse noise levels (Policy D2N-P1.5);
- Encourage new residential subdivisions to implement bicycle and pedestrian facilities in the subdivision design (Policy D2N-P1.11);
- Require new subdivisions to incorporate transit design characteristics in street designs (Policy D2N-P1.20)

The northern boundary of the property on which the project is located abuts the Durham Dayton Highway for a distance of approximately 2,000 feet. Access to the project will be provided exclusively from Durham Dayton Highway at two intersections approximately 600 feet apart. Access to the residential lots, open space and community center is provided by a looped roadway system extending between the two (2) entry points on the highway.

A pedestrian/bicycle path will be installed in the public right-of-way adjoining the project site on the south side of Durham-Dayton Highway, extending to the east side of Street 'B' and across Street 'A' to the west end of the Private Park (Lot 'B'), with marked crosswalks in both streets. The project incorporates pedestrian/bicycle pathways into and out of the project area to reduce motor vehicle trips and to promote community health. A bus turnout area will be reserved along Durham-Dayton Highway for the future use of the B-Line bus system. Transit service will be provided when the demand for transit service is demonstrated.

The adequacy of sight distances and the need for left-turn lanes on Durham Dayton Highway were evaluated as part of the project design. Standards for sight distance, provided by the California Department of Transportation (Caltrans) Highway Design Manual, were compared to actual site distances from each proposed access location.

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Based upon the posted speed limit of 35 mph, the applicable sight distance requirement was limited by trees situated within the public right of way along the southern side of Durham Dayton Highway. The project was redesigned according to these findings to meet Caltrans sight distance requirements without the need for tree removal.

Other aspects of the circulation plan include:

- Internal circulation design providing two entry/exit points to reduce intersection congestion;
- Open space elements designed for pedestrian and bicycle traffic;
- Line of sight improvements to facilitate public safety;
- No county maintenance costs associated with project roadway improvements;
- Neighborhood commercial to reduce internal trip generation; and
- A tentatively planned B-line bus stop integrated with countywide public transit.

A traffic study prepared for the project by the firm of W-Trans indicates that intersections in the project vicinity currently operate at an acceptable Level of Service (LOS) of B or better. Under future conditions, intersections would operate at an acceptable LOS of C or better. Implementation of the project would increase delay on the Durham Dayton Highway by a fraction of a second, but would not deteriorate to an unacceptable LOS. Therefore, the project would not generate carbon monoxide (CO) hotspot impacts and would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

2. Housing

- Extend public services to vacant areas ready for new housing starts by forming improvement districts (Policy D2N-P2.4).
- Concentrate future residential uses within or near existing developed communities (Policy D2N-P8.1).

The project proposes a compact senior community, consisting of 139 single-family residential lots ranging in size from $\pm 5,284$ to $\pm 9,801$ square feet, together with a community center (± 0.60 acres), and open space is proposed in the southern and southeastern portion of the site. In addition, a neighborhood-oriented commercial/retail center will be located on a ± 0.66 acre parcel to accommodate a small retail center (e.g., food/drug store, or other related commercial/retail uses) to serve residents of the project as well as residents of the Durham community. The project will also provide a secure RV parking area (± 2.55 acres) for use by the residents. A separate parcel will be created for the existing single-family home and associated buildings.

Durham Villas is configured in a compact development pattern compared to traditional one-acre lot subdivisions that would be allowable in VLDR-1.0 zone. The proposed PUD development pattern includes 67 acres of the existing almond orchard to be retained in active production (providing carbon sequestration benefits). In addition, the design of the project will result in a reduction of 113,297 square feet of asphalt concrete and 3,307 square feet of curb, gutter and sidewalk area as compared to a standard, one-acre lot subdivision.

Compared to homes built in 1990, new homes built under the current California energy code (Title 24) in conjunction with increasingly stringent national appliance standards are more energy efficient. An analysis of the energy efficiency measures and solar photovoltaic systems proposed for the Durham Villas project indicated that heating and cooling loads would be reduced by a minimum of 30 percent. The subdivision's design, which will maximize southern exposures and proposes solar photovoltaic systems to be incorporated into the 139 residential units, will meet over 95 percent of the average home's annual electricity requirements. In order to assure maximum energy efficiency, the project will incorporate the following components:

- Project construction incorporating recycled-content materials to the greatest extent feasible;

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- Compliance with the Green Building Standards adopted by the California Standards Commission at the time of building permit application, including requirements about low-or no-toxicity building materials;
- Construction of storm water facilities, building designs and materials that will promote groundwater recharge;
- Design of internal project site street systems to support the potential use of Neighborhood Electric Vehicles (NEV);
- Compliance with all appropriate green planning standards; and
- Compliance with the guidelines of the California Energy Star New Homes Program and demonstrate detailed energy conservation measures.

Proposed energy efficiency measures established by the California Advanced Homes Program (CAHP) will reduce amount of electricity used by the average home in the proposed project by 1616 kilowatt hours and natural gas use by 94 therms. The analysis concluded that these measures will reduce total residential GHG emissions by 447 metric tons annually or approximately 26.4 percent of the calculated total emissions for the proposed project beyond that provided through the application of Title 24 standards alone.

- Provide for the protection of visually appealing features of the community that enhance the residents' perception of the local environment and evoke community pride (Policy D2N-P9.4).

The northern boundary of the project site abuts the Durham Dayton Highway for a distance of approximately 2,000 feet. An existing row of oak and Black Walnut trees will be retained, and a decorative wall and entry features and walking path will be incorporated along the frontage to aesthetically screen the project from public views from the highway, and to shield outdoor lighting in accordance with the County's Lighting Ordinance.

A 300-foot wide buffer area on the southerly and southeasterly edge of the subdivision will be used as leach field areas, RV parking and open space. These buffers are planned to mitigate any incidental drift of chemicals and dust and to reduce potential noise impacts from agricultural operations. The remaining orchard will serve to further buffer the new residences from the existing industrial properties.

A number of other elements have been incorporated into the design of the project to minimize or eliminate potential adverse environmental impacts that might otherwise result from development. These elements include:

- Alignment of roads and improvements to minimize impacts to mature trees on the project site, including several large Valley Oaks and Black Walnuts;
- Maintenance of up to 67 acres of producing almond orchards to maintain agricultural productivity and carbon sequestration;
- Avoidance of culturally sensitive areas;
- Provision of on-site commercial/retail uses and a community center to reduce vehicular trip generation from the site;
- Establishment of pedestrian/bicycle pathways into and out of the project area to reduce motor vehicle trips and promote community health; and
- Provision of an approximately 44,300 square foot neighborhood park to be maintained by a lighting and landscape district for the recreational and open space uses of the residents.

3. Utilization of Resources

- Encourage industrial, agricultural and commercial uses, which provide tax revenues to help support planned residential growth (Policy D2N-P4.1).
- Protect agricultural lands, which currently produce, or have the potential to produce, from encroaching urban uses (Policy D2N-P6.6).

The project site is currently maintained as a mature almond orchard. The portion of the orchard where development will occur is heavily infected with the oak fungus, *Armillaria mellea*, which has been a recurring problem in this

orchard. As a consequence, tree replacement is no longer feasible in this area. One hundred thirty-nine (139) active senior housing units, a community center, park, open spaces, walkways and parking areas will be located in the area of tree removal, which constitutes 51 acres. Approximately 67 acres will be retained in almond production. With the reduction in orchard size, the owner will be better able to focus on improving the vitality of the remaining almond trees.

4. Public Facilities and Services

- Extend public services to vacant areas ready for new housing starts by forming improvement districts (Policy D2N-P2.4);
- Foster a compact rather than a scattered development pattern in order to discourage urban sprawl, to reduce the extension and cost of public services, and to preserve open space within the Planning Area (Policy D2N-P4.4);
- Ensure the ongoing operation and funding of the Durham Fire Station and library services provided by the County (Policy D2N-P4.5);
- Coordinate growth with the ability of the Durham Unified School District's to service and provide facilities (Policy D2N-P4.6).
- Review the option of package treatment plants or sanitary sewer systems for the communities of Durham, Dayton and Nelson (Policy D2N-P4.7).
- Expand the recreational opportunities of the Planning Area (Policy D2N-P4.8).
- Require subdivisions adjacent to existing water systems to connect to them (Policy D2N-P6.8).

Adequate public facilities and services are available and will be extended to the project area. The project area will be served by the Durham Irrigation District, which will supply domestic water and fire flows. A wastewater system providing collection, treatment and disposal through individual septic tanks and a community disposal field that will be managed by a County Service Area. The Durham Irrigation District will make an application for annexation to the District to the Butte County Local Agency Formation Commission.

Water system improvements will consist of the installation of a new well and pump station in the southwest corner of the community center parcel that will be capable of pumping a minimum of 1,500 gallons per minute, along with filters and backup generator(s). The maximum daily demand for water usage in the subdivision was computed using State of California guidelines and is equal to approximately 288,000 gallons per day or approximately 200 gallons per minute. A system of 6", 8" and 10" pipelines will be installed in the streets to supply domestic water flows, including adequate flows for fire sprinklers, to each residence in the project and between 1,000 and 1,500 gallons per minute fire flows through fire hydrants spaced approximately 500 feet apart along street frontages. Water use by the proposed development is estimated to be 30% less than that of the existing agricultural operations.

Waste discharge requirements for the operation and maintenance of the community wastewater collection, treatment and disposal system will be subject to the approval of the Regional Water Quality Control Board. Water supply will be permitted and approved by California Department of Public Health.

- Protect the capacity of floodplain and prevent flood damage and associated public relief expenditures created by construction of residential structures in the floodplain (Policy D2N-P7.5).

Portions of the project area in proximity to Butte Creek are currently located within Flood Zone AO as designated by the Flood Insurance Rate Map (FIRM) administered by the Federal Emergency Management Agency (FEMA). The AO zone delineates areas that are subject to the flood inundation in a 100-year event.

The project engineer is pursuing the accreditation of the west levee along Butte Creek to remove the subdivision project site from the existing 100-year flood plain. Preliminary evaluation of the levee adjacent to the subdivision complies with FEMA's criteria for accreditation and if approved by FEMA, will result in the removal of the project site from the 100-year floodplain. Additionally, the engineer is pursuing the accreditation of the remainder of the

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levee between State Highway 99 and the Midway, south of Durham. If successful and approved by FEMA, the properties protected by the west levee of Butte Creek will also be removed from the 100-year flood plain.

Street-side storm drains will direct excess storm water into a subterranean storm water collection and infiltration system. Infrastructure within the public right of way is to be maintained by a County Permanent Road Division (PRD).

The storm drain collection and disposal system will consist of storm drain leach trenches installed beneath the sidewalks. The proposed conceptual storm drain plan will contain and dispose of all runoff within the proposed development, thereby eliminating the runoff from the property.

Fire protection and emergency services are provided to the project site by the Butte County Fire Department (BCFD) and Butte County Volunteer Firefighters. BCFD contracts with California Department of Forestry and Fire (CALFIRE) to staff BCFD stations through annual cooperative agreements.

BCFD Station 45 is located at 2367 Campbell Street in Durham and is within one mile of the farthest proposed entrance to the project site. The average response time in Durham is less than eight minutes. The project will provide water and fire hydrants on site for fire safety. In addition, a portion of development impact fees assessed by the County help fund fire protection facilities.

The project will be required to fund fire and emergency services to ensure adequate response times and fire services. As a condition of project approval, the project proponent would be required to participate in a funding mechanism approved by the Department of Public Works with terms and conditions acceptable to the Butte County Fire Chief.

The Butte County Sheriff's Office (BCSO) provides police protection for the project site. The main Sheriff's Office is located at 33 County Center Drive in Oroville and the nearest BCSO substation to the project site is located at 479 East Park Avenue in Chico, approximately 6 miles away by car. The BCSO is the countywide coordinator for mutual aid situations and maintains mutual aid agreements with the California Highway Patrol and the municipal police departments. Developers pay impact fees that in part support police protection.

The Durham Recreation and Park District (DRPD), one of five independent and non-enterprise districts in the County (reliant on property tax revenue for operations), provides parks and recreational facilities for area residents. The 24-acre Durham Community Park is within ½ mile east of the project site; other DRPD recreational facilities of approximately 10.3 acres are located within ½ mile west, in Durham.

Amenities within the project include a park (±1.02 acres) for use by the project residents and the development of open space areas for pedestrian and bicycle use and for walking dogs, including a walking path around the project site. The community center will be provided for use by project residents and will contain lawn areas, picnic tables and a children's play area. The project also provides a pedestrian/bicycle path from the west end of the curb, gutter and sidewalk along the south side of Durham Dayton Highway to the intersection of Midway and Durham Dayton Highway. The park, community center and public open space areas will be owned and maintained by a Landscape and Lighting District and a Community Service District. The open space and recreational amenities proposed within the project will help offset any increased use of existing recreational facilities in the vicinity.

- Protect agricultural lands which currently produce, or have the potential to produce, from encroaching urban uses (Policy D2N-P6.6).

The current Butte County General Plan, adopted October 2010, includes an Agriculture Element. The Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency was incorporated into Agricultural Element, which identified the project site as Prime Farmland. The General Plan Land Use Map designates the project site as VLDR (Very Low Density Residential, up to one unit per acre). The zoning designation on the project site is consistent with the General Plan.

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The Environmental Impact Report (EIR) prepared for the current General Plan considered the impacts resulting from the build-out of the General Plan, including conversion of approximately 4,700 acres of farmland to non-agricultural uses. The Butte County Board of Supervisors determined that goals, policies, actions, and regulations of the General Plan would reduce and partially offset the conversion of farmland into non-agricultural uses, but found that there are no feasible mitigation measures that the County could adopt to reduce the impact to be less than significant. To the extent that this adverse impact will not be substantially lessened or eliminated, the County found that specific economic, social, and other benefits identified in the Statement of Overriding Considerations supported the approval of the General Plan. The Durham Villas project will convert 51 acres of agricultural land to non-agricultural uses, and is considered a significant but unavoidable impact as previously evaluated in the General Plan EIR. The 67 acres to remain in almond production will be maintained in accordance with the Agricultural Maintenance Plan prepared in accordance with Butte County General Plan Policy AG-P2.5 (see Appendix I).

The Urban Reserve Policy requires that any proposal for a subdivision, which would create residential parcels that are less than three acres in size, must be coordinated with all public agencies that provide utility and public services for the extension of water, sewer, circulation and drainage. That subdivision shall be accompanied by the following plans:

- A capital improvement plan/program that indicates where and when physical improvements are to be made, the size of these improvements, standards, phasing of treatment facilities and lines to service the area, and how they will be financed;
- A park and open space plan that identifies locations and standards for park and recreation areas to serve future growth and natural open space areas that are to be preserved;
- An environmental plan that identifies critical areas that should be protected from development if applicable;
- A street and transportation plan that indicates the location, capacity and nature of the system and off-site transportation impacts;
- Health department standards for control of septic systems and water wells. Areas where wells and septic systems are not permissible should be identified; and
- A fiscal plan that identifies the proportion of costs of public facilities and services to be reimbursed by the subdivision.

Each of these plans and standards required are incorporated into the subdivision as detailed in the above sections.

N. Other Public Agency Approvals Required:

AGENCY	APPROVAL
State Water Resources Control Board (SWRCB)	Construction Storm Water Permit
Federal Emergency Management Agency (FEMA)	Accreditation of Butte Creek Levee and FIRM Map Revision
California Department of Public Health	Domestic Water Supply Permit
Central Valley Regional Water Quality Control Board (CVRWQCB)	Storm Water Pollution Prevention Plan, Waste Discharge Requirements
Butte Local Agency Formation Commission (LAFCo)	1. Formation of a Community Services District and Landscape and Lighting District, including preparation and approval of a Municipal Service Review and a Sphere of Influence Plan. 2. Formation of a County Service Area, including preparation and approval of a Municipal Service Review and a Sphere of Influence Plan. 3. Annexation of the project site into the Durham Irrigation District, including preparation and approval of a Municipal Service Review and Sphere of

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	Influence amendment.
Durham Irrigation District (DID)	"Verification" of the availability of a sufficient water supply pursuant to California Government Code §66473.7(b)(1)

Figure 1.4. Site Plan Map



DETERMINATION

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project COULD have a significant effect on the environment, there will NOT be a significant effect in this case because revisions have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project COULD have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Charles Thistlethwaite, Planning Manager

Date

Reviewed by: Pete Calarco, Assistant Director

Date

3.0 POTENTIALLY SIGNIFICANT EFFECTS CHECKLIST SETTING

A. Environmental Factors Potentially Affected:

The environmental factors checked below could be potentially affected by this project; however, with the incorporation of mitigation measures, potentially significant project related impacts are reduce to a "less than significant" level (CEQA Guidelines 15382).

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input checked="" type="checkbox"/> Agriculture and Forestry | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geologic Processes |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards and Hazardous Material | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input checked="" type="checkbox"/> Land Use / Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population / Housing | <input type="checkbox"/> Public Service | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input checked="" type="checkbox"/> Utilities and Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

B. Evaluation of Environmental Impacts:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact"

answer should be explained where it is based on project-specific factors as well as general standards, (e.g., the project will not expose sensitive receptors to pollutants based on a project-specific screening analysis.)

- 2) All answers must take account of the whole action involved including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
- 5) "Reviewed Under Previous Document." Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063 (c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used: Identify and state where they are available for review.
 - b) Impacts Adequately Addressed: Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures: For effects that are "Less Than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) The explanation of each issue should identify:
 - a) The significance criteria or threshold, if any, used to evaluate each question; and
 - b) The mitigation measure identified, if any, to reduce the impact to less than significant.

4.0 ENVIRONMENTAL IMPACTS:

4.1 AESTHETIC/VISUAL RESOURCES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
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Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Have a substantial adverse effect on a scenic vista?			X		
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			X		
c. Substantially degrade the existing visual character or quality of the site and its surroundings?			X		
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X		

Impact Discussion:

(a) Butte County has not defined significant aesthetic/visual resources within the County. However, the visual dominance of a project and its affect upon the sensitivity of a view towards or from the project site may be used to evaluate impacts to visual resources. The project site is rural property with a residence on the eastern boundary and a pump repair business on the western boundary. As the site is fronted by the rural Durham-Dayton Highway with existing orchards and a residence, the public viewpoint is limited to approximately 2900 feet as they drive by on Durham-Dayton Highway. A newer housing project lies directly across from the project site on Van Ness Way. The applicant has incorporated retention of the existing row of oak and Black Walnut trees, together with a wall and decorative entry features to minimize any adverse aesthetic effect of the appearance of the proposed project. The raised berm/walking path will also minimize the aesthetic impact of the proposed projects from adjacent properties.

Less Than Significant Impact

Mitigation Measure: None Required

(b) The project is not located within a designated scenic vista nor is the project located within a state scenic highway area as posted by the California Department of Transportation. The project has no impact on trees, rock outcroppings or historic buildings. **Less Than Significant Impact**

Mitigation Measure: None Required

(c) The project site is currently a mature almond orchard that needs to be removed due to the oak fungus, *Armillaria mellea*. The applicant indicates that due to the fungus, tree replacement is no longer an option. The project calls for 140 active senior housing units, a community center, park, open spaces, walkway berm and parking areas. The project also includes development of a bus stop on site and a pedestrian/bicycle safety lane on Durham-Dayton Highway. Development of landscaping along the roadside will enhance the visual character of the site and ensure against visual degradation from the roadside. **Less Than Significant Impact**

Mitigation Measure: None Required

(d) Installation of residential lighting and commercial lighting has the potential to create a new source of nighttime glare for surrounding rural residents and vehicles travelling along the Durham-Dayton Highway. The County adopted a Lighting Ordinance that provides standards for the design and location of outdoor lighting in residential areas in order to limit light trespass and glare. It requires that light fixtures be shielded, directed, and located such that direct light is limited to the parcel of origin. Accordingly, project impacts to aesthetics are considered less than significant.

Less Than Significant Impact

Mitigation Measure: None Required

4.2 AGRICULTURE AND FOREST RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's

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inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	X				X
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?				X	
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X	
d. Result in the loss of forest land or conversion of forest land to non-forest use?				X	
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	X				X

Setting:

The current owners began operating the orchard on this property in 1968 and purchased it in 1973. They believe it was planted about 20 years earlier. They have managed it continuously since 1968. They utilize the services of Scientific Methods to monitor the condition of the orchard and recommend management actions, including fertilization, pest control, and pruning. They will continue to carry out the orchard maintenance plan for the remaining orchard. The owners propose a 200-foot wide buffer between the proposed lots and the orchard trees that are to remain in production plus a raised berm/walking path on the western edge of the subdivision adjacent to the remaining orchard and a similar average sized buffer on the southern edge to be used as an RV parking area. The western buffer area will be used as leach field areas and open space. These buffers and raised berms are planned to eliminate any incidental drift of chemicals and dust and to reduce potential noise impacts from sprinkler irrigation.

Impact Discussion:

(a)(e) In November 2011, the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency issued an Important Farmlands Map for Butte County identifying Prime Farmland. This was incorporated into the 2030 Butte County General Plan. A subsequent action by the Butte County Board of Supervisors reclassified the land from orchard and field crops to low density residential, one dwelling unit per acre. The parcel is identified as Prime Farmland.

The project lies within the Durham Dayton Nelson Plan area which was incorporated into the 2030 Butte County General Plan. Policy D2N-P6.6 states *“Protect agricultural lands which currently produce, or have the potential to produce, from encroaching urban uses.”*

The Butte County General Plan EIR discusses impacts from the build-out of the General Plan, including conversion of approximately 4,700 acres of farmland to non-agricultural uses as a **Significant Impact**. The goals, policies, actions, and regulations of the General Plan will, however, reduce and partially offset the conversion of farmland into non-agricultural uses. In the Adopting Resolution of the General Plan (Resolution 10-150, October 26, 2010), the County found that there were no feasible mitigation measures that would reduce the impact of such conversions to a level of less than significant. These impacts were accordingly determined to be **Significant but Unavoidable**.

Although the project will convert Prime Farmland to a non-agricultural use, there has been a recurring problem of oak root fungus (*Armillaria mellea*) in this orchard. This fungus affects a variety of conifers and broad-leaved trees throughout the United States. It is persistent and survives in root systems long after infected trees have died and been removed. It persists in the soil for about 10 meters around the canopy of infected trees and is present for decades after tree removal. It has required repeated replacement of almond trees in several areas of the orchard. The reduced production caused by *Armillaria* infections and the cost of replacing trees has reduced the economic viability of this orchard. The other pests in the orchard include leaf mites and pocket gophers, which are irregular problems and controlled as necessary. Navel orange worm has not been a problem in this orchard, in part because the replants have been hard shell varieties. As discussed above and because the fungus has significantly reduced the productiveness of the orchard, this conversion to a non-agricultural use is considered a significant but unavoidable adverse impact.

The project will convert 51 acres of agricultural land to non-agricultural uses. This is considered a **Significant but Unavoidable Impact** as previously evaluated in the General Plan EIR. Further analysis has been recommended to assess the magnitude of the conversion relative to overall buildout of the General Plan and how well the project complies with General Plan policies and ordinances that apply to conversion of agricultural lands. Without further analysis, this impact is considered **Potentially Significant**.

(b)(c)(d). The project site is not located within or adjacent to lands in a Williamson Act contract. This project site is not forested so will not convert forest lands to other use and does not conflict with existing zoning or cause rezoning of forested land. **No Impact**

4.3 AIR QUALITY:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Conflict with or obstruct implementation of the applicable air quality plan?			X		
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	X				
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		X			
d. Expose sensitive receptors to substantial pollutant concentrations?			X		
e. Create objectionable odors affecting a substantial number of people?			X		

Impact Discussion:

An air quality assessment was conducted for the project, which had a slightly different configuration from the current design, by LSA Associates, Inc., in March 2012. This study utilized URBEMIS to model air pollution outputs and was used for an Initial Study assessment in 2012. The BCAQMD recommended that the air quality model be redone using CalEEMod, which has replaced URBEMIS as the model of choice for air quality analysis. The previous model by LSA is inadequate for determining if there are potentially significant impacts on air quality from the proposed project. It is recommended this area be evaluated under an EIR. **Potentially Significant Impact**

4.4 BIOLOGICAL RESOURCES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X			
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X		
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 or the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means)?				X	
d. Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X		
e. Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy ordinance?				X	
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X	
g. A reduction in the numbers, a restriction in the range, or an impact to the critical habitat of any unique, rare, threatened, or endangered species of animals?			X		
h. A reduction in the diversity or numbers of animals onsite (including mammals, birds, reptiles, amphibians, fish or invertebrates)?			X		
i. A deterioration of existing fish or wildlife habitat (for foraging, breeding, roosting, nesting, etc.)?			X		
j. Introduction of barriers to movement of any resident or migratory fish or wildlife species?			X		
k. Introduction of any factors (light, fencing, noise, human presence and/or domestic animals) which could hinder the normal activities of wildlife?			X		

Impact Discussion:

(a)(b)(c)(d) The biological resources within the project area were evaluated during two resource studies: A Biological Resources Survey prepared by David Arnault of American Valley Environmental on December 11, 2009 and an Arborist's Report prepared by certified arborist, Jacob Morely, of Moonlight Arborist of Chico on December 9, 2009. These studies provided information on the plant and animals species within the site and described the habitats in and adjacent to the site. Eco-Analysts reviewed these resource surveys and generated and reviewed updated rare and endangered species lists because the ones associated with the Biological Resources Survey had expired.

The surveys did not identify any listed plant or animal species or wetlands within the site, which is presently composed an 118-acre parcel containing a working almond orchard and a single-family residence. Updated species lists did not reveal any additional listed species with a high potential for occurrence on the project site. The Biological Resources Survey identified potential nesting habitat for Swainson's Hawk (*Buteo swainsonii*) in the large trees on site and in patches of remnant riparian forest and oak woodland adjacent to the site. Two historic nesting records for Swainson's Hawk exist 2.2 miles south along Butte Creek and 2.5 miles north of the site in an agricultural area. Nesting habitat for Swainson's Hawks in Butte County consists of cottonwood willow riparian forest, valley oak riparian forest and willow scrub in open terrain and is often found along stringers of remnant valley and foothill riparian forest and the edges of oak woodland habitats (Estep 1989; Schlorff and Bloom 1984; England et al. 1997). In addition to nesting in trees bordering agricultural fields, abandoned farms and along wetland edges, Swainson's Hawks will also use other native and nonnative trees and habitats such as roadside trees, windbreaks, oak groves, isolated trees, and trees clustered around rural residences. Swainson's Hawks may forage up to 10 miles from nesting sites (Estep 1989, Babcock 1995). Foraging habitat for Swainson's Hawks in the Central Valley consists primarily of agricultural areas including hay fields, grain crops, certain row crops, and lightly grazed pasturelands. Fields that lack adequate prey populations (e.g., rice fields when flooded) or those in which prey is less accessible due to vegetation characteristics (e.g., vineyards and orchards) are rarely used (Estep 1989, Babcock 1995, Swolgaard et al. 2008). There is no appropriate foraging habitat located on site as the land is covered almost entirely by almond orchard.

The project area does have potential habitat for breeding birds and vegetation removal and construction have the potential to adversely affect breeding birds and nesting raptors, if they are present. Migratory birds and raptors are protected by the California Fish and Game Code (§3503), the Migratory Bird Treaty Act (MBTA, 16 USC §703), State and federal Endangered Species Acts, and the California Environmental Quality Act (CEQA). The Biological Resources Survey recommends that vegetation removal and ground disturbance be conducted outside of the bird nesting season in the Central Valley, if possible. If work is required during this time period, then pre-construction nest surveys by a qualified biologist must be made to identify potentially active nests or nesting pairs and appropriate avoidance measures (spatial or temporal buffers) must be implemented as determined by California Department of Fish and Game (CDFG). CDFG also requires a Management Authorization for the removal of any Swainson's Hawk nest tree, as Swainson's Hawks reuse their nests from year to year. The mitigations identified will reduce potential adverse impacts on breeding birds from Potentially Significant to **Less Than Significant with Mitigation Incorporated**

Mitigation Measure BIO-1: Nesting Migratory Birds and Raptors. Prior to initiation of any ground disturbing/construction activities during the nesting season (1 March and 15 September), the area within 0.5 mile of the proposed disturbed area must be surveyed by a qualified biologist for active raptor and migratory bird nests during the appropriate nesting period for the species. All raptor and migratory bird nests on the project site should be avoided until young have fledged in accordance with the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended.

- If an active nest is located within 0.5 mile of the project site, a biologist will monitor the nest weekly during construction to evaluate potential disturbance to nesting from construction activities. The monitor will have the authority to stop construction if it appears to be resulting in nest abandonment or forced fledging. Following a review of the breeding pair's behavior, CDFG will determine whether project activities in the area may continue during the nesting season and, if so, the conditions under which they may continue.
- If an active nest occurs in a tree scheduled for removal, the species of bird using the nest will be determined. The nest tree will be preserved until it is outside of the breeding season for that species or until the young have fledged. If construction cannot be delayed until the end of the breeding season, guidance

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from CDFG shall be requested. Removal of any tree containing a Swainson's Hawk nest may only be conducted after a Management Authorization is obtained from CDFG.

Plan Requirements: No vegetation removal, grading, road construction, or other earthwork shall be permitted until the nesting bird survey has been completed and a qualified biologist is hired by the project applicant for nest monitoring, if necessary.

Timing: Prior to construction.

Monitoring: The Butte County Department of Development Services

(a, e) For any subdivision project, Butte County requires those with oak trees on site include a detailed Arborist's Report, which may also include a Tree Management and Preservation report if the site is found to contain significant oak woodlands. The Arborist's Report inventoried trees on site, which included Canyon Oak (*Quercus chrysolepis*), valley oak (*Quercus lobata*), Incense Cedar (*Calocedrus decurrens*), Black walnut (*Juglans nigra*), Redwood (*Sequoia sempervirens*) and Privet (*Ligustrum lucidum*), and ranked them according to health and structure. The majority of the trees on the site were above 20 inches in diameter at breast height (dbh). Three very large (47 + inches dbh) specimen valley oaks located along Dayton Durham Highway were ranked highest among oaks in quality health and structure. The project site does not contain significant oak woodland, and the proposed project will not affect the small number of Heritage Oaks that exist on site. **Less Than Significant Impact**

Mitigation Measure: None Required

(a, e) The 2009 Arborist's Report indicated several Black Walnuts (*Juglans nigra*) occur within the project area. Field review performed in spring 2012, including observation of walnut shells on the ground, revealed inconsistencies with the identification of these walnut trees. Shell characteristics are strongly consistent with the Northern California Black Walnut (*Juglans hindsii*), a critically imperiled, seriously endangered tree listed by the California Native Plant Society as 1B.1, their highest rare plant rank for a species not extinct. As of 2003, only one native population was considered viable (CNPS 2010). The current project design will not require removal of any large walnut trees. If any of the large walnut trees are scheduled for removal in the future, the trees should first be examined by a qualified arborist who is familiar with methods required to determine if the walnuts on the property are native Northern California Black Walnuts, eastern Black Walnuts, or a hybrid species so that any Northern California Black Walnuts, if they exist, can be preserved. **Less Than Significant Impact**

Mitigation Measure: None Required

(f) Preparation of the Butte Regional Conservation Plan began in 2007 and is being coordinated by the Butte County Association of Governments (BCAG) on behalf of the Cities of Biggs, Chico, Gridley, Oroville, and the County of Butte. The project area falls within the area covered by the Butte Regional Conservation Plan (still under preparation) within the Northern Orchards Conservation Acquisition Zone and within the Durham Urban Permit Area. The Urban Permit Area is the area identified by the Butte County General Plan and Durham-Dayton Area Specific Plan as areas desired for urban development. The project does not conflict with provisions of the Butte Regional Conservation Plan in its current form for these areas. **Less Than Significant Impact**

Mitigation Measure: None Required

(g)(h)(i)(j) No listed species of wildlife have been documented to utilize the project site and no designated critical habitat for any listed species exists on site. Critical habitat for Central Valley Steelhead (*Onchorhynchus mykiss*) and Chinook Salmon - Central Valley Spring-run ESU (*Onchorhynchus tshawytscha*) exists approximately 0.15 miles to the east of the site in Butte Creek; the project will not affect Butte Creek. Several species of migratory birds were observed on site and may forage and breed on the property, though orchard operations likely already deter some use by nesting birds. Once the proposed project is built, retained open space and residential landscaping will provide wildlife habitat for some species, and adjacent forested parcels will also allow retreat, resting and nesting opportunities such that impacts to wildlife resulting from the project would be less than significant and are not thought to result in significant deterioration of existing fish and wildlife habitat or to introduce barriers to movement of any resident or migratory fish or wildlife. **Less Than Significant Impact**

Mitigation Measure: None Required

(k) Introduction of new lighting, fencing, noise, human presence and/or domestic animals can hinder the normal activities of wildlife living in and passing through the project site. Butte County has residential lighting standards that

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require all outdoor lighting shall be located, adequately shielded, and directed such that no direct light falls outside the property line, or into the public right-of-way, which will reduce some disturbances to wildlife using habitat adjacent to residential properties due to lighting. With the adequacy of nearby forested parcels for wildlife cover and retreat, this impact is expected to be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

4.5 CULTURAL RESOURCES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?		X			
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X			
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		X			
d. Disturb any human remains, including those interred outside of formal cemeteries?		X			

Impact Discussion:

Historical and archaeological resources are protected by both federal and state regulations including the National Historic Preservation Act of 1966 (code), the California Environmental Quality Act (code), SB -18 California Native American Traditional Tribal Cultural Places, which requires local governments to consult with tribes prior to making certain planning decisions including the adoption and amendment of general plans, and the California Native American Graves Protection and Repatriation Act of 2001. SB 18 consultations were carried out with affected tribes prior to adoption of the Butte County General Plan in 2010. CEQA requires lead agencies to make two determinations regarding historical or archaeological resources that may be affected by projects: 1) whether a project will impact a resource that falls within the definition of a “historical resource” and 2) whether any such impact will substantially adversely change the significance of the resource. This requires that Phase 1 archaeological inspections including a field assessment be conducted on all discretionary projects in order to discover if any historical resources that could be affected by the project exist prior to the issuance of permits.

(a)(b)(c)(d) The project site is believed to have been converted to an orchard in the late 1940’s and has been operated as an active almond orchard by the current owners since 1968. A Phase 1 cultural inventory of the site, including a historical records search and detailed surface examination, was conducted by archeological, historical and cultural resource specialists, Jensen and Associates of Chico, in November of 1991. The cultural report dated November 30, 1991, did not include Native American contacts, but indicated that the site contained at least one prehistoric site of potential historical significance that had been previously recorded in the 1970’s. The Durham area, particularly in the vicinity of Butte Creek is known to be a sensitive area for historical resources, including prehistoric Native American artifacts, as well as artifacts from the Gold Rush era and historical homesteads. The cultural resources report recommends preservation of this resource “as is” or, if the resource cannot be preserved, a detailed plan of approach for subsurface evaluation of the resource, which may include a phased approach, should be prepared and carried out by a qualified professional archaeologist.

The current project design avoids any ground-disturbing work in the area of the identified prehistoric site. However, because of the presence of a potentially historically significant site on the project site, the likelihood that ground-disturbing work elsewhere on the project site could reveal subsurface cultural artifacts or subsurface human skeletal remains is high. The following mitigation addresses the potential impact to historic resources on site and reduces the impact to less than significant. **Less Than Significant with Mitigation Incorporated**

Mitigation Measure CULT-1: Cultural Resource Protection. Place a note on a separate document, which is to be recorded concurrently with the Final Map or on an additional map sheet and on all building and site development plans, that includes the following:

- The project engineer shall create a map of based on the Jensen and Associates 1991 Cultural Resources Report that indicates the area of the prehistoric site of potential historical significance with a 100-foot buffer and labeled “Environmentally Sensitive Area.” No ground-disturbing work shall be allowed within this area.
- The note shall include the following language: “A qualified archaeological monitor shall be hired and be present to inspect all ground-breaking activities including tree removal. Should grading activities reveal the presence or prehistoric or historic cultural resources (i.e. artifact concentrations, including arrowheads and other stone tools or chipping debris, cans glass, etc.; structural remains; human skeletal remains) work within 50 feet of the find shall immediately cease until a qualified professional archaeologist can be consulted to evaluate the find and implement appropriate mitigation procedures. Should human skeletal remains be encountered, State law requires immediate notification of the County Coroner. Should the County Coroner determine that the remains are in an archaeological context, the Native American Heritage Commission in Sacramento shall be notified immediately, pursuant to State law, to arrange for Native American participation in determining the disposition of such remains.” The provisions of this note shall be followed during construction of all subdivision improvements, including land clearing, road construction, utility installation, and building site development.

Plan Requirements: This note shall be placed on a separate document which is to be recorded concurrently with the map or on an additional map sheet and shall be shown on all site development and building plans.

Timing: This measure shall be implemented during all site development activities.

Monitoring: Should cultural resources be discovered, the landowner shall notify the Planning Division and a professional archaeologist. The Planning Division shall coordinate with the developer and appropriate authorities to avoid damage to cultural resources and determine appropriate action. State law requires the reporting of any human remains.

4.6 GEOLOGIC PROCESSES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: <ol style="list-style-type: none"> 1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. 2. Strong seismic ground shaking? 3. Seismic-related ground failure, including liquefaction? 4. Landslides? 			X		
b. Result in substantial soil erosion or the loss of topsoil?			X		
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X		
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X		

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
e. Have Soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal system where sewers are not available for the disposal or waste water?				X	

Impact Discussion:

A Geotechnical Report for the project was prepared by Lumos and Associates of Chico, California, in December 2009 and provided baseline geotechnical data for this section of the Initial Study. Durham, California, is located in the Sacramento Valley west of the Chico Monocline in the Great Valley Geomorphic Province between the Sierra Nevada and Coastal Range Geomorphic Provinces. The Great Valley formed from a series of geologic events of accretion, subduction and deposition beginning in the late Mesozoic Era, producing a thick sequence of marine sediments. Over time these sediments became unconformably overlain by volcanic, alluvial and fluvial deposits into the Miocene to Holocene ages. The deposits that underlie the surficial geology in the area are the Lovejoy Basalt, Tuscan Formation, Riverbank Formation and Modesto Formation. Dynamic geologic processes that have formed the region, including earthquakes and faulting, are of special concern for any project.

(a1) Section III, Seismic and Geologic Hazards, of the Healthy and Safety Element of the Butte County General Plan 2030 notes that all of Butte County is in Moderate Earthquake Intensity Zone VIII where, according to the California Division of Mines and Geology (1995) local intensities could vary from Zone VII to Zone IX. No known faults or Alquist-Priolo special studies zones occur in or directly adjacent to the project site (California Department of Conservation 2007). The Cleveland Hills Fault (activated in 1975), approximately 25 miles southeast of the project area was designated pursuant to the Alquist-Priolo Fault Zoning Act as a special studies zone. Like much of California, the project site can be expected to be subjected to seismic ground shaking at some future time. The Health and Safety Element notes that "conservatively ground motions as strong as those observed during the 1975 Oroville Earthquake (Modified Mercalli Intensity VIII) can be expected anywhere in Butte County." (pgs. 291 - 193) Accordingly, all buildings and other improvements will be designed and installed in accordance with the 2010 California Green Building Standards Code (CBC) requirements.

(a2) All of Butte County has been designated as a "seismic hazard zone" by the Seismic Mapping Program of the California Geological Survey. Due to the proximity of a number of active faults capable of producing Richter magnitude earthquakes of 6.0 to 6.5, ground shaking can be assumed to occur. The project will comply with the 2010 California Green Building Standards Code construction requirements. The Geotechnical Report for the project states that the design for ground shaking intensities will be based on a repeatable ground acceleration of 0.12g, corresponding to a ten percent probability of exceedence in 50 years, as outlined by the USGS (2002).

(a3) (a4) Liquification at the project site is considered very low as the soils on the site have little sand to create the loss of shear strength needed for cyclic loading caused by ground shaking. The low liquefaction rate and lack of topography coincides with the lack of lateral spreading, landslide, or collapse. **Less Than Significant Impact**

Mitigation Measure: None Required

(b) Erosion, the removal of earth materials from one area with deposition to another area, is not considered to be an impact for this project as the site, an orchard for many years, has been leveled and maintained to prevent such erosion. The site has a low potential for erosion. **Less Than Significant Impact**

Mitigation Measure: None Required

(c) The project site and surrounding area has a low landslide potential due to the gentle topography, slopes from 0 to 2 percent, and relatively stable soils. Land subsidence, due to excessive pumping of groundwater or natural gas extraction in certain areas, can occur but is not considered a hazard in this area for this project. **Less Than Significant Impact**

Mitigation Measure: None Required

(d) Expansive soils swell when wet and shrink as they dry and have the potential to cause damage to structures and roads. The amount of clay mixed within soil layers is a major component of the expansion process. The Geotechnical Report has determined that in accordance with the UBI after extensive soil testing that the project will not create substantial risk to life or property due to expansive properties. **Less Than Significant Impact**

Mitigation Measure: None Required

(e) The Geotechnical Report for the project indicates that the soils as tested are capable of adequately supporting the use of septic tanks and leach fields. **No Impact**

Mitigation Measure: None Required

4.7 GREENHOUSE GAS EMISSIONS

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	X				
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	X				

A greenhouse gas emissions assessment was conducted for the project, with a slightly different configuration, by LSA Associates, Inc., in March 2012. Assessment using CalEEMod, a newer air quality emissions program, was recommended by BCAQMD. The previous analysis did not make a comparison in GHG emissions resulting from the presently existing orchard and the proposed development to assist CEQA assessment.

On February 25, 2014, the Butte County Board of Supervisors adopted the Butte County Climate Action Plan (CAP). The CAP provides a framework for the County to reduce GHG emissions while simplifying the review process for new development. Measures and actions identified in the CAP lay the groundwork to achieve adopted General Plan goals related to climate change, including reducing GHG emissions to 1990 levels by 2020. In an effort to implement the measures of the CAP, a development checklist was created to evaluate a new projects consistency with the CAP, and to identify which GHG emission reduction measures would be implemented with project approval.

Impacts from GHG emissions must be considered to be potentially significant until adequately analyzed with the CalEEMod model. In addition, the project will be analyzed for consistency with the goals, policies and requirements of the CAP. The proposed EIR's GHG analysis will analyze how consistent the current project is with applicable plans and regulations, including the approved CAP, aimed at reducing greenhouse gases.

4.8 HAZARDS AND HAZARDOUS MATERIALS

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Create a significant hazard to the public or the environment through the routine transport use, or disposal of hazardous materials?				X	

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X	
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed schools?				X	
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X	
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X	
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?				X	
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X	
h. Expose people or structures to a significant risk or loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X	

Impact Discussion:

(a)(b)(c) The project does not involve the routine use, transport, or disposal of hazardous materials, nor will hazardous emissions or acutely hazardous substances be handled within a quarter mile of an existing or proposed school. The project site is not listed on any list of hazardous materials sites compiled pursuant to Section 65962.5 (Cortese List). Impacts due to the transport, use, disposal, emissions, or accidental release of hazardous materials are therefore considered to be less than significant. **Less Than Significant Impact**

Mitigation: None Required

(d) Searches of the Department of Toxic Substance Control's EnviroStor database (DTSC, 2009), and the State Department of Water Resources Geotracker database (2012) were examined for potential sources of contamination in the area of the project. There are two recorded leaking underground gasoline storage tank sites undergoing remediation on the west side of the Midway in Durham. One with several monitoring wells is approximately 2,000 feet west of the site; the second is slightly over 1,900 feet to the southwest. Since the underground water gradient is to the southwest, neither site has an effect on the project being analyzed. The second listed site contains two scrap metal yards, located approximately 3.5 miles away along Highway 99. Given the project's distance from these hazardous material sites and the remediation efforts and restrictions in place on these sites, the potential impacts are expected to be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(e)(f) The closest airport is a private airstrip, the Johnson airstrip, which is more than five miles away. The project site falls outside of the Airport Compatibility Zone. Hazards due to air travel are expected to be less than significant. **Less Than Significant Impact**

Mitigation measure: None Required

(g) The Butte County General Plan Health and Safety Element adopted in 2010 primarily focuses on geologic and fire hazards. Currently Butte County has an Operational Area Disaster Plan which serves as the official Emergency Operations Plan (EOP) for the County. It includes planned operational functions and the overall responsibilities of each area of the County with level of service when addressing emergency situations. The Plan provides an overview of operational concepts, identifies components of the County's emergency management organization, and describes the overall responsibilities of the federal, State, and County entities and the Butte County operational area for protecting life and property and assuring the well-being of the population. Implementation of the proposed project is expected to maintain service on County roads which could serve as emergency routes, and is not expected to otherwise interfere with implementation of the EOP. Impacts to emergency response or emergency evacuation needs are therefore expected to be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(h) Although the Study Area is located in an environment not typically associated with wildland fires. The project site is located in a Local Response Area for fire protection services. Fire protection services would be provided by CAL FIRE/Butte County Fire. The exposure of people or structures to risks from wildland fire is expected to be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

4.9 HYDROLOGY AND WATER QUALITY:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Violate any water quality standards or waste discharge requirements?		X			
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 preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	X				
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?			X		
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?			X		
e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?		X			
f. Otherwise substantially degrade water quality?				X	
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?	X				
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	X				

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
i. Expose people or structures to a significant risk or loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	X				
j. Inundation by seiche, tsunami, or mudflow?				X	

Impact Discussion:

The project area is situated within the Butte Creek watershed of northern California. The channel of Butte Creek is located approximately 500 feet east of the eastern boundary of the project area. The creek is channelized along this stretch and bordered by agricultural lands and rural residences. There are no permanent watercourses, ditches, or wetland features within the project boundaries.

Project lands are characterized as flat and leveled, supporting a mature almond orchard. Immediately surrounding lands are also level with the eastern edge of the property following a natural ridge line and the parcel gently sloping toward the railroad tracks. A wetland delineation has not been performed nor is warranted for this site. The site does not exhibit any wetland or depressional features, nor was any hydrophytic vegetation observed during the field visit.

(a)(e) The project will not violate any water quality or waste discharge requirements. The project proposes installation of individual septic tanks for each lot. Each building in the subdivision will be connected to a septic tank that contains a pump to transport the wastewater effluent to the community leach field system via pressure pipelines in the streets. All wastewater discharge will be in compliance with discharge requirements of the CVRWQCB. The community leach field is to be situated along the southwestern corner of the main residential area. Maintenance of wastewater infrastructure is to be performed by a Community Services District (CSD) (discussed in detail in Section 4.17: Utilities and Service Systems).

The project will create new impervious surfaces (roads, driveways, and roofs) that will increase the rate of surface runoff during storm events. Roads and driveways create new sources for polluted runoff water. However, project design serves to minimize this impact. Additionally, standard conditions imposed by the required permitting serve to reduce these impacts to less than significant. A construction storm water permit shall be acquired from the State Water Resources Control Board prior to initiation of construction or grading.

Project design incorporates a flood control area designed to control, redirect, and store excess storm waters and flood waters. Street side storm drains will direct excess stormwater into a subterranean storm water collection and infiltration system. Infrastructure within the public right of way is to be maintained by a County Permanent Road Division (PRD). With formation of the CSD and PRD, conformance with standard conditions (construction storm water permit) and the associated mitigation measure, the project is not anticipated to provide significant impacts to water quality or waste discharge. **Less Than Significant Impact with Mitigation Incorporated**

(b) The project proposes to abandon an existing agricultural well and install a new well that will be constructed to domestic water standards to provide residential drinking water and water available for fire protection. The proximity of Butte Creek to the project area and the high permeability of the area's loamy soils indicate that Butte Creek is the primary source of recharge/discharge for the local groundwater table. Although the project will add new impervious surfaces to the area in the form of streets, driveways, and structures, this is not anticipated to significantly impact the local groundwater table. However, local farmers have expressed concerns that a residential development and the new well could impact the local groundwater they depend on for irrigating crops. The impact on groundwater must be considered a potentially significant impact until a groundwater analysis is provided to indicate otherwise. It is recommended that an EIR be prepared to address the groundwater supply questions. **Potentially Significant Impact**

(c)(d) The project will increase impervious surfaces that may change the drainage pattern of the site. However, the storm water conveyance system is thought to be adequate to direct excess stormwater into a subterranean storm water collection and infiltration system. This system is subject to review and approval by CVRWQCB. With the conditions of approval by this agency, this impact is considered less than significant. **Less Than Significant Impact**

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(f) The project does not include any additional sources of water usage other than residential and landscape uses. No additional source of discharge is identified. The project will not otherwise substantially degrade water quality. **No Impact**

Mitigation: None Required

(g)(h) According to FEMA Insurance Rate Map 06007C0520E (Figure 4.9.1) the project area lies within Zone AO (Depth 2'), defined as a special flood hazard area subject to inundation by the 1% annual chance flood (100-year flood). AO flood zones typically are inundated to depths between 1 and 3 feet; this area is indicated as having a 2' flood depth. Flooding in this area is described as usually sheet flow on sloping terrain. This description corresponds well with the topography of the site and expected flood water characteristics, including sheet flow on flat, gently sloping lands. The project would place housing and structures within a 100-year flood plain that could redirect flow. This impact is considered potentially significant. The applicant's engineer is in the process of attempting to remove the property from the 100-year flood plain designation by accrediting the levee through FEMA. It is recommended that the feasibility of this action should be evaluated with an EIR analysis. **Potentially Significant Impact**

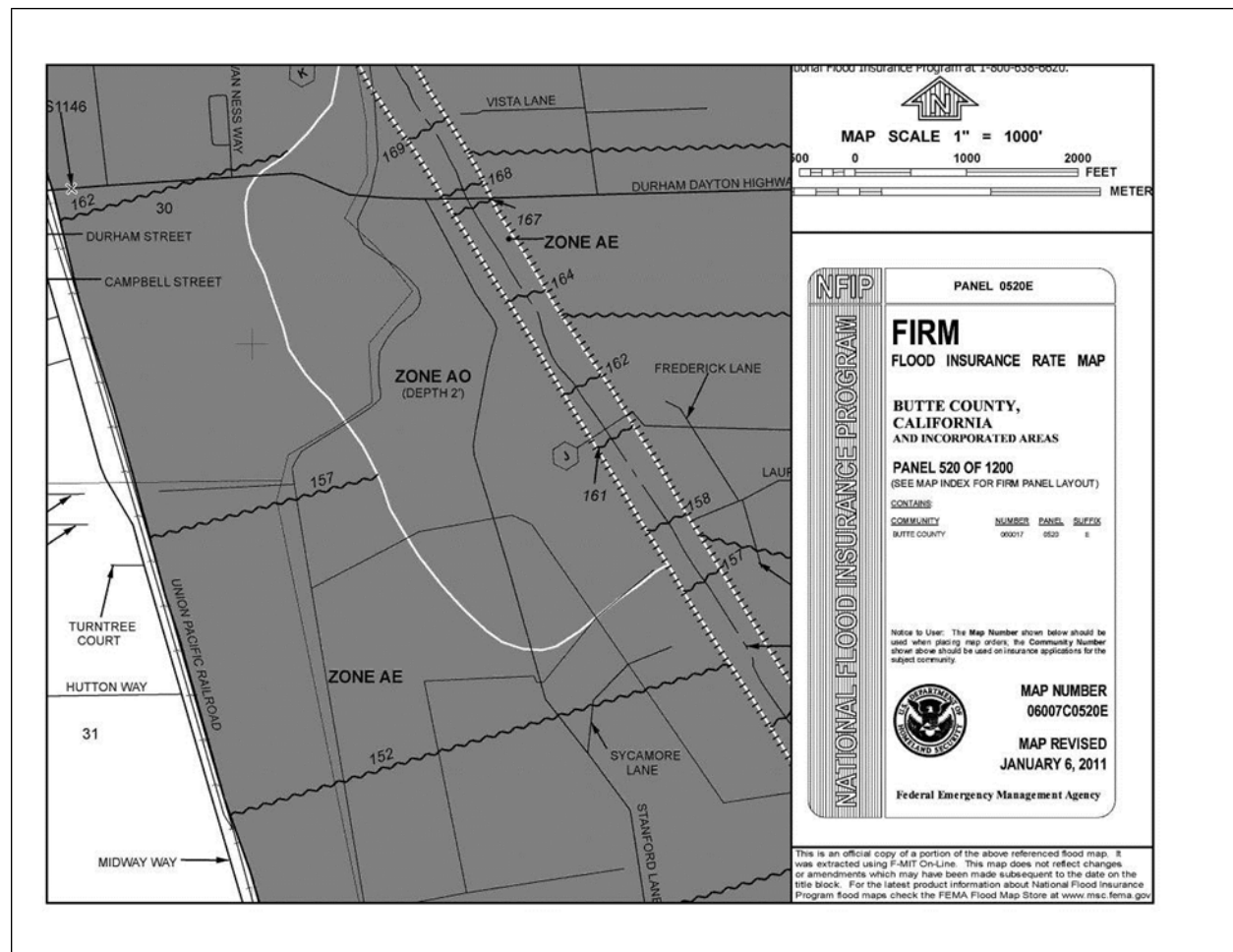


Figure 4.9.1. Flood Insurance Rate Map

(i) Although the project area is situated within a flood zone, the banks of Butte Creek are not built up by significant levees in this area. Minor berms approximately 5 feet above surrounding ground elevations are situated along both sides of Butte Creek along this stretch and do not provide significant protection from overbank flooding events. Failures or breaches in this berm would not appreciably alter the direction, stage, or intensity of flooding events. However, the area is indicated as being within zone AO, so there is a risk to structures and residents from 100-year flood events. This impact is considered potentially significant and warrants further evaluation with an EIR. **Potentially Significant Impact**

(j) The project is not situated in an area prone to seiche (desert environments), tsunami (coastal areas), or mudflow (steep slopes). **No Impact**

Mitigation: None Required

4.10 LAND USE:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Physically divide an established community?				X	
b. Conflict with an applicable land use plan, policy, or regulations 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?	X				
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?			X		

Impact Discussion:

(a) The project is situated within the community and commercial area of Durham, an unincorporated rural community with mixed agricultural and residential uses. The project is proposed on lands currently supporting an aging almond orchard. The project will not physically divide any established community. **No Impact**

Due to the conversion of agricultural lands that is proposed with the project, it is recommended that the project be analyzed in depth for compatibility with applicable land use plans in an EIR. **Potentially Significant Impact**

4.11 MINERAL RESOURCES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X	
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X	

Impact Discussion:

(a)(b) A review of the current records on file with the California Geological Survey and the U.S. Geological Survey identified no known significant mineral, gem, or fuel, or non-fuel mining resources within the project area. The Butte County General Plan 2030 does not specify a mineral resource recovery site within the project area; therefore, impacts to locally important recovery sites for mineral resource are less than significant. The project site, or surrounding area, is not proposed or anticipated for mining operations. **No Impact**

Mitigation Measure: None Required

4.12 NOISE:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X		
b. Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?			X		
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?			X		
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		X			
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X	
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?				X	

Impact Discussion:

(a)(b)(c)(d) The noise sources near the project area include vehicular traffic on Durham-Dayton Highway, railroad operations along the Union Pacific Railroad (UPRR) line west of the project site, and some industrial facilities north and northwest of the site.

An acoustical analysis was conducted for the project by j. c. brennan & associates, Inc., in January 2010 to determine the current noise and future noise levels from these sources. Motor vehicle traffic volume data were obtained from a study by Lumos & Associates, engineers for the project, and analyzed using the Federal Highway Administration (FHWA) Traffic Noise prediction model. The 60 decibels (dB) line on the northern boundary of the project lies 53 feet from the center line of Durham-Dayton Highway, on the exterior side of the proposed berm around the project. The berm will provide additional noise shielding from vehicular traffic.

The project will not result in exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels. A Union Pacific Railroad track passes within 1,000 feet of the western edge of the project. The noise contribution from the railroad (58.7dB) is within the acceptable limits for interior and exterior noise exposure in the Butte County General Plan 2030. No mitigations are required for railway noise.

Project construction is likely to increase short-term noise levels in the project area from on-site activities and construction traffic. Construction equipment typically generates on the order of 80 to 95 dB at a distance of 50 feet. As a result, receptors in the vicinity may experience significantly increased noise levels during project construction. However, current regulations for air quality that limit the idling of trucks may also decrease local ambient noise levels during construction. To reduce potential impacts to Less Than Significant, mitigation measures are required. **Less Than Significant with Mitigation Incorporated**

Mitigation Measure NOI-1: Construction timing and limitations. Construction activities shall be limited to between the hours of 7AM and 7PM with no construction activity on Sundays or holidays. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained. When feasible, existing power sources, such as power poles, or clean fuel generators should be used, rather than temporary power generators. Minimize idling time to 10 minutes.

Plan Requirements: This note shall be placed on a separate document which is to be recorded concurrently with the map or on an additional map sheet and shall be shown on all site development and building plans.

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Timing: The mitigation shall be applicable during all construction activities.

Monitoring: The developer and the construction foreman shall be responsible for ensuring compliance with this mitigation and shall respond to all complaints of noise. The Department of Development Services shall investigate all complaints of excess construction-related noise.

(e)(f) The only airport in the area is the private Johnson airstrip, approximately 4.3 miles northwest of the project. It does not contribute appreciably to the ambient noise within the site. There are no other private airstrips in the project vicinity. There are, therefore, no noise impacts from airports or private airstrips affecting the project and no mitigations are required. **No Impact**

Mitigation Measure: None Required

4.13 HOUSING:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
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?)			X		
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X	
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X	

The Housing Element of the Butte County General Plan 2030 is the primary document establishing goals, policies, and actions to guide Butte County's efforts relative to housing. This element was prepared after review of the Butte County Housing Needs Assessment, which assessed the County's progress in attaining goals set forth in the 2004 Housing Element of the previous Butte County General Plan. The Regional Housing Needs Plan (2007-2014) for Butte County (RHNP) was adopted in 2008 to allocate to the cities and County their "fair share" of the region's projected housing need by household income group over the seven and a half year (2007-2014) planning period covered by the plan. Both the Housing Element and the RHNP were reviewed to determine consistency between this project and existing goals and policies.

Goal 4 of the Housing Element (2010) states that the County shall "collaborate with existing service providers to meet the special housing needs of homeless persons, the elderly, large families, disabled persons, and farmworkers." Goal 5 of the Housing Element states that that County shall "ensure equal housing opportunity." This project, while consistent with all stated goals within the Housing Element, is particularly relevant in terms of Goals 4 and 5.

Impact Discussion:

(a) The project proposes addition of approximately 140 units of senior housing in an unincorporated community. The volume of new homes proposed falls within the 13,994 new housing units anticipated for need between 2007 and 2014 (RHNP). Of these, 3,036 units are anticipated for need within unincorporated Butte County. The proposed 140 new homes represent approximately 4.6% of the anticipated new housing need for unincorporated Butte County.

Butte County is currently home to over 217,200 people, with a projected population of 241,515 by 2015. This projection is supported by the fact that population increase has been steady for the last ten years, with an annual average increase of 1,770 people (0.9 percent). Between 1996 and 2006, population grew about 9 percent in the County. The project proposes construction of 139 new residential units, one community lot, and one commercial lot. At 2.5 persons per household (California Department of Finance), and if one assumes all occupants are new residents to Butte County, the

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project would allow for approximately 350 new residents. This number assumes that all future residents are new to the County, rather than existing residents that move to the site. The actual number of new Butte County residents induced by the project is anticipated to be less than 350 persons. Although the project does induce population growth in the area by providing new housing, the level of growth induced is within the range anticipated by the Butte County General Plan and other relevant housing assessments and plans. **Less Than Significant Impact.**

Mitigation: None Required

(b)(c) The project does not propose any activities that will displace either people or housing. No need for replacement housing is expected. **No Impact.**

Mitigation: None Required

4.14 PUBLIC SERVICES:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services?			X		
b. Fire protection?			X		
c. Police Protection?			X		
d. Schools?			X		
e. Parks?			X		
f. Other public services?			X		

Impact Discussion:

The project proposes construction of 139 new units of senior housing in the unincorporated community of Durham. This development will require adequate fire and police protection. This increase in population may contribute to usage of area parks, recreational facilities, and other public services such as emergency services and hospitals.

(a)(b) Fire protection and emergency services for the project site are provided by the Butte County Fire Department (BCFD) and Butte County Volunteer Firefighters. BCFD has contracted with California Department of Forestry and Fire (CAL FIRE) to staff BCFD stations through annual cooperative agreements since 1931 and has staffed each fire station 24 hours a day with two firefighters until recently when budget cut backs have resulted in rolling brown outs or closure of two stations at any given time (2030 General Plan EIR). Under this contract, the County pays CAL FIRE salaries and benefits, as well as other related costs, to staff County-owned fire stations and apparatus as well as funds the Butte County Volunteer Firefighter Program. BCFD and CAL FIRE also operate the countywide dispatch services, coordinate major emergency response within the County, and provide training for career and volunteer fire fighters.

Butte County has considered the need for additional fire protection and commissioned a study, Standards of Response Cover Study Butte County Fire Department (Citygate 2007). In 2008, the County adopted the following standards for fire department response time based on the study:

- Population equal to or greater than 1,000 people per square mile or industrial, agricultural or infrastructure of high value:

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For emergencies requiring a single fire engine response the first due engine shall arrive within 7 minutes of the 911 call 90 percent of the time, countywide.

For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 11 minutes of the 911 call 90 percent of the time, countywide.

- Population of 500 to 1,000 people per square mile:
For emergencies requiring a single fire engine response the first due engine shall arrive within 13 minutes of the 911 call 90 percent of the time, countywide.
For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 18 minutes of the 911 call 90 percent of the time, countywide.
- Population less than 500 per square mile:
For emergencies requiring a single fire engine response the first due engine shall arrive within 17 minutes of the 911 call 90 percent of the time, countywide.
- For emergencies requiring multiple engines and an effective force of 15 fire fighters, they shall arrive within 23 minutes of the 911 call 90 percent of the time, countywide.

BCFD Station 45 is located at 2367 Campbell Street in Durham and is within approximately $\frac{3}{4}$ of a mile to the nearest entrance and within 1 mile of the farthest proposed entrance to the site. The station is staffed by County career firefighters as well as volunteer firefighters. The average response time in Durham is approximately 7.97 minutes (range 0.22-21.02 minutes; Citygate 2007 Standards of Response Cover Study Butte County Fire Department), in an area of population less than 500 per square mile. The Butte County General Plan (Policy HS-P11.) requires that new development meet current fire safety ordinance standards for adequate emergency water flow, emergency vehicle access, signage, evacuation routes, fuel management, defensible space, fire safe building construction, and wildfire preparedness (2030 Draft General Plan EIR). The project will provide water and fire hydrants on site for fire safety. In addition, a portion of development impact fees assessed by the County help fund fire protection. Because of the County standards, provision of water and hydrants to the site by the project, and the impact fees, the impact of the project on fire protection services is considered less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(a)(c) Police protection serving the project site is provided by the Butte County Sheriff's Office (BCSO). Of the sworn personnel which include the Sheriff, Undersheriff, captains, lieutenants, sergeants and deputies, four deputy sheriffs are assigned to one of eight patrol teams and each team is supervised by a sergeant, dependent on being fully staffed. The CHP has a mutual aid agreement with BCSO and will respond when requested by the Sheriff. The main Sheriff's Office is located at 33 County Center Drive in Oroville and the nearest BCSO substation to the project site is located at 479 East Park Avenue in Chico, approximately 6 miles away by car. The BCSO is the countywide coordinator for mutual aid situations and maintains mutual aid agreements with the California Highway Patrol and the municipal police departments. Developers pay impact fees that in part support police protection. Therefore, the project is considered to be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(a)(d) The project site is served by the Durham Unified School District, which provides kindergarten through high school education at Durham Elementary, Durham Intermediate, Durham High School and Mission High School. The District's enrollment has steadily declined since the year 2000 and is currently well under capacity (Butte County General Plan 2030 draft EIR). In addition, the project seeks to provide housing for seniors rather than younger families more likely to have school-aged children, and new development is subject to school impact fees. Therefore, the impact to area schools will be less than significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(a)(e) The Municipal Service Review Update and Sphere of Influence Plan for Durham Recreation and Park District (MSR 2009) addresses the existing adequacy and condition of Durham area parks and recreational facilities and assesses the ability of the existing facilities to support the local population in the future. The Durham Recreation and Park District (DRPD) currently serves an areas of approximately 182 square miles and maintains 34 acres of developed parkland at six parks including one community park (24-acre Durham Community Park), four neighborhood parks and one mini-park. In addition, DRPD facilities include a swim center and a memorial hall. DRPD serves an estimated population of 6,354 according to 2007 U.S. Census. DRPD has established service standards of 1.9 acres of

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neighborhood parks, 6.5 acres of community parks, 3 acres of linear parks, and 2.2 miles of trailways per 1,000 people. Although DRPD staff believes the District meets current needs adequately, the MSR identified that the current level of service is below current District-adopted standards outlined above, with a current deficit of 1.8 acres of neighborhood parks, 17.3 acres community park, and 19.1 linear parks per 1,000 residents. In addition to housing, the project proposes creation of approximately 18.8 acres of open space and will include a community center, playground, and pedestrian/bicycle trails. At an estimated 2.5 persons per household (California Department of Finance), the project would allow for approximately 350 residents and would provide additional open space at a ratio of approximately .053 acres per resident. Because the proposed open space and recreational amenities will help offset any increased use of existing recreational facilities in the vicinity and developers are required by the County to pay park development impact fees, the effect on recreational services will be Less Than Significant. **Less Than Significant Impact**

Mitigation Measure: None Required

(a)(f) The project may contribute to an increased usage of other public services but at an expected increase of approximately 350 people is not likely to increase usage of other services to a significant level that would require new facilities or construction to maintain the current level of services. **Less Than Significant Impact**

Mitigation Measure: None Required

4.15 RECREATION:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X		
b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X		

Impact Discussion:

(a) The General Plan 2030 does not provide a parks and recreation plan for Butte County, yet unincorporated Butte County has over 618 acres of parkland serving the County's 83,900 residents. The Durham Recreation and Park District (DRPD), one of five independent and non-enterprise districts in the County, (reliant on property tax revenue for operations), provides parks and recreational facilities for area residents. The 24-acre Durham Community Park is within ½ mile east of the project site; other DRPD recreational facilities of approximately 10.3 acres are located within ½ mile west, in Durham.

No acceleration or substantial physical deterioration is expected to occur in the existing neighborhoods and/or parks and recreational facilities. The project is expected to provide adequate recreational opportunities for its residents, whose quality of life could be enhanced by the availability of DRPD recreational facilities. In addition to the special district and municipal facilities in the County, there are many federal and state parks, recreational areas, reserves and trails to explore and utilize. **Less Than Significant Impact**

Mitigation measure: None Required

(b) The approximately 118-acre project will add 139 active senior residential properties, a community center, a park, open spaces, a walking/biking path, RV parking, and a bus stop. Open spaces (public and private), including the park and walking berm are approximately 18.8 acres. The existing residence and approximately 70 acres of working orchard will remain.

No adverse physical effects on the environment are foreseen in construction of the project's included community/recreational facilities. **Less Than Significant Impact**

Mitigation measure: None Required

4.16 TRANSPORTATION/TRAFFIC:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X	
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	X				
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?				X	
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	X				
e. Result in inadequate emergency access?			X		
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	X				

Impact Discussion:

(a) Traffic and circulation plans and policies are established by the Circulation Element of the Butte County General Plan 2030 and the 2008 Regional Transportation Plan (BCAG). These documents set forth the goals and policies describing the overall mobility program for Butte County. Additionally, the County adopted a Countywide Bikeway Master Plan in 1998 and is currently in the process of updating it. Published goals for circulation improvement include:

- intergovernmental communication and cooperation,
- modes and strategies that reduce traffic-related impacts,
- promotion of alternative methods of transportation (pedestrian and bicycles),
- integration of public transit systems,
- integration of a safe and continuous bicycle system,
- support of a balanced and integrated road and highway system,
- consistency with existing and proposed land uses,
- financial feasibility,
- public safety,
- facilitation for residents with special mobility needs, and
- consistency with air traffic.

Review of these plans shows consistency between this project and Butte County traffic and circulation goals and policies. Most notably, the project includes:

- internal circulation design providing multiple entry/exit points to reduce intersection congestion,
- open space elements designed for pedestrian and bicycle traffic,
- line of sight improvements to facilitate public safety,

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- no county maintenance costs associated with roadway improvements,
- neighborhood commercial to reduce internal trip generation,
- no impacts to air facilities, and
- tentatively planned B-line bus stops integrated with county-wide public transit.

Project proponents have participated in preliminary project review with Butte County and solicited comments from Public Works regarding additional conditions of approval that may be needed. The project will conform to all conditions of approval required by Butte County Public Works, including right-of-way requirements, signage, encroachment and approach standards, street and cul-de-sac standards, and other conditions.

Project proponents have requested a number of exceptions to existing Butte County Street Standards to improve safety and provide additional consistency with alternative transportation modes. These exceptions include sidewalk and bike path configuration, landscaping, and right-of-way and road widths. Butte County is currently reviewing that request. If accepted, these exceptions will be added to the Conditions of Approval. **No Impact**

Mitigation measure: None Required

(b) Project traffic levels and impacts were assessed in the *Rancho Sol Tierra Traffic Impact Study* (Sept. 7, 2011) prepared by Whitlock and Weinberger Transportation, Inc. This analysis evaluated operating conditions under four scenarios, including existing conditions, existing plus project conditions, future conditions, and future plus project conditions. Both “existing plus project” and “future plus project” condition scenarios indicated potential traffic impacts that are expected to occur upon addition of traffic from the proposed project.

The study area consisted of seven intersections adjacent to the Durham Villas project area (formerly called Rancho Sol Tierra) that would be expected to be most directly impacted by the project. These intersections included Midway/Jones Avenue, Durham-Dayton Highway/Midway, Durham-Dayton Highway/Jones Avenue, Durham-Dayton Highway/Project Access (A, B, and C), and Durham-Dayton Highway/Lott Road (Figure 4.16.1 Traffic Impact Study Intersections).

Existing Plus Project Conditions

With the addition of project-generated traffic, all of the study intersections are expected to continue to operate acceptably at LOS A or B during the a.m. and p.m. peak hours in the immediate future.

Future Plus Project Conditions

With the addition of project generated traffic, all of the study intersections are expected to operate at LOS C or better during future study periods.

The traffic analysis not include the Stanford Lane and Durham Dayton Highway Intersection. Concern was expressed by some of the residents of Durham, that a development in this area would cause a safety hazards and contribute to car accidents in this stretch. Some also raised an issue with the timing of the counts and said they were not taken at a during a busy time when school was in session. Additionally, some local farmers expressed concern that the new source of traffic would cause problems for them moving their farm equipment. These impacts are considered potentially significant without further study. It is recommended that a traffic study that incorporates the Stanford Lane intersection and counts that are timed to when school is in session be performed and that traffic impacts be further analyzed in and EIR. **Potentially Significant Impact**

(c) The project is not expected to create new sources of air trip generation have any impact on air traffic patterns since the project is not near any commercial airport nor does it lie within an established overflight safety zone. **No Impact**

Mitigation measure: None Required

4.17 UTILITIES AND SERVICE SYSTEMS:

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?		X			
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		X			
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?		X			
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	X				
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?				X	
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X		
g. Comply with federal, state, and local statutes, and regulations related to solid waste?			X		

The developer proposes formation of a County Services District, Community Services District and Landscape and Lighting District that will be responsible for the ownership, maintenance, operation and inspection of the following subdivision improvements and amenities:

- Park site and improvements;
- Community Center building and site improvements;
- Wastewater collection, treatment, and disposal system that includes at a minimum the sewer collection pipelines located in the streets, dosing tanks, pump controls and community leach field; the septic tanks for each of the lots will be owned and maintained by the individual lot owner;
- Domestic and fire water supply system that includes at a minimum well(s), pump(s), tank(s), water lines, fire hydrants, pump controls, generator(s), valves and water meters;
- Private landscaping, and pedestrian/bike paths located outside of public right of ways.

The Butte County Board of Supervisors will initiate formation of the CSD with the Butte Local Agency Formation Commission (LAFCO). LAFCO will then prepare a Municipal Services Review (MSR) and a Sphere of Influence Plan for the proposed CSD. Upon approval of the CSD by LAFCO, the Board of Supervisors will act as the initial board of directors for the CSD. The CSD will ultimately be governed by a board of directors elected by the lot owners in the subdivision and will be responsible for establishing budgets, hiring contractors to take care of maintenance, operation and inspection needs and establishing regulations and bylaws for district operation.

Maintenance of improvements within the public right of way, including street lighting, storm drain pipelines, storm drain leach trenches, streets and public landscaping, will be maintained by Butte County. The fees for this maintenance will be collected by a zone of benefit within a County Permanent Road Division (PRD). The CSD must be consistent with the County's Urban Reserve Policy described in relation to the Durham Dayton Nelson Plan in Section I of the Area and Neighborhood Plans Element of the 2010 General Plan. This policy is discussed in detail in Section 4.10 of this Initial Study.

Impact Discussion:

Wastewater Treatment

(a)(b)(e) Treatment of wastewater in the Durham area and much of unincorporated Butte County is provided by septic systems. Project design includes septic tanks on individual lots with leachate collected in pipelines in the street, dosing tanks, a pump system, and a community leach field.

The proposed Community Services District will own, operate and maintain the sewerage infrastructure. Review and approval of the CSD by LAFCO, Butte County Board of Supervisors, and the Central Valley Regional Water Quality Control Board is required to ensure all applicable wastewater treatment requirements are met. Project impacts will be **Less Than Significant with the following Mitigation Incorporated.**

Mitigation Measure Util-1: Formation of a County Services Area, Community Services District and Landscape and Lighting District. Prior to recording of the Final Map, the project proponent shall ensure formation of a County Services Area, Community Services District and Landscape and Lighting District on terms and conditions acceptable to the County pursuant to the requirements of the Butte Local Agency Formation Commission and the Durham Dayton Nelson Plan Urban Reserve Policy to own, maintain, operate, and inspect the following subdivision improvements and amenities:

- Park site and improvements;
- Community Center building and site improvements;
- Wastewater collection, treatment and disposal systems excepting septic tanks on individual owner lots;
- Domestic and fire water supply systems;
- Private landscaping, and pedestrian/bike paths;

Plan Requirements: Formation of a County Services Area, Community Services District and Landscape and Lighting District

Timing: Prior to recording of Final map

Monitoring: Butte County Department of Public Works

Storm Water Drainage

(c) The project area lies outside of any existing storm drainage system service area. Adequate stormwater drainage capacity is ensured through appropriate site design as reviewed and approved by the Butte County Department of Public Works, prior to recordation of a Final Map. Site design incorporates on-site subterranean storm water collection facilities with leach trenches to be maintained by the County of Butte. The fees for this maintenance will be collected by a zone of benefit within a County Permanent Road Division (PRD).

Open space designed for flood control (designated Lot "I") is situated in the northwestern corner of the project area. A raised berm/walking path ensures that off-site storm water cannot flow into the main subdivision. The following Conditions of Approval were provided in regards to drainage by Butte County Department of Planning on January 18, 2012, after review of available project details.

1. Prior to recordation of the Final Map, a plan for a permanent solution for drainage shall be submitted to and approved by the Department of Public Works. The drainage plans shall detail existing drainage conditions and shall specify how drainage waters shall be detained or retained on site and/or conveyed to the nearest natural or publicly maintained drainage channel or facility and shall provide that there shall be no increase in the peak flow runoff to said channel or facility. If storm drainage facilities serve new public roads, the developer must complete the formation of a County Service Area (CSA), Zone of Benefit within a Permanent Road Division (PRD), or other Department of Public Works approved entity prior to recordation of the Final Map. The formation process will require the developer to fund the service until the beginning of the first fiscal year in which service charges can be collected and agree to an annual maximum service charge to ensure continued operation of the facilities.

Project Name: Durham Villas Subdivision

2. Prior to recordation of the Final Map, submit a hydraulic analysis for review and approval that demonstrates the development does not adversely affect the base flood elevation in compliance with County Code Section 26-33 (a) (3).
3. Place a note on a separate document, which is to be recorded concurrently with the map or on an additional map sheet stating: "After adoption of the Central Valley Flood Protection Plan by the Central Valley Flood Protection Board pursuant to Section 9612 of the Water Code and after the amendments of the Butte County General Plan and Zoning Ordinance required by Sections 65302.9 and 65860.1 of the Government Code have become effective, Butte County will be prohibited from approving any discretionary permit or entitlement or any ministerial permit that would result in the construction of a new residence on any lot or parcel depicted in this map unless the County makes one of the findings required by Section 65962 of the Government Code regarding flood protection. Such findings must be based on substantial evidence. It shall be the responsibility of the owner of the lot or parcel, or the agent of the owner, to provide any and all information requested by the County in order for the County to be able to make the required findings."
4. Prior to the recordation of the Final Map, establish 100-year flood plain elevations and the lowest floor elevations for any structures located in zones AE and AO on the official FIRM map in accordance with Butte County Code Section 26-25. Show on the additional map sheet the elevations (by contours) and the location of an accepted NGVD29 (National Geodetic Vertical Datum of 1929) benchmark and a temporary benchmark on-site.
5. Prior to the final improvement inspection by the Department of Public Works, all new drain inlets shall be labeled with the County-approved drain marker per County standard S-40. Improvement plans shall show and/or note the requirements for labeling inlets pursuant to County standard S-40.
6. Prior to grading, a construction storm water permit will be required by the State Water Resources Control Board if the project results in a disturbance (including clearing, excavation, filling, and grading) of one or more acres. The permit must be obtained from the State Water Resources Control Board prior to construction. If a construction storm water permit is required, place a note on an additional map sheet that states: "The development of this Final Map requires a construction storm water permit. Construction activities that result in a land disturbance of less than one acre, but which are part of a larger common plan of development, also require a permit. Development of individual lots may require an additional permit(s)."

A storm water pollution prevention plan reviewed and approved by the Central Valley Regional Water Quality Control Board (CVRWQCB) is required to demonstrate that storm water is adequately controlled by project design features to reduce or eliminate off-site impacts due to stormwater induced erosion. The acquisition of a construction storm water permit from the State Water Resources Control Board will be required. No significant impacts from stormwater drainage and detention have been identified or are anticipated after all permitting requirements, the required mitigation measure, **Mitigation Measure HYD-1: Drainage Plans**, and conditions of approval have been fulfilled. **Less Than Significant with Mitigation Incorporated.**

Water Supply

(d) The project area is not currently served by a domestic water service provider and surrounding residents are reliant upon individual wells for domestic water. The project area lies outside of the current service boundaries and Sphere of Influence of Durham Irrigation District (DID), the closest domestic water service provider. Initial analysis of the potential annexation of the project area into the DID service area revealed significant impediments to annexation, including concerns regarding adequate capacity and the need for a comprehensive sphere of influence update study. Due to these concerns, further analysis with an EIR is recommended in the area of domestic water supply. **Potentially Significant Impact**

Landfill and Solid Waste

(f) Solid waste collection services for portions the Durham area are provided by Recology of Butte Colusa Counties (formerly known as Norcal Waste Systems of Butte County, Inc.) and North Valley Waste Management (WM). Review of the current Recology service area reveals that the project is in an area not currently served. However, should new sources of waste collection revenue be developed, Recology would consider modifying their current service area to include the new customers.

Project Name: Durham Villas Subdivision

WM currently provides waste collection service to the project area. WM operates out of a facility located at 2569 Scott Avenue in Chico and utilizes waste storage facilities in Chico, as well as a number of landfills throughout the state, to ensure adequate capacity. Both service providers currently have capacity to serve the project, although service by Recology would require a modification to their current service area. Accordingly, no significant impacts to landfill and solid waste service provision are identified or anticipated. **Less Than Significant Impact**

Mitigation Measure: None Required

(g) The Solid Waste Division of Butte County Public Works is responsible for operating the Neal Road Recycling and Waste Facility, regulating the local waste collectors, providing safe disposal opportunities for household hazardous waste and universal waste, enforcement of illegal dumping, administering grant programs, coordinating solid waste and recycling education programs, and implementing programs that divert waste from landfills. Review of this project by Butte County Public Works and compliance with all conditions of approval provided by the County will ensure the project is in compliance with all federal, state, and local statutes and regulations in regards to solid waste. **Less Than Significant Impact**

Mitigation Measure: None Required

4.18MANDATORY FINDINGS OF SIGNIFICANCE (Section 15065):

Would the proposal:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Reviewed Under Previous Document
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X			
b. Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects and the effects of probable future projects)?			X		
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X		

The project will not substantially degrade the quality of the environment, 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.

The project area is located in a community that has not experienced or is anticipated to experience rapid growth in the recent past or immediate future. No other subdivision projects are currently proposed for the Durham area. Accordingly the project is not considered to contribute to cumulatively considerable impacts.

No environmental effects associated with the project have been identified as causing substantial adverse effects on human beings.

Project Name: Durham Villas Subdivision

Potentially significant impacts have been identified in the areas of Air Quality, Biology, Cultural Resources, Hydrology and Water Quality, Greenhouse Gases, Land Use, Noise, Transportation and Traffic, and Utilities and Service Systems. Many of these impacts can be reduced to Less Than Significant through application of the required mitigation measures provided in those sections and summarized in Section 5.0 *Mitigation Measures and Monitoring Requirements*. Several impacts in the categories of Agricultural Resources, Air Quality, Hydrology and Water Quality, Greenhouse Gases, Transportation and Traffic and Utilities and Service Systems were found to be potentially significant and require further analysis with an EIR.

5.0 MITIGATION MEASURES AND MONITORING REQUIREMENTS:

Mitigation Measure BIO-1: Nesting Migratory Birds and Raptors. Prior to initiation of any ground disturbing/construction activities during the nesting season (1 March and 15 September), the area within 0.5 mile of the proposed disturbed area must be surveyed by a qualified biologist for active raptor and migratory bird nests during the appropriate nesting period for the species. All raptor and migratory bird nests on the project site should be avoided until young have fledged in accordance with the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) as amended.

- If an active nest is located within 0.5 mile of the project site, a biologist will monitor the nest weekly during construction to evaluate potential disturbance to nesting from construction activities. The monitor will have the authority to stop construction if it appears to be resulting in nest abandonment or forced fledging. Following a review of the breeding pair's behavior, CDFG will determine whether project activities in the area may continue during the nesting season and, if so, the conditions under which they may continue.
- If an active nest occurs in a tree scheduled for removal, the species of bird using the nest will be determined. The nest tree will be preserved until it is outside of the breeding season for that species or until the young have fledged. If construction cannot be delayed until the end of the breeding season, guidance from CDFG shall be requested. Removal of any tree containing a Swainson's Hawk nest may only be conducted after a Management Authorization is obtained from CDFG.

Plan Requirements: No vegetation removal, grading, road construction, or other earthwork shall be permitted until the nesting bird survey has been completed and a qualified biologist is hired by the project applicant for nest monitoring, if necessary.

Timing: Prior to construction.

Monitoring: The Butte County Department of Development Services

Mitigation Measure CULT-1: Cultural Resource Protection. Place a note on a separate document, which is to be recorded concurrently with the Final Map or on an additional map sheet and on all building and site development plans, that includes the following:

- The project engineer shall create a map of based on the Jensen and Associates 1991 Cultural Resources Report that indicates the area of the prehistoric site of potential historical significance with a 100-foot buffer and labeled "Environmentally Sensitive Area." No ground-disturbing work shall be allowed within this area.
- The note shall include the following language: "A qualified archaeological monitor shall be hired and be present to inspect all ground-breaking activities including tree removal. Should grading activities reveal the presence or prehistoric or historic cultural resources (i.e. artifact concentrations, including arrowheads and other stone tools or chipping debris, cans glass, etc.; structural remains; human skeletal remains) work within 50 feet of the find shall immediately cease until a qualified professional archaeologist can be consulted to evaluate the find and implement appropriate mitigation procedures. Should human skeletal remains be encountered, State law requires immediate notification of the County Coroner. Should the County Coroner determine that the remains are in an archaeological context, the Native American Heritage Commission in Sacramento shall be notified immediately, pursuant to State law, to arrange for Native American participation in determining the disposition of such remains." The provisions of this note shall be followed during construction of all subdivision improvements, including land clearing, road construction, utility installation, and building site development.

Plan Requirements: This note shall be placed on a separate document which is to be recorded concurrently with the map or on an additional map sheet and shall be shown on all site development and building plans.

Project Name: Durham Villas Subdivision

Timing: This measure shall be implemented during all site development activities.

Monitoring: Should cultural resources be discovered, the landowner shall notify the Planning Division and a professional archaeologist. The Planning Division shall coordinate with the developer and appropriate authorities to avoid damage to cultural resources and determine appropriate action. State law requires the reporting of any human remains.

Mitigation Measure HYD-1: Drainage Plans. Prior to recordation of the Final Map, a plan for a permanent solution for drainage shall be submitted to and approved by the Department of Public Works. The drainage plans shall detail existing drainage conditions and shall specify how drainage waters shall be detained or retained onsite and/ or conveyed to the nearest natural or publicly maintained drainage channel or facility and shall provide that there shall be no increase in the peak flow runoff to said channel or facility. If storm drainage facilities serve new public roads, the developer must complete the formation of a County Service Area (CSA), Zone of Benefit within a Permanent Road Division (PRD), or other Department of Public Works approved entity prior to recordation of the Final Map. The formation process will require the developer to fund the service until the beginning of the first fiscal year in which service charges can be collected and agree to an annual maximum service charge to ensure continued operation of the facilities.

Plan Requirements: Submit drainage plans and calculations to the Department of Public Works for review and approval.

Timing: The drainage plan shall be submitted and approved prior to approval of the improvement plans, and the required drainage improvements constructed or bonded for construction prior to recordation of the Final Map.

Monitoring: The Department of Public Works shall ensure that the required plan is submitted and ensure that the drainage improvements are constructed or bonded for construction prior to recordation of the Final Map.

Monitoring: Department of Public Works shall ensure that the drainage plan has been submitted and approved prior to recordation of the Final Map.

Mitigation Measure NOI-1: Construction timing and limitations. Construction activities shall be limited to between the hours of 7AM and 7PM with no construction activity on Sundays or holidays. The primary contractor shall be responsible for ensuring that all construction equipment is properly tuned and maintained. When feasible, existing power sources, such as power poles, or clean fuel generators should be used, rather than temporary power generators. Minimize idling time to 10 minutes.

Plan Requirements: This note shall be placed on a separate document which is to be recorded concurrently with the map or on an additional map sheet and shall be shown on all site development and building plans.

Timing: The mitigation shall be applicable during all construction activities.

Monitoring: The developer and the construction foreman shall be responsible for ensuring compliance with this mitigation and shall respond to all complaints of noise. The Department of Development Services shall investigate all complaints of excess construction-related noise.

Mitigation Measure Util-1: Formation of a County Services Area, Community Services District and Landscape and Lighting District. Prior to recording of the Final Map, the project proponent shall ensure formation of a County Services Area, Community Services District and Landscape and Lighting District on terms and conditions acceptable to Butte County pursuant to the requirements of Butte Local Agency Formation Commission and the Durham Dayton Nelson Plan Urban Reserve Policy to own, maintain, operate, and inspect the following subdivision improvements and amenities:

- Park site and improvements;
- Community Center building and site improvements;
- Wastewater collection, treatment and disposal systems excepting septic tanks on individual owner lots;
- Domestic and fire water supply systems;
- Private landscaping, and pedestrian/bike paths;

Project Name: Durham Villas Subdivision

Plan Requirements: Formation of a County Services Area, Community Services District and Landscape and Lighting District

Timing: Prior to recording of Final Map

Monitoring: Butte County Department of Public Works

6.0 ENVIRONMENTAL REFERENCE MATERIAL:

1. American Valley Environmental. Biological Resources Survey. Rancho Sol Tierra Subdivision. Butte County, California. December 11, 2009.
2. Babcock K.W. Home range and habitat analysis of Swainson's hawks in West Sacramento. Michael Brandman Associates report prepared for the Southport Property Owner's Group, City of West Sacramento, CA. 21 p. 1993.
3. Butte Association of Governments. Butte Regional Conservation Plan. Administrative Draft. Accessed March 2012.
4. Butte County 2030 General Plan. Draft Environmental Impact Report. Oroville, CA. April 8, 2010.
5. Butte County 2030 General Plan. Public Draft. Oroville, CA. April 8, 2010.
6. Butte County 2030 General Plan. Settings and Trends Report. Public Draft. Oroville, CA. 2007.
7. Butte County. Housing Element of the Butte County General Plan (2010-2030). 2010.
8. Butte County. Resolution 10-150. Resolution of the board of supervisors of the County of Butte, state of California, making findings of fact in support of Butte County General Plan 2030 and its associated environmental impact report, rejecting alternatives, adopting a mitigation monitoring and reporting plan, and adopting a statement of overriding considerations. Adopted October 26, 2010.
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10. Butte Local Agency Formation Commission. Municipal Service Review Update and Sphere of Influence Plan for Durham Recreation and Park District. Adopted by Resolution No. 10 2008/09 on March 5, 2009. April 2009.
11. California Air Resources Board (CARB). Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October 2000.
12. California Air Resources Board. "ARB approves tripling of early action measures required under AB 32". News Release 07-46. <http://www.arb.ca.gov/newsrel/nr102507.htm> . October 25, 2007.
13. California Air Resources Board. Climate Change Scoping Plan: a framework for change. December 2008.
14. California Air Resources Board. Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration. October 2007..
15. California Building Standards Commission. 2010 California Green Building Standards Code. California Code of Regulations Title 24, Part 11. Effective Date January 1, 2011.
16. California Department of Conservation. Fault-Rupture Hazard Zones in California. Altquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. Special Publication 42. Interim Revision. 2007.
17. California Department of Transportation. (Caltrans) Highway Design Manual, 6th Edition. 2006.
18. CDFG. Staff Report regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California. 13 p. 1994.

19. California Native Plant Society. Inventory of Rare and Endangered Plants. Northern California Black Walnut. 2010. Accessed April 17, 2012. <http://www.rareplants.cnps.org/detail/938.html>.
20. Citygate Associates, LLC. Standards of Response Cover Study for the Butte County Fire Department. Vols 1-3. November 30, 2007.
21. Department of Toxic Substance Control. 2009. Envirostor Database. Accessed March 5, 2012. <http://www.envirostor.dtsc.ca.gov/public/>
22. England, A. S., M. J. Bechard, and C. S. Houston.. Swainson's Hawk (*Buteo swainsoni*). In The Birds of North America, No. 265 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA. 1997.
23. Estep, J.A. Biology, movements, and habitat relationships of the Swainson's Hawk in the Central Valley of California, 1986-1987. California Department of Fish and Game, Nongame Bird and Mammal Section Report. 53 p. 1989.
24. Intergovernmental Panel on Climate Change (IPCC). Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC. 2007.
25. Jensen and Associates. Archaeological Inventory Survey, Keeney Ranch Proposed Subdivision Project Area, c. 180 acres on Durham-Dayton, Highway, Durham, Butte County, California. November 30, 1991.
26. LSA Associates, Inc. Rancho Sol Tierra Subdivision Air Quality and Greenhouse Gas Emissions. April 2012.
27. Lumos and Associates, Inc. Geotechnical Report for Rancho Sol Tierra Subdivision, Durham, California. December 2009.
28. Lumos and Associates. Hydraulic Analysis Supporting a CLOMR for a Portion of the Butte Creek Floodplain. Prepared January 6, 2012.
29. Moonlight Arborist. Arborist Report prepared for Lumos and Associates. 2009.
30. Regional Housing Needs Plan (2007-2014) for Butte County. BCAG 2007 (Adopted April 24, 2008).
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32. Swolgaard C.A., K.A. Reeves, and D.A. Bell. Foraging by Swainson's Hawks in a Vineyard-Dominated Landscape. Journal of Raptor Research 42(3):188-196. 2008. doi: <http://dx.doi.org/10.3356/JRR-07-15.1>
33. W-Trans. Rancho Sol Tierra Traffic Impact Study. August 2011.

7.0 CONSULTED AGENCIES:

<input checked="" type="checkbox"/> Environmental Health	<input checked="" type="checkbox"/> Public Works	<input checked="" type="checkbox"/> Building Manager
<input checked="" type="checkbox"/> BCAG	<input checked="" type="checkbox"/> Butte County Ag Commissioner	<input type="checkbox"/> ALUC
<input checked="" type="checkbox"/> LAFCo	<input checked="" type="checkbox"/> Air Quality Management	<input type="checkbox"/> City of Chico
<input type="checkbox"/> City of Biggs	<input type="checkbox"/> City of Gridley	<input type="checkbox"/> City of Oroville
<input type="checkbox"/> Town of Paradise	<input checked="" type="checkbox"/> County Fire/CalFIRE	<input type="checkbox"/> CalTrans (District 3)
<input checked="" type="checkbox"/> CVRWQCB	<input type="checkbox"/> Department of Conservation	<input checked="" type="checkbox"/> Dept. of Fish and Game
<input checked="" type="checkbox"/> Durham Irrigation District	<input checked="" type="checkbox"/> Durham Parks & Recreation District	<input type="checkbox"/> Highway Patrol
<input type="checkbox"/> Army Corps of Engineers	<input checked="" type="checkbox"/> National Marine Fisheries Service	<input checked="" type="checkbox"/> US Fish & Wildlife Service

Project Name: Durham Villas Subdivision

8.0 PROJECT SPONSOR(S) INCORPORATION OF MITIGATION INTO PROPOSED PROJECT:

I/We have reviewed the Initial Study for the Durham Villas Subdivision APN #040-200-083 application and particularly the mitigation measures identified herein. I/We hereby modify the application on file with the Butte County Planning Department to include and incorporate all mitigations set forth in this Initial Study.



Project Sponsor/Project Agent



Date

Project Sponsor/Project Agent

Date



How to Manage Pests

UC Pest Management Guidelines

[More pests](#) | [More crops](#) | [About guidelines](#) |

Almond Armillaria Root Rot (Oak Root Fungus)

Pathogen: *Armillaria mellea*

(Reviewed 3/09, updated 3/09)

In this Guideline:

- [Symptoms](#)
- [Publication](#)
- [Comments on the disease](#)
- [Glossary](#)
- [Management](#)



SYMPTOMS AND SIGNS


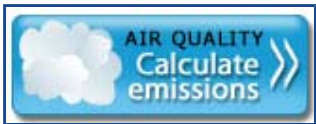
Roots infected with *Armillaria mellea* have white to yellowish fan-shaped mycelial mats between the bark and the wood. Dark brown to black [rhizomorphs](#) sometimes can be seen on the root surface. Infected trees develop pale foliage with small leaves, a lack of new growth, and a thin canopy, usually followed by sudden death when the first hot weather of early summer arrives.

COMMENTS ON THE DISEASE

The fungus survives on dead roots. It spreads from one tree to another through close contact of diseased roots with healthy roots. All stone fruit rootstocks are susceptible to Armillaria root rot. The plum rootstock Marianna 2624 is the most resistant to the fungus, but it is not immune. Use of this rootstock is the only practical alternative if almonds are to be grown in soils where *Armillaria* has infected roots and killed trees on other rootstocks. Wet soil conditions resulting from heavy rainfall or excessive irrigations can exacerbate the disease.

MANAGEMENT

The only treatment is fumigation. Before chemical treatment, remove all infected trees, stumps, and as many roots greater than 1 inch in diameter as possible. Healthy-appearing trees adjacent to those showing symptoms are often infected also. Removal of these adjacent trees and inclusion of that ground in the soil fumigation may be advisable. Infected trees, stumps, and roots should be burned at the site or disposed of in areas where flood waters cannot wash them to agricultural lands. Complete eradication is rarely achieved, and retreatment may be necessary in localized areas. If the soil is wet or if it has extensive clay layers to the depths reached by the roots, fumigant treatment may not be successful. The greatest opportunity for eradication occurs on shallow soils less than 5 feet in depth. Treat *Armillaria* from late summer to early fall.

Common name (trade name)	Amount/Acre	R.E.I. + (hours)	P.H.I. + (days)
<div style="display: flex; justify-content: space-around; align-items: center;">   </div>			

When choosing a pesticide, consider information relating to environmental impact. Not all registered pesticides are listed. Always read label of product being used.

PREPLANT

A. METHYL BROMIDE*	Label rates	see label	see label
--------------------	-------------	-----------	-----------

COMMENTS: Any use of methyl bromide must be allowed under a current Critical Use Exemption. Dry soil by withholding water during summer and using cover crops such as sudangrass or safflower. The drier the soil the better for deep penetration. After drying, deep-till just the area that will be fumigated. If the soil is dusty, wait for an early rain before ripping and fumigation. Ripping a dry soil that is silty can result in large clods on the surface. Inject methyl bromide 18 to 30 inches deep with chisels and cover with gas-proof cover. Increasing the dose tends to increase the depth of penetration, but it cannot be relied upon to penetrate wet soils, especially if soils are high in clay. Do not remove the cover for at least 2 weeks and aerate 1 month before planting. Fumigants such as methyl bromide are a source of volatile organic compounds (VOCs) but are not reactive with other air contaminants that form ozone: methyl bromide depletes ozone. Fumigate only as a last resort when other management strategies have not been successful or are not available.

B. SODIUM TETRATHIOCARBONATE
(Enzone)

Label rates

4 days

0

MODE OF ACTION GROUP NAME (NUMBER¹): Unknown. A thiocarbonate fungicide.

COMMENTS: Make two applications to moist soil. Be sure to remove large roots as well as smaller roots (pencil size) from soil planting site (10 x 10 ft area) before treatment.

- + Restricted entry interval (R.E.I.) is the number of hours (unless otherwise noted) from treatment until the treated area can be safely entered without protective clothing. Preharvest interval (P.H.I.) is the number of days from treatment to harvest. In some cases the REI exceeds the PHI. The longer of two intervals is the minimum time that must elapse before harvest.
- * Permit required from county agricultural commissioner for purchase or use.
- ¹ Group numbers are assigned by the Fungicide Resistance Action Committee (FRAC) according to different modes of actions (for more information, see <http://www.frac.info/>). Fungicides with a different group number are suitable to alternate in a resistance management program. In California, make no more than one application of fungicides with mode of action Group numbers 1, 4, 9, 11, or 17 before rotating to a fungicide with a different mode of action Group number; for fungicides with other Group numbers, make no more than two consecutive applications before rotating to fungicide with a different mode of action Group number.

PRECAUTIONS

PUBLICATION



UC IPM Pest Management Guidelines: Almond

UC ANR Publication 3431

Diseases

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J. E. Adaskaveg, Plant Pathology, UC Riverside

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PUTTE
COUNTY
JAN 07 2010
DEVELOPMENT
SERVICES

Arborist Report



December 8, 2009

Prepared for:
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Chico, California 95973

Surveyed Parcel
APN: 040-200-083
2243 Durham-Dayton Highway
Durham, California 95938

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1.0 Summary of Findings and Conclusions

The total of trees tagged is 39. The qualifying minimum Diameter at Breast Height (DBH) was 6 inches. Orchard trees were not counted.

All inventoried trees were numbered in the field with an aluminum tag which corresponds to the attached site plan. The numbering for this survey begins with number 525 and ends at number 563.

Notable Findings:

Trees are located into three distinguishing locations, 1) along Durham-Dayton Highway, 2) around the existing single family residence, and 3) two trees along the eastern property line.

The tag numbers 528, 533 and 535 are large Valley Oaks located along Durham-Dayton Highway. These oaks received the highest rating of all trees located along the highway.

Tree 533 is near the center entrance to the subdivision, and is at the time of this report it is proposed to be removed. Because of its location along the highway, its size and potential age it may have served as place to summer travelers to seek relief.

Tree number 552 is a large Valley Oak in decline and should be removed from the project site. It is currently braced and poses a high risk when targets are near (homes, vehicles and people). I recommend that this tree be removed as part of the approval process.

Trees numbers 540 through 545 are Privets that will be located along a new street frontage. Because of the quick reproductive nature, and invasive qualities of the trees, preservation measures are not of high concern and should be left for the owner's discretion.

2.0 Introduction

This report presents the results of a tree survey conducted for Lumos and Associates on APN 040-200-083 in the Durham, Butte County, California. The 118 acre site is accessible at 2243 Durham-Dayton Highway. The purpose of this report is to present information on the species, size, condition and location.

3.0 Survey Methods

The project site was surveyed by Jacob Morley, an International Society of Arboriculture Certified Arborist (WE-7673A) on December 6, 2009. All existing trees were examined to determine their species type and diameter at breast height (DBH). A diameter tape was used to verify each trunk. All inventoried trees were numbered in the field with an aluminum tag which corresponds to the numbering in Appendix A. Tree numbers were noted onto a site plan (dated October 14, 2009) and given to Lumos Engineering.

Several trees were not tagged due to the close proximity to the existing single family home. These trees were installed as part of a private landscape area which will not be impacted due to proposed lot layout, and their location. Retention of the trees should be left to the discretion of the property owner. These trees are noted in table with an asterisk (*).

The health and structure of each tree was rated based on a numerical rating system of 1-5, with 1 being poor, 3 being fair and 5 being good. The health and structure rating factors that were taken into consideration are:

- Size, color, and density of the foliage; the amount of deadwood contained in the trees structure.
- Presence of wound closures, stress, disease, nutrient deficiency, and insect infestation.
- Configuration of the trunk and branches; canopy balance and the potential for structural failure.

Rating numbers were given based on what is to be expected for that specific tree species. For example, many of the Privets received high ratings but may not be a desirable tree to retain.

HEALTH

Good, 5	The amount of dead limbs and twigs present are normal for the size and age of the species. The growth rate is and has been average or above; limb weight is not excessive, buds are normal sized, viable and abundant. Leaf size, color and density is normal or better, and barring any unforeseen negative effects the life expectancy should be expected for that particular species
Fair, 3	Some small to medium limbs maybe dead or decaying. Excessive limb weight may exist. Buds, leaf size, color and density is average but may vary, or sparse in the canopy. Tree maybe also be slow to callus around old wounds. These factors could indicate stress,

disease, nutrient deficiency, and/or the present of insects, fungus or both.

Poor, 1 Buds are small and not viable. Leaves are below average in size, and are abnormal in color. There is a large amount of die back and limb decay. Significant pest damage, fungus and insects maybe present, along with stress and nutrient deficiency.

STRUCTURE

Good, 5 The tree contains no trunk, root crown or canopy injuries, cavities or decay. There is no indication of hollowness, no foreign objects embattled or grown into the structure. No co-dominant branching, trunk or limbs and the bark color and size is normal. Any decay is limited to small dead stubs/branches and is otherwise typical for the species and estimated age. The species has a low rating for failure and if retained to standards can integrate into development, site plans and landscaped areas. Minor pruning may be in required on a case by case basis.

Fair, 3 Small to moderate wounds, decay or the indication of hollowness. Few callused over injuries or foreign objects. Co-dominate branching or multiple trunks are present. Bark may not exist or is sparse in areas. Canopy structure may have some dead limbs or is unbalanced, over burned. The species has a moderate rating for failure and could be worth incorporating into project site. Structural pruning to remove dead branches, reduce canopy weight, redirection of branches, and encourage growth may be recommended.

Poor, 1 Significant amount of cavities, wounds, dead areas. Decay and fungus maybe be present. There is indication of large trunk and limb failure; embedded bark is present and the canopy is drastically over burned or unbalanced. The species has a high failer or is otherwise dead. Unless located in an unpopulated area, with limited "targets" tree should be removed from project site.

The ratings of 4 and 2 are used to describe trees that fall between the described categories and may have elements of both.

4.0 Biological Resources

Canyon Oak (*Quercus chrysolepis*)

Also referred to as: "Canyon Live Oak", "Goldcup Oak", "Maul Oak"

This Oak can reach an impressive 100 feet tall but typically is found in the 20 to 50 foot range. The leaves of this oak can be toothed or smooth, (sometimes on the same tree). They are dark green on top and fuzzy gold-white underneath. It is native to canyons, sandy, gravelly, and rocky slopes. The tree can be found in pure oak stands and in mixed forests and is widely distributed throughout California. The tree likes being in the sun and moderate water. This tree grows well in most of California. Historically the hard, heavy wood was used for farm implements and wagon axles and wheels. Another name, "Maul Oak" refers to the early use for heads of mauls or wedges for splitting Redwood ties.

Valley Oak (*Quercus lobata*)

This is the largest of the California Oaks, easily reaching 100 feet tall in height with stems of 4 feet in diameter. Specimens up to 600 years old are on record. Such ancient trees are able to resist wind, drought and even fire because of the thick rugged heat resistant bark. The deciduous leaves are deep green with paler felted undersides. The acorns are slender and pointed. They are edible and said to be sweet. Local wildlife and domestic animals relish them. California Indians also ground a kind of flour from them

Incense Cedar (*Calocedrus decurrens*)

From western Oregon south to Baja California this big, 46m tall, tree usually grows on cool mountain sides, often in a mixed coniferous forest habitat. In the south of its range it extends to over 2000m. Traditionally its aromatic wood was used to manufacture pencils. It is soft, straight and does not splinter. The foliage is dense, resinous and deep glossy green. In cultivation, particularly when it is grown on dry sites, the outline of the tree remains very narrow.

Black Walnut (*Juglans nigra*)

Has a range from eastern to central North American. Trees produce deep chocolate-brown wood of very high quality. The long, evenly spaced-out pinnate leaves tend to be inclined downwards. The strongly aromatic fruits are encased in 3cm green husk.

Privet (*Ligustrum lucidum*)

This tree thrives in urban conditions and seems to survive on compacted dry and even eroded soils. It will withstand damage and abuse by people, dogs and grass cutting machines. It also tolerates high level of air pollution and even proximity to the sea. It has deep very glossy pointed evergreen leaves and contains tiny creamy-white flowers

which occur from mid-summer until autumn. A mature adult can produced mutable thousands of seeds. The species is easily populated by birds and typically found along fence lines. It is an invasive species in many municipalities.

Redwood (*Sequoia sempervirens*)

The native range is mostly from costal Oregon to central California. The pinkish-brown wood is of high quality. The reddish-brown bark is fibrous and spongy, divided up into soft vertical ridges and furrows. It is thick and heat resistant; although not entirely fire-proof it does resist forest ground fires sufficiently. This is a fire climax species, which requires the heat of fire to initiate cone opening and seed dispersal. Foliage is dark green above and greenish-white on the undersides.

Tag #	Species	# of Trunks	DBH	Health	Structure
525	Black Walnut	1	32	2	2
526	Black Walnut	1	44	2	2
527	Black Walnut	2	39	3	2
528	Valley Oak	1	60	5	5
529	Black Walnut	1	37	1	1
530	Black Walnut	1	40	2	2
531	Black Walnut	1	42	2	1
532	Black Walnut	1	54	3	3
533	Valley Oak	1	47	5	5
534	Black Walnut	1	49	2	3
535	Valley Oak	2	59	2	4
536	Black Walnut	1	42	4	2
537	Black Walnut	1	46	5	3
538	Privet	2	19	4	4
539	Redwood	1	24	4	5
540	Privet	1	13	4	4
541	Privet	1	9	4	4
542	Privet	4	19	5	2
543	Privet	2	12	5	3
544	Privet	2	14	5	2
545	Privet	3	26	5	2
546	Redwood	1	23	5	4
547	Cedar	1	24	5	3
548	Cedar	1	13	5	4
549	Cedar	1	26	1	3
550	Privet	4	30	5	3
551	Privet	2	24	5	3
552	Valley Oak	1	51	5	1
553	Privet	4	36	4	2
554	Privet	1	8	5	4
555*	Birch	1	9	5	5
556*	Redwood	1	20	4	4
557*	Redwood	1	25	5	3
558*	Redwood	1	25	5	3
559*	Chestnut	1	13	4	1
560	Canyon Oak	1	34	4	3
561*	Birch	1	13	5	5
562	Valley Oak	1	58	2	2
563	Valley Oak	1	33	4	2

* not tagged, indicates a tree within private landscaped area

Geotechnical Report

for

Rancho Sol Tierra Subdivision
Durham, California



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GEOTECHNICAL REPORT

Rancho Sol Tierra

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GEOTECHNICAL REPORT
For
RANCHO SOL TIERRA SUBDIVISION
DURHAM, CALIFORNIA

INTRODUCTION

Submitted here within are the results of Lumos and Associates, Inc. (Lumos) geotechnical investigation for the proposed Rancho Sol Tierra Subdivision (previously Keeney Ranch Subdivision) to be located in Durham, California (Plate 1). Specifically it is located at 2243 Durham-Dayton Highway, on APN: 040-200-083 (Plate 2).

It is our understanding the project will consist 118 of single family lots with associated paving and utilities. The residences will consist one or two story wood framed structures supported on perimeter and isolated footings with a slab on grade floors. Structural loads for the buildings are assumed to be relatively light. It is our understanding, that to maintain building grades above flood elevations, building pads will be constructed above existing elevations. Therefore, cut and fill depths are assumed to be on the order of 2-3 feet.

The purpose of our investigation was to characterize the site geology, soil conditions, describe onsite soils, determine their engineering properties as they relate to the proposed construction, and to identify any adverse geologic, soil or groundwater conditions. The current scope of geotechnical work did not include any soil and/or groundwater contamination analysis.

This report concludes with recommendations for site grading, foundation recommendations, footing area preparation, concrete slab placement, exterior flatwork, pavement design, and drainage recommendations.

In addition, information such as logs of all exploratory excavations, laboratory test data, allowable soil bearing capacities, estimated total and differential settlements and lateral earth pressures.

The recommendations contained herein have been prepared based on our understanding of the proposed construction, as outlined above. Re-evaluation of the recommendations presented in this report should be conducted after the final site grading and construction plans are completed, if there are any variations from the assumptions described herein.

It is possible that subsurface discontinuities are concealed between and beyond exploration points. Such discontinuities are beyond the evaluation of the Engineer at this time. No guarantee of the consistency of site geology and subsurface soil conditions is implied or intended.

GEOLOGIC SETTING

Durham is located in the northeastern portion of the Great Valley Geomorphic Province. The Great Valley is characterized by a thick sequence of marine sediments unconformably overlain by volcanic, alluvium and fluvial deposits. The Great Valley is bound to the east and west by the Sierra Nevada and Coast Range geomorphic provinces respectively.

The formation of the Great Valley began in the late Mesozoic Era (144 to 85 million years ago) with the subduction of the Farallon plate beneath the North American plate. The Great Valley was formed as a part of a subduction complex and is considered the fore arc basin, with the Sierra Nevada as the volcanic arc and the Coast Ranges formed as the accretionary wedge. Subduction of the Farallon plate was replaced by right lateral transform motion along the San Andreas Fault during the Miocene (23 million years ago).

During subduction large volumes of sediment filled the Great Valley. The Great Valley Sequence of marine sediments ranges in age from late Jurassic to early Miocene (159 to 17 million years) and consists of alternating layers of marine shale, sandstone and conglomerate. The sequence is capped by volcanic, alluvial and fluvial formations.

Specifically, the site is located in the Sacramento Valley, to the west of the Chico Monocline. Volcanic, alluvial and fluvial deposits ranging Miocene to Holocene age underlie the surficial geology. These formations are the Lovejoy Basalt, Tuscan Formation, Riverbank Formation and Modesto Formation.

Erupted in the Miocene the Lovejoy Basalt caps the Great Valley Sequence, individual flows are approximately 10 to 30 feet thick. Unconformably overlying the Lovejoy Basalt is the Tuscan Formation, the Tuscan Formation was deposited

by lahars (volcanic mudflows) during the Pliocene (3.3 to 2.8 million years ago). The Tuscan Formation is a water bearing unit and the source of Chico's municipal water supply. The Pleistocene age Red Bluff Formation is an alluvial formation, derived primarily from the Tuscan Formation and was deposited as alluvial fans. This conglomerate is composed of volcanic and metamorphic clasts within a sandy matrix. The Modesto Formation, which was deposited by fluvial processes between 25,000 and 10,000 years ago, derived from the Red Bluff Formation, and is composed mainly of clays, silts and sands with common gravel lenses (Plate 3).

SEISMIC CONSIDERATIONS

Durham, similar to many areas of California is located near active faults, which are capable of producing significant earthquakes. Butte County is an area that may experience moderate damage due to earthquakes having intensities of VII or more when evaluated using the Modified Mercalli Intensity Scale of 1931 (Plate 4).

Durham is located within the Great Valley and historically one major earthquake with a magnitude greater than 5.7 (Plate 5) has occurred within 30 miles of the site. Fault mapping by Jennings (1994) shows Early Quaternary faulting within 8 miles and Pre-Quaternary faults within 10 miles of the site. No active Holocene faulting is known to cross the project site.

Seismic concerns for this site are not unlike other sites in the Durham area. No evidence of active Holocene (<11,000 years) age faulting was found on or within the site, nor has any evidence of on-site faulting been observed. However, due to the proximity of the site to a number of known faults, one of which is considered active, strong seismic shaking should be anticipated during the life of the proposed development. For design purposes ground shaking intensities should be based on a repeatable ground acceleration of 0.12g, which corresponds to a ten percent (10%) probability of exceedance in fifty (50) years (USGS, 2002).

Liquefaction is the phenomena where loose sands lose their shear strength when subjected to cyclic loading and become unstable. Ground shaking events may provide that type of cyclic loading. Liquefaction potential for this site is considered very low and therefore a liquefaction evaluation was not included in the scope of work.

Ground lurching is the horizontal movement of soil, sediments, or fill located on relatively steep embankments as a result of seismic activity, forming irregular ground surface cracks. Do to the lack of relief across the site and the relatively low shaking intensities, ground lurching is not considered to be possible at the site.

2007 CBC Design: The mapped maximum considered earthquake spectral response acceleration at short periods (S_s) is 0.58g corresponding to a 0.2 second spectral response acceleration at 5 percent of critical damping and for a Site Class B (IBC Figure 1615(3)). The mapped maximum considered earthquake spectral response acceleration at a 1-second period (S_1) is 0.23g corresponding to 1.0 second spectral response acceleration at 5 percent of critical damping and for a Site Class B (IBC Figure 1615(4)). The site is considered to be a stiff soil profile, corresponding to a Site Class D (IBC Table 1615.1.1). Therefore, the spectral response accelerations must be adjusted for site class effects. The site coefficient for spectral response accelerations adjustment at short periods (F_a) is 1.33 (IBC Table 1615.1.2(1)). The site class effect for spectral response accelerations adjustment at 1-second periods (F_v) is 1.95 (IBC Table 1615.1.2(1)). The maximum considered earthquake spectral response acceleration parameter for short period (S_{MS}) is 0.78g and for 1-second period (S_{M1}) is 0.44g. This corresponds to design spectral response acceleration parameters of 0.52g for short period (S_{DS}) and of 0.29g for 1-second period (S_{D1}).

It is emphasized that the above values are the minimum requirements intended to maintain public safety during strong ground shaking. These minimum requirements are meant to safeguard against loss of life and major structural failures, but are not intended to prevent damage or insure the functionality of the structure during and/or after a large seismic event. Additionally, they do not

protect against damage to non-structural components or the contents of the building.

Note: The California Building Code may be updated during the life of this project; this report should be updated to reflect any changes relating to its contents, if necessary.

SITE CONDITIONS AND FIELD EXPLORATION

At the time of our investigation the property was generally flat agricultural land which currently produces almonds. The central northern area of the site is occupied by a single family residence, shop and out buildings. Irrigation wells and associated irrigation plumbing are located on site, irrigation plumbing is common throughout the site.

The field investigation included a site reconnaissance and subsurface exploration. During the site reconnaissance, surface conditions were noted and the locations of exploratory excavations were determined. Excavation locations were established using field survey techniques.

Utilizing a rubber-tired backhoe, nine (9) test pits were excavated to depths ranging from 7 to 10 feet below existing ground surface. Excavation locations are shown on Plate 2. The subsurface soils were continuously logged and visually classified in the field by our Field Technician in accordance with the Unified Soil Classification System (USCS). Representative soil samples were collected at various intervals within the exploratory excavations and transported to our Chico materials testing laboratory for testing and additional analysis. The test pits were backfilled without compaction certification

Onsite subsurface soils generally consisted of native layers of sandy clay and sandy silts and sandy lean clays. Groundwater was not encountered at the time of our investigation. Note that these soils are derived from historic Hydraulic Mining and dredging in the Sierra Foothills.

FIELD AND LABORATORY TEST DATA

Field data was developed from samples taken and tests conducted during the field exploration and laboratory testing phases of this project. Representative soil samples were collected at each different stratum change and are noted on the logs.

Field tests included percolation testing (under separate cover) and relative compaction tests. Relative compaction tests were conducted on native soils adjacent to TP-5 at the surface. Relative compaction values ranged from 81% to 87% of the ASTM D-1557 standard.

Laboratory tests performed on representative samples included Atterberg Limits, sieve analyses (including fines), moisture density curve, resistance values, pH, soluble sulfates and resistivity. Much of this data is displayed on the "logs" of the exploratory borings to facilitate correlation. Field descriptions presented on the logs have been modified, where appropriate, to reflect laboratory test results. The logs of the exploratory borings and test pits are included in Appendix A of this report as Plates A-1 through A-9. A legend of the logs is presented as Plate A-10.

Individual laboratory test results are presented in Appendix B as Plates B-1 through B-4. Laboratory testing was performed per ASTM Standards, except when test procedures are briefly described and no ASTM standard is specifically referenced in the report. Atterberg limits were determined using the dry method of preparation. Analytical testing was conducted by Basic Laboratory.

DISCUSSION AND RECOMMENDATIONS

General

From a geotechnical viewpoint, the site is considered suitable for the proposed improvements when prepared as recommended herein.

During earthwork, any existing improvements within the proposed development should be demolished and removed off site or salvaged, if to remain. All unsuitable material and any soil with organics should be excavated and removed off site or set aside. Any loose, undocumented fill, or otherwise disturbed soils in the proposed building footprints and associated structures should be over excavated and re-compacted prior to receiving any properly compacted fill.

General Site Grading

All existing improvements except those to be salvaged should be demolished and removed off-site. Demolition/salvage activities, where applicable, should be conducted in general accordance with the specifications presented in Appendix C of this report. All other improvements to remain should be properly designated and protected during construction of the proposed new improvements.

All unsuitable materials such as asphalt concrete, old concrete foundations, utilities, underground irrigation systems, root-laden soils and other vegetation currently onsite should be removed before grading begins. Cross ripping the soils may be a suitable method of removing some of the existing improvements. After all removals of appropriate existing improvements have been completed, clearing and grubbing is anticipated to be as much as six (6) inches, or more where root balls of orchard trees are present.

Removals should be such that all building foundations are supported on a minimum of 1 foot of properly moisture conditioned and properly compacted fill soil placed on properly moisture conditioned and properly compacted subgrade documented by Lumos. Additionally, removals should be such that all building slabs are supported on a minimum of 1 foot of properly moisture conditioned and properly compacted fill soil placed on properly moisture conditioned and properly compacted subgrade documented by Lumos. Unless required otherwise, removals should extend horizontally beyond the perimeter of the proposed building footprint a distance of at least five (5) feet or as required by the design, whichever is greater. Pavement covered areas should be supported on at least 1 foot of scarified, in place, properly moisture conditioned and properly compacted subgrade. Removals and scarification shall extend horizontally beyond the edge of the pavement section a minimum of 18 inches.

Excavated soils free from organics, debris or otherwise suitable material and with particles no larger than 3 inches in maximum dimension may be stockpiled and moisture conditioned for later use as compacted fill provided it meets the criteria for fill soils.

Exposed soils to receive fill should be scarified to a minimum of 1 foot, moisture conditioned to within 2 percent of optimum and re-compacted to 95% of the ASTM D1557 standard.

Pumping or yielding conditions may be encountered in the deeper excavations, particularly during construction activities or after wet periods. If yielding or pumping conditions are encountered, the soils should be stabilized by one of the following options. These options are: (1) Scarify the soils in place, allow them to dry, and re-compact; (2) Stabilizing with a geotextile fabric, angular rock, and filter fabric combination; and (3) stabilizing with a geogrid and a specified fill. Brief descriptions of these stabilizing options are presented below:

1. This option requires that the soils be scarified in place and allowed to dry. Re-compaction of these soils should be conducted as stated in this report. Note that this option is typically only useful for relative minor shallow stabilization, only when there is a surface stabilization issue.
2. This option involves grading the site to a relatively smooth surface condition and compacting the surface as much as practical without causing further pumping. A geotextile non-woven fabric (Mirafi 180N or equivalent) should be placed as specified by the manufacturer. No traffic or other action should be allowed directly on the fabric, which may cause it to deflect/deform. The fabric should be covered, as specified by the manufacture, with at least 12 inches of class 2 aggregate base. Test sections should be conducted to determine the minimum thickness and/or layers required for stabilization. Stabilization should be evaluated by proof-rolling commensurate with the equipment used, and under the supervision and approval by a Lumos representative. **NOTE:** This option may require over-excavation to maintain appropriate grading elevations.
3. This option involves grading the site to a relatively smooth surface condition and compacting the surface as much as practical without causing further pumping. For fine-grained soils, a separation may be required to prevent migration of fines into the stabilization section. If required, it should consist of a filter fabric (Mirafi 140N or equivalent). In addition, approximately 2 to 3 inches of preferred specified fill (See Table 2) may be required, if practical, on the existing surface or filter fabric across the entire area to be stabilized prior to placing the geogrid.

Table 1: **PREFERRED SPECIFIED FILL GRADATION**

Sieve Size	% Passing
1- 1/2"	100
3/4"	50-100
#4	25-50
#40	10-20
#100	5-15
#200	Less than 10

A geogrid (Tensar BX1200 or equivalent) should be placed and as recommended by the manufacturer. No traffic or other action should be allowed directly on the grid, which may cause it to deflect/deform. The grid should be covered as recommended by the manufacture with at least 8 to 12 inches of preferred specified fill (See Table 2). Test sections should be used to determine the minimum thickness and/or layers required for stabilization. Static rather than vibratory equipment should be used. Stabilization should be evaluated by proof-rolling commensurate with the equipment used, and under the supervision and approval by a Lumos representative. If the fill thickness required for stabilization is greater than 12 inches, then a filter fabric (Mirafi 140N or equivalent) should be placed at the top of the preferred fill to prevent piping of fines from the covering soils into the preferred fill matrix. **NOTE:** This option may also require over excavation to maintain appropriate grading elevations and may not be as effective as option 2 under shallow groundwater conditions.

Properly compacted fill soils to be used on the site should consist of non-expansive materials similar to the onsite soils (LL less than 40 and a PI less than

18 or Expansion Index less than 20), should be free of contaminants, organics (less than 2 percent), rubble, or natural rock larger than 3 inches in the largest dimension. Import fill soils should be tested and approved prior to being placed or delivered on-site.

Compacted fill should be placed only on properly moisture conditioned and properly compacted sub-grade or on compacted fill in loose lifts not exceeding eight (8) inches, the fill should be moisture conditioned to within 2% of optimum moisture content and compacted to 95% relative compaction (as determined by the ASTM D1557 standard). Note: verification of moisture and relative compaction is required prior to pouring footings.

Fill material should not be placed, spread or compacted during unfavorable weather conditions. When site grading is interrupted by rain, grading or filling operations should not resume until a Lumos representative approves the moisture content and density conditions of the subgrade or previously placed fill.

Water should not be allowed to pond on pavements or adjacent to structures, and measures should be taken to reduce surface water infiltration into the foundations soils.

Landscape areas should be cleared of all objectionable material. In cut areas, no other work is necessary except grading to proper elevation. In fill areas, fill should be placed in loose lifts not exceeding eight (8) inches and compacted to at least eighty-five percent (85%) relative compaction to prevent erosion.

A Lumos representative should be present during site clearing, excavation, and grading operations to ensure that any unforeseen or concealed site conditions are identified and properly mitigated, and to test and observe earthwork construction. This testing and observation is an integral part of our services as

acceptance of earthwork construction and it is dependent upon compaction and stability of the subgrade soils. The soils engineer may reject any material that does not meet compaction and stability requirements. Further, recommendations in this report are provided upon the assumption that earthwork construction will conform to recommendations set forth in this section of the report.

FOUNDATION DESIGN CRITERIA

Conventional spread footings with slab-on-grade founded on properly moisture conditioned and properly compacted fill, as recommended above, may be used to support the proposed structures.

Spread footings: Footings founded on at least 12 inches of properly moisture conditioned and properly compacted fill material may be designed for a net allowable bearing pressure of 1500 pounds per square foot (psf), assuming 12 inches of all around minimum confinement is provided. Note: verification of moisture and relative compaction is required prior to pouring footings.

If fill is placed to bring building pads to design grade, no footings should be founded within a distance of at least one third of the total height of fill ($H/3$) placed from the face of the slope or equal to the depth of compacted fill below the bottom of footing, whichever is greater. In drainage areas, no footings should be located or founded above a 1:1 (horizontal:vertical) plane drawn up from the toe of slopes, outside edge of drainage conduits or drainage ditches, to avoid loss of bearing strength of supporting soils. No drainage or water diverting conduits other than associated utilities should be allowed underneath building footprints.

Footing Settlements: The maximum anticipate settlements under static conditions for continuous or isolated footings bearing on no more than 3 feet of properly compacted fill and designed for a 1500 psf bearing pressure is estimated to be less than 1 inch. Differential settlements are generally expected to be half of the total settlements. Settlements in granular soils are primarily expected to occur shortly after dead and sustained live loads are applied.

Lateral Loading: Resistance to lateral loads can be provided by friction acting at the base of foundations and by passive earth resistance. A coefficient of friction of 0.45 may be assumed at the base of footings. An allowable passive earth resistance of 200 psf per foot of depth may be used for the sides of footings poured against properly compacted fill. Passive resistance should not exceed 1500 psf. The at-rest lateral earth pressure can be calculated utilizing an equivalent fluid pressure of 60 psf.

Dynamic Factors: Vertical and lateral bearing values indicated above are for total dead load and frequently applied live loads. If normal code requirements are applied for design, the above vertical bearing and passive resistance values may be increased by 33 percent for short duration loading due to wind or seismic forces. The Dynamic Lateral earth force shall be calculated utilizing the following equation:

$$\text{Dynamic Lateral Force} = P_E = 10 H^2$$

This force acts at .6H above the wall base. This force is in addition to the static forces discussed in other sections of this report.

Drainage: Backfill adjacent to the proposed building perimeter should be properly compacted to minimize any water infiltration toward the foundation souls and under the concrete slab-on-grade or raised floor (if any).

Moist conditions should be anticipated over time under the building footprint due to landscape irrigation and rainfall. It is recommended that the exterior of the building be graded in such a way as to provide positive drainage away from foundations.

RETAINING WALLS

Retaining structures should be designed to resist the appropriate lateral earth pressures. Cantilevered walls, which are able to deflect at least 0.01 radians, can be designed using an equivalent fluid (backfill) unit weight of 40 pounds-per-cubic-foot (pcf). However, if the wall is fixed against rotation, the wall should be designed using an equivalent fluid (backfill) unit weight of 60 pcf. These design parameters are based upon the assumption that walls retain only level backfill and no hydrostatic pressures will be present. Any other surcharge pressures should be added to the above recommended lateral earth pressures.

Retaining walls should be backfilled with free draining granular material that extends vertically to the bottom of the stem and laterally at least 6 inches beyond the face of the stem (wall) wrapped with a Mirafi 140N or equivalent non-woven filter fabric. Weep holes should be provided on the walls at regular intervals, or a slotted drain pipe placed at the bottom of the wall (bottom of granular material) to relieve any possible buildup of hydrostatic pressure. Backfill material within two (2) feet of the wall should be compacted with hand-held equipment to at least 95% to the maximum ASTM D1557 standard.

CONCRETE SLAB DESIGN

Interior Concrete Slab-On-Grade: Interior concrete slabs should be underlain with at least six (6) inches of Type 2 Aggregate Base, compacted to a minimum of ninety-five percent (95%) and supported on at least 12 inches of properly compacted fill. A Vapor Barrier (VB) is to be used if the project has a vapor sensitive covering or a humidity controlled area. The VB should be placed directly under the slab, above the dry granular material if the slab has a vapor sensitive covering. The vapor barrier should be a synthetic plastic sheeting at least ten (10) mils thick conforming to ATSM E 1745. Such products include: Moistop, Vapor Block, Perminator and Vapor Flex. The VB needs to be overlapped per ACI or manufactures recommendation when one sheet's width will not cover the area.

Slab thickness design should be based on a Modulus of Subgrade Reaction equal to two hundred (200) pounds-per-cubic-inch (pci) for construction on 24 inches of properly compacted fill. Reinforcement of concrete slabs should be as specified by the Project Structural Engineer.

Exterior Concrete Slab-On-Grade: Concrete slabs on grade for vehicular traffic, driveways and sidewalks should be underlain with at least four (4) inches of Class 2 aggregate base. Concrete slabs on grade for non-vehicular traffic may be underlain with two (2) inches of Class 2 aggregate base. All subgrade and fill material should be placed and prepared as described in the "General Site Grading" section of this report, while the aggregate base material should be compacted to at least 95% of the ASTM D1557 standard.

PAVEMENT DESIGN

Design Method

Traffic analysis followed the Asphalt Institute and AASHTO methodology. The ITE Trip Generation Manual was used as a guide to determine the ADT, with each single-family detached housing dwelling unit having an average trip generation of 9.57 trips.

Lumos assigned traffic growth rates and a 2 percent growth was used.

Truck factors were assigned based on national averages (Asphalt Institute), while the truck distributions were adjusted based on Lumos traffic count data of past similar projects. In this manner, the axle distribution of the trucks could be used for design.

Table 2 presents some of the data used in our design.

Table 2: **Street Design Values**

Pavement Area	Average Daily Traffic (ADT)	Percent Trucks	Equivalent Single Axle Load (ESAL)	Traffic Index (TI)
Subdivision Streets	1000	1.0	14,868	5.5
Durham Dayton Hwy.	3000	5.0	246,387	7.5

The design of asphalt concrete structural sections for the subdivision was carried out for a twenty-year design life based on the TI calculated above. All structural sections are based on the existing subsurface conditions. The structural section designs presented are selected based on engineering judgment following Caltrans, Asphalt Institute and AASHTO Design analysis.

Table 3: Soil Properties Used In Design

Plasticity Index	% Passing #200 Sieve	R-Value
13	38	37

Areas to be paved should be excavated and/or scarified in place to a depth of at least 12 inches, moisture conditioned to within 2% of optimum, and compacted to 95% of the ASTM D1557 standard. The minimum pavement structural sections are provided in Table 4. Aggregate base should consist of Class 2 material and meet the requirements of the latest edition of the Standard Specifications. Aggregate base material should be compacted to at least 95% of the laboratory maximum density, as determined by the ASTM D1557 standard.

Table 4: Recommended Asphalt Pavement Sections

Street	HMA/AB (Inches)
Subdivision Streets	4/6
Durham Dayton Hwy.	5/9

Hot mix Asphalt (HMA) should consist of ½ inch HMA Type A utilizing a PG 64-10 asphalt binder, have a minimum stabilometer value of 37 and meet the requirements of the Caltrans and/or Butte County Standard Specifications.

CORROSION AND CHEMICAL ATTACK

On-site soils have a negligible soluble sulfate content of 202 mg/Kg. According to ACI 318, no specific type of cement is required for concrete in direct contact with on-site soils. However, as a minimum, Type II or IP cement should be used. The onsite soils have a pH value of 7.55 and a resistivity of 9500 to 13000 ohm-cm which indicates the soils are mildly corrosive.

All exterior concrete should have a maximum water-cement ratio of 0.55, and comply with all other ACI recommendations for concrete placed in areas subject to freezing. A minimum compressive strength of 3,000 psf is recommended for exterior concrete.

SLOPE STABILITY AND EROSION CONTROL

The results of our exploration and testing confirm that 2:1 (H:V) maximum slopes will be stable for onsite materials both in cut and fill.

The potential for dust generation is high for this project. Dust control will be mandatory in order to comply with air quality standards. The contractor shall be responsible for dust control and securing any required permits.

Stabilization of areas disturbed by construction will be required to prevent erosion. All SWPPP procedures must be followed.

EXCAVATION

On site soils are anticipated to be excavatable with conventional construction equipment. Wet conditions may be encountered in low areas, along drainage ditches and/or after periods of heavy precipitation. Compliance with applicable

Cal/OSHA regulations for excavation trenching should be enforced for Type C soils. Some soils may be suitable for backfill or capping of utility trenches. However, native soils may not meet the minimum Butte County requirements for bedding, backfill and aggregate base and should be imported, where required.

MOISTURE PROTECTION, EROSION AND DRAINAGE

The finish surface around all structures should slope away from the building and toward appropriate drop inlets or other surface drainage devices. It is recommended that within ten (10) feet of the buildings a minimum slope of two percent (2%) be used for soil subgrades and one percent (1%) be used for pavements. These grades should be maintained for the life of the structures.

Landscaping and downspouts should be planned to prevent excessive watering or runoff adjacent to building foundations. Backfill adjacent to the proposed building perimeter should be properly compacted to minimize any water infiltration toward the foundation soils and under the concrete slab-on-grade.

CONSTRUCTION SPECIFICATIONS

All work on site shall be governed by the latest edition of the CBC, UBC and the Standard Specifications as excepted by Butte County, except where modified herein.

LIMITATIONS

This report has been prepared in accordance with the currently accepted engineering practices in California. The analysis and recommendations in this report are based upon exploration performed at the locations shown on the site plan, the proposed improvements as described in the Introduction section of this report and upon the property in its condition as of the date of this report. Lumos makes no guarantee as to the continuity of conditions as subsurface variations may occur between or beyond exploration points and over time. Any subsurface variations encountered during construction should be immediately reported to Lumos so that, if necessary, Lumos' recommendations may be modified.

This report has been prepared for and provided directly to Morris Keeney, and any and all use of this report is expressly limited to the exclusive use of the Client. The client is responsible for determining who, if anyone, shall be provided this report, including any designers and subcontractors whose work is related to this project. Should the Client decide to provide this report to any other individual or entity, Lumos shall not be held liable for any use by those individuals or entities to whom this report is provided. The Client agrees to indemnify, defend and hold harmless Lumos, its agents and employees from any claims resulting from unauthorized users.

This report shall not be utilized to create a maximum cost estimate for the costs associated with construction as costs may vary depending upon any subsurface variations encountered. Further, this report is not intended for, nor should it be utilized for, bidding purposes. All additional plans and specifications should be submitted to Lumos for review, comment and approval, prior to submission of such plans or specifications to the building department or commencement of construction pursuant to such plans or specifications. A failure to submit to Lumos additional plans and specifications related to this report, thereafter relied

upon by any person, shall be deemed an unauthorized use of this report. Any unauthorized use of this report, including bidding, releases Lumos from any and all liability related to the unauthorized use. The Client agrees to indemnify, defend and hold harmless Lumos, its agents and employees from any and all claims, causes of action or liability arising from any claims resulting from an unauthorized use of this report.

As explained above, subsurface variations may exist and as such, beyond the express findings located in this report, no warranties express, or implied, are made by this report. No affirmation of fact, including but not limited to statements regarding suitability for use or performance shall be deemed to be a warranty or guaranty for any purpose.



David A. Sullivan, MBA, PE
Location Principal
Lumos and Associates, Inc.


Chad Borean, GIT
Engineering Technician
Lumos and Associates, Inc.



From: Google Maps.

Not to Scale



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Rancho Sol Tierra
SITE LOCATION

Job Number: 7568.000

Date: December 17, 2009

PLATE

1

MODIFIED MERCALLI INTENSITY SCALE

INTENSITY

EFFECTS

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

From Wood and Newman, 1931, by U.S. Geological Survey, 1974, Earthquake Information Bulletin, v. 6, no. 5, p. 28

Richter Magnitude	Intensity (maximum expected Modified Mercalli)
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - VIII
7.0 - 7.9	IX - X
8.0 - 8.9	XI - XII



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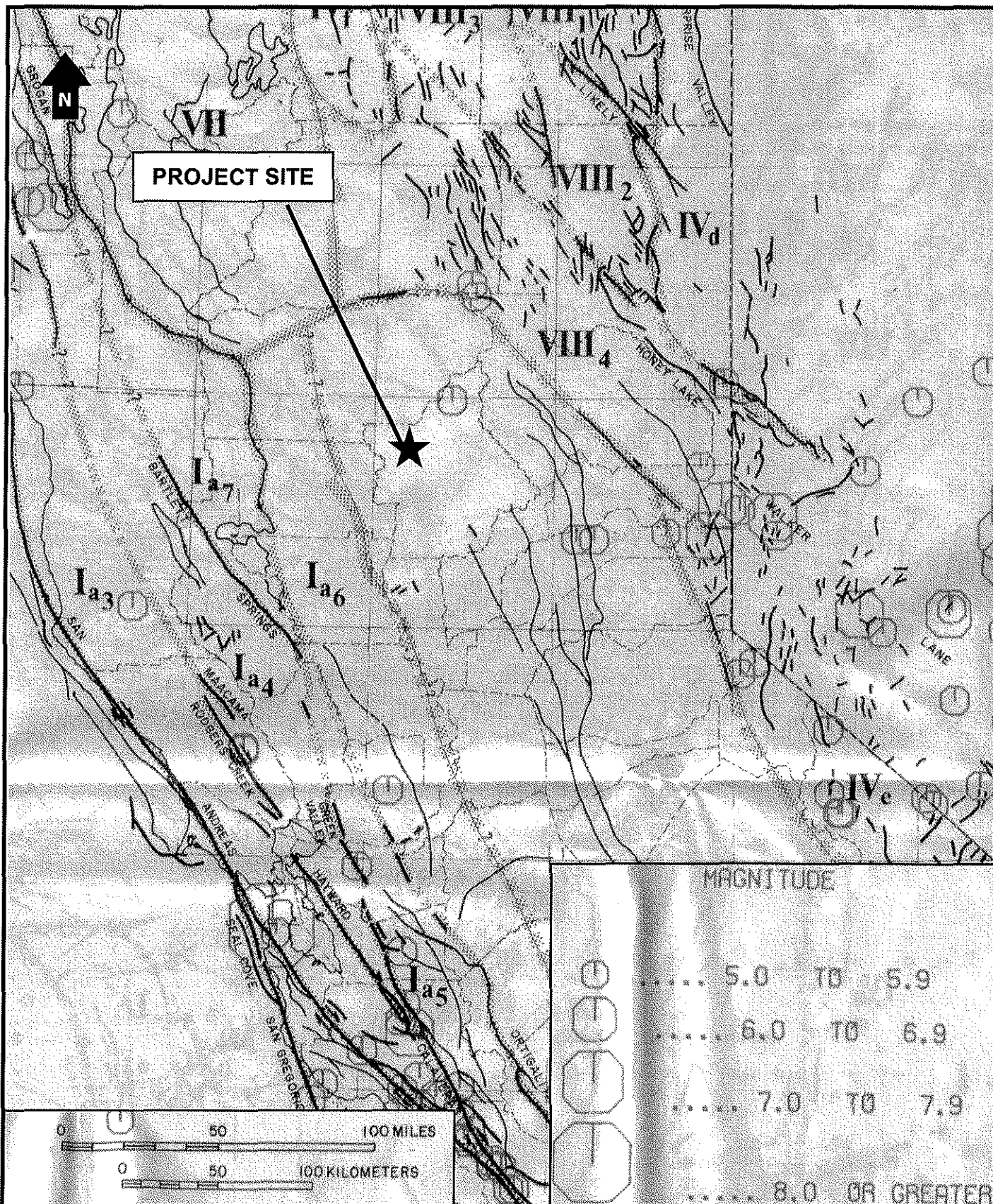
MODIFIED MERCALLI SCALE

Job Number: 7568.000

Date: December 17, 2009

PLATE

4



From California Division of Mines and Geology, Relationship of Earthquake



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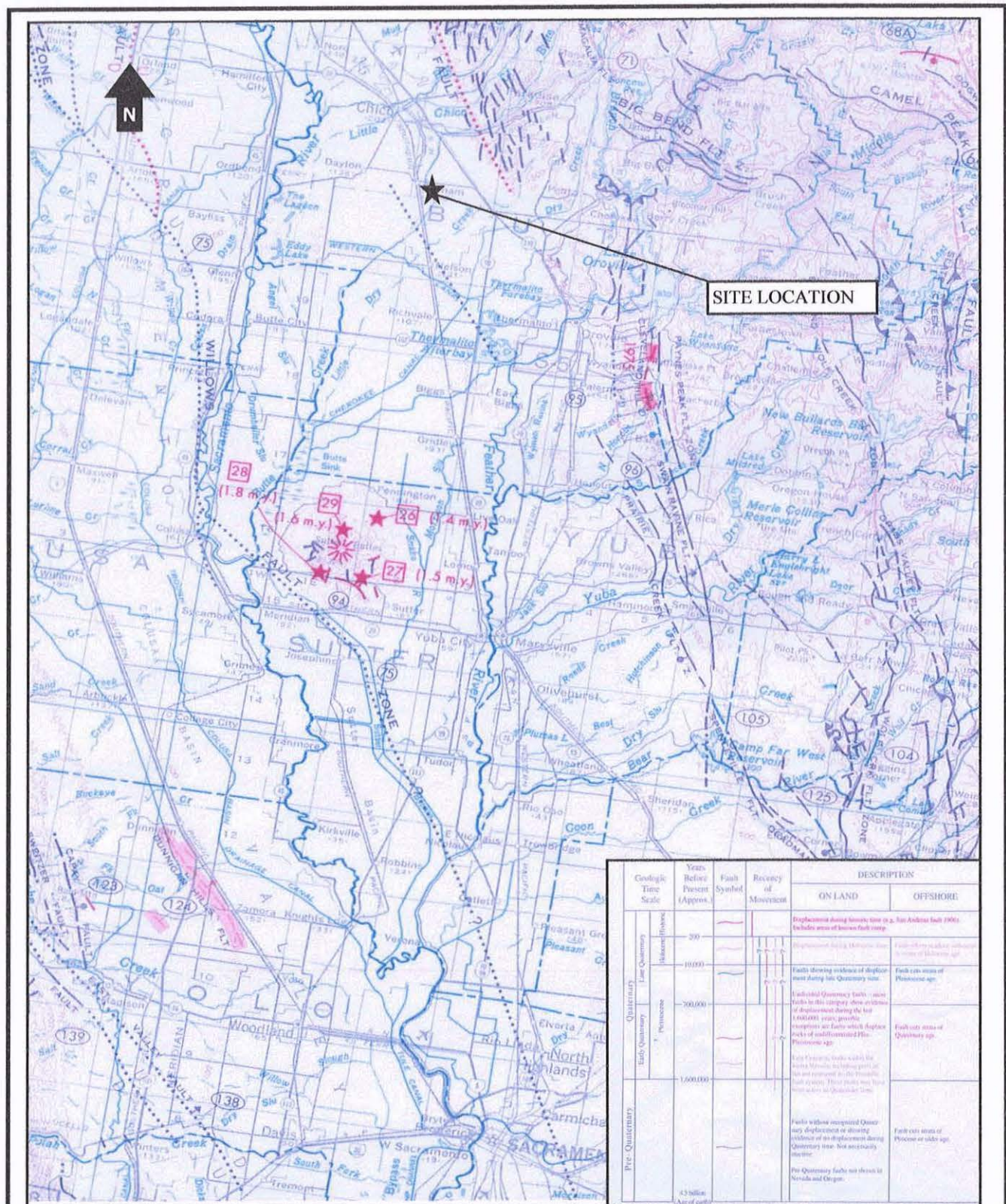
EARTHQUAKE EPICENTERS

Job Number: 7568.000

Date: December 17, 2009

PLATE

5



From California Division of Mines and Geology, Fault Activity Map of California and Adjacent Areas, by Charles W. Jennings 1994.



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FAULT MAP

Job Number: 7568.000

Date: December 17, 2009

PLATE

6

Appendix A

C:

TEST PIT No. TP-1

Logged By: **C. Borean**

Total Depth: **8 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
1		B	Clayey Silt (CL-ML), dark yellowish brown, moist, firm.										
2													
3													
4		B	Gravely Sand (SP), brown, moist, loose.										
5													
6													
7													
8		B	Sandy Lean Clay (CL), dark brown, moist, firm.										
<p>Test pit terminated at 8 feet. Test pit backfilled with excavated soils without compaction certification.</p>													

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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-1

TEST PIT No. TP-2

Logged By: **C. Borean**

Total Depth: **9 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	<input type="checkbox"/> Percolation Test <input checked="" type="checkbox"/> California Sampler	<input checked="" type="checkbox"/> Split Spoon <input type="checkbox"/> Bulk Sample	<input checked="" type="checkbox"/> Ziplock Sample <input checked="" type="checkbox"/> Static Water Table	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
1		B	Lean Clay with Sand (CL), dark brown, moist, firm.												
2															
3		Z	Sandy Lean Clay (CL), very dark brown, moist, firm.												
4															
5			Becoming grayish brown.												
6		Z													
7			Becoming strong brown.												
8															
9															
Test pit terminated at 9 feet. Test pit backfilled with excavated soils without compaction certification.															

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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-2

TEST PIT No. TP-3															
Logged By: C. Borean			Total Depth: 8.3 feet												
Date Logged: 7-5-09			Water Depth: No groundwater encountered												
Drill Type: Backhoe			Ground Elev.: Not Surveyed												
Depth in Feet	Graphic Log	Sample Type	SOIL DESCRIPTION			SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (#4 - #20 Sieve)	Sand, % (#20 - #60 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			Silty Clayey Sand (SC-SM), very dark grayish brown, slightly moist, firm, with some Gravel.												
1		Z	Silty Clayey Sand (SC-SM), very dark brown, moist, firm.						24	5	1	72	28		
2															
3			Sandy Lean Clay (CL), dark yellowish brown, moist, firm.												
4															
5															
6															
7			Sandy Silt (ML), dark grayish brown, moist, firm.												
8															

Test pit terminated at 8.3 feet.
 Test pit backfilled with excavated soils without compaction certification.

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A-3

TEST PIT No. TP-4

Logged By: **C. Borean**












Total Depth: **9.2 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	 Percolation Test	 Split Spoon	 Ziplock Sample	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			 California Sampler	 Bulk Sample	 Static Water Table										
SOIL DESCRIPTION															
1		Z	Sandy Silt (ML), brown, slightly moist, firm.												
2			Lean Clay with Sand (CL), very dark grayish brown, moist, firm.												
3		Z							40	18		23	77		
4															
5		Z	Lean Clay (CL), yellowish red, moist, firm.												
6															
7															
8															
9															
Test pit terminated at 9.2 feet. Test pit backfilled with excavated soils without compaction certification.															

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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-4

TEST PIT No. TP-5

Logged By: **C. Borean**

Total Depth: **9.8 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	<div><div><div></div><div></div><div></div></div> Percolation Test</div> <div><div><div></div><div></div><div></div></div> California Sampler</div> <div><div><div></div><div></div><div></div></div> Split Spoon</div> <div><div><div></div><div></div><div></div></div> Bulk Sample</div> <div><div><div></div><div></div><div></div></div> Ziplock Sample</div> <div><div><div></div><div></div><div></div></div> Static Water Table</div>	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			SOIL DESCRIPTION										
1		B	Sandy Silt (ML), brown, slightly moist, firm.				29	4		38	62		
2													
3			Lean Clay with Sand (CL), brown, moist, firm.										
4			Becoming very dark grayish brown.										
5													
6													
7													
8													
9			Becoming dark brown.										
Test pit terminated at 9.8 feet. Test pit backfilled with excavated soils without compaction certification.													

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Date: December 2009

PLATE

A-5

TEST PIT No. TP-6

Logged By: **C. Borean**










Total Depth: **8.8 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	 Percolation Test	 Split Spoon	 Ziplock Sample	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			 California Sampler	 Bulk Sample	 Static Water Table										
SOIL DESCRIPTION															
1		Z	Sandy lean Clay (CL), dark brown, slightly moist, firm.												
2			Becoming dark yellowish brown, moist.												
3		Z													
4															
5		Z	Sandy Silt with Gravel (ML), brown, moist, soft.												
6			Lean Clay with Sand (CL), reddish brown, moist, firm.												
7		Z													
8															
Test pit terminated at 8.8 feet. Test pit backfilled with excavated soils without compaction certification.															



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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-6

TEST PIT No. TP-7

Logged By: **C. Borean**








Total Depth: **8.9 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	 Percolation Test	 Split Spoon	 Ziplock Sample	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			 California Sampler	 Bulk Sample	 Static Water Table										
1		B	Clayey Sand (SC), dark brown, slightly moist, firm.												
2			SE=15						32	13		62	38	37	
3															
4		Z	Sandy Lean Clay (CL), dark yellowish brown, moist, firm.												
5									36	16		38	62		
6			Becoming brown.												
7															
8															
Test pit terminated at 8.9 feet. Test pit backfilled with excavated soils without compaction certification.															

Test pit terminated at 8.9 feet.
Test pit backfilled with excavated soils without compaction certification.



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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-7

TEST PIT No. TP-8

Logged By: **C. Borean**









Total Depth: **8.4 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	 Percolation Test	 Split Spoon	 Ziplock Sample	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			 California Sampler	 Bulk Sample	 Static Water Table										
SOIL DESCRIPTION															
1		B	Sandy Silt (ML), vey dark brown, moist, firm.												
2			Sandy Silt (ML), dark yellowish brown, moist, firm, some gravel.												
3		Z	SE=56												
4															
5			Lean Clay with Sand (CL), brown, moist, firm.												
6															
7		Z							34	11		24	76		
8															
Test pit terminated at 8.4 feet. Test pit backfilled with excavated soils without compaction certification.															

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LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-8

TEST PIT No. TP-9

Logged By: **C. Borean**










Total Depth: **7.2 feet**

Date Logged: **7-5-09**

Water Depth: **No groundwater encountered**

Drill Type: **Backhoe**

Ground Elev.: **Not Surveyed**

Depth in Feet	Graphic Log	Sample Type	 Percolation Test	 Split Spoon	 Ziplock Sample	SPT (N) Blows/Foot	Moisture Content, %	Dry Unit Weight, pcf	Liquid Limit, %	Plasticity Index, %	Gravel, % (3" - #4 Sieve)	Sand, % (#4 - #200 Sieve)	Fines, % (< #200 Sieve)	R-Value	Other Tests (See Legend)
			 California Sampler	 Bulk Sample	 Static Water Table										
SOIL DESCRIPTION															
1		B	Clayey Sand (SC-CL), dark yellowish brown, moist, firm.						32	21	6	56	38	37	
2															
3															
4		Z	Silty Clayey Sand with Gravel (SC-SM), brown, moist, medium dense.												
5															
6															
7			Clayey Sand (SC), dark brown, moist, firm.												
Test pit terminated at 7.2 feet. Test pit backfilled with excavated soils without compaction certification.															

Test pit terminated at 7.2 feet.
Test pit backfilled with excavated soils without compaction certification.



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Rancho Sol Tierra

LOG OF EXPLORATORY TEST PIT

Job Number: 7568.000

Date: December 2009

PLATE

A-9

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 60% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINE
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINE)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINE)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Other Tests

AN	ANALYTICAL TEST (pH, Soluble Sulfate, and Resistivity)
C	CONSOLIDATION TEST
DS	DIRECT SHEAR TEST
MD	MOISTURE DENSITY CURVE



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Rancho Sol Tierra

LEGEND

Job Number: 7568.000

Date: December 2009

PLATE

A-10

Appendix B

[illegible]

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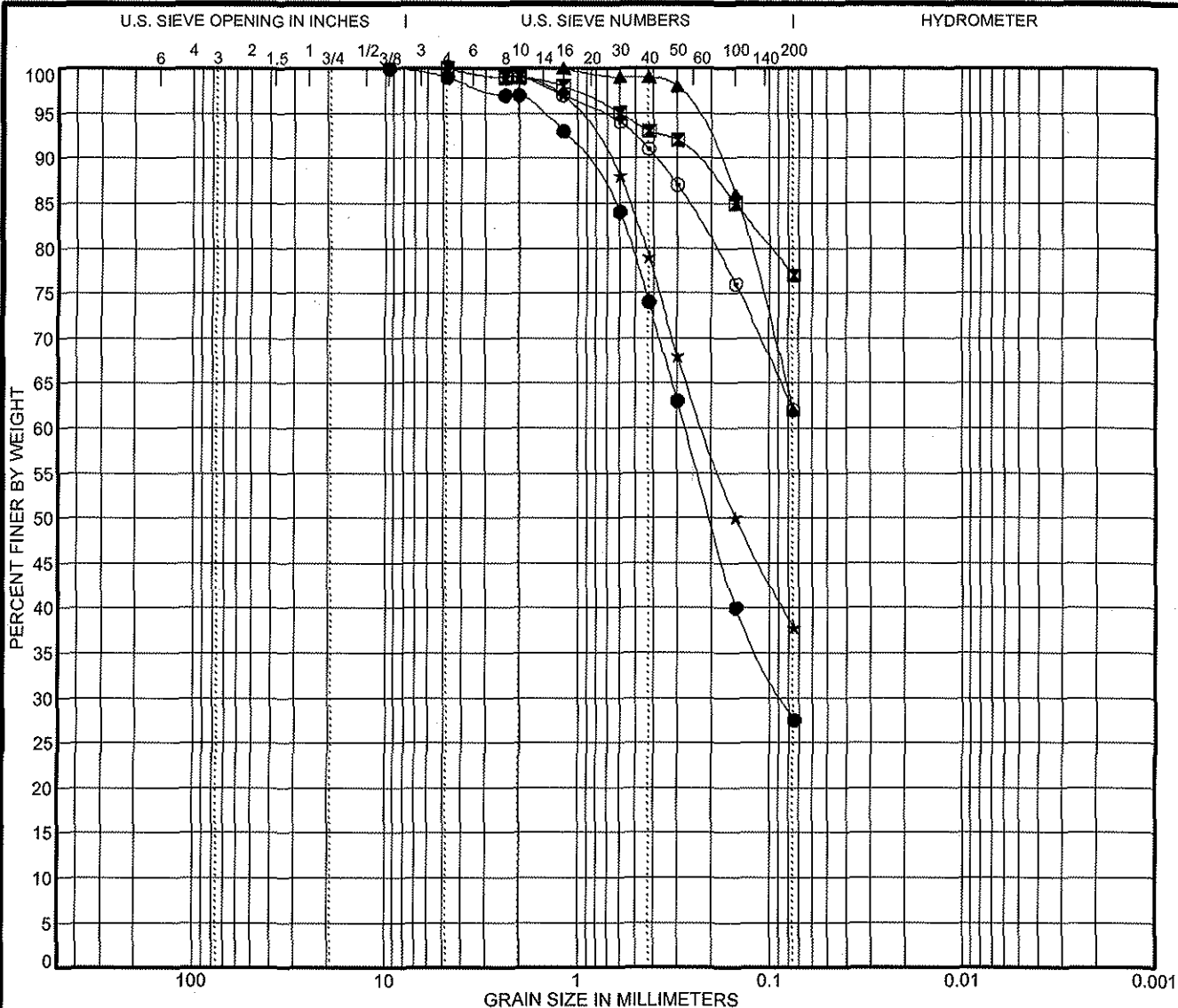
Rancho Sol Tierra

ATTERBERG LIMITS' RESULTS

Job Number: 7568.000

Date: December 2009

PLATE
B-1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification			LL	PL	PI	Cc	Cu
●	TP-3	0.7	SILTY, CLAYEY SAND(SC-SM)			24	19	5	
✕	TP-4	1.6	LEAN CLAY with SAND(CL)			40	22	18	
▲	TP-5	0.0	SANDY SILT(ML)			29	25	4	
★	TP-7	0.0	CLAYEY SAND(SC)			32	19	13	
◎	TP-7	3.8	SANDY LEAN CLAY(CL)			36	20	16	
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	TP-3	0.7	9.5	0.274	0.086	1	72	28	
✕	TP-4	1.6	4.75				23	77	
▲	TP-5	0.0	1.18				38	62	
★	TP-7	0.0	4.75	0.22			62	38	
◎	TP-7	3.8	4.75				38	62	



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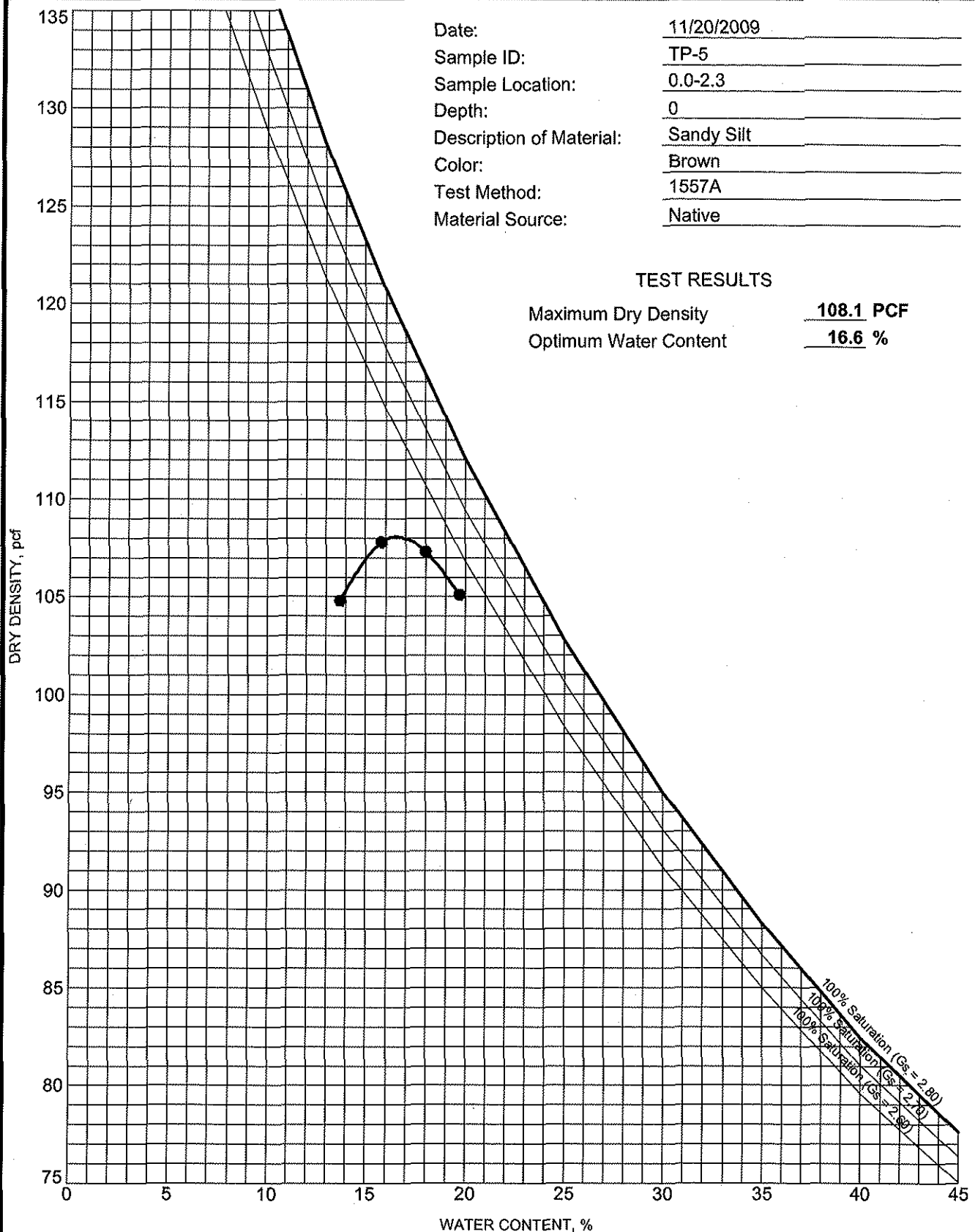
Rancho Sol Tierra

GRAIN SIZE DISTRIBUTION

Job Number: 7568.000

Date: December 2009

PLATE
B-2.1



CHICO, COMPACTOR 7568000.GPJ US LAB.GDT 12/15/09



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Rancho Sol Tierra

MOISTURE-DENSITY CURVE

Job Number: 7568.000

Date: December 2009

PLATE

B-3



basic
laboratory

www.basiclab.com

2218 Railroad Avenue
Redding, California 96001

voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928

voice 530.894.8966
fax 530.894.5143

Report To: LUMOS & ASSOCIATES
3259 ESPLANADE SUITE #102
CHICO, CA 95973

Attention: CHAD BOREAN
Project: KEENEY RANCH 7568.000

Description: TP-9, 0.0' - 1.9'

Matrix: Soil

Lab ID: 9110223-01

Lab No: 9110223
Reported: 11/25/09
Phone: (530) 899-9503
P.O. #

Sampled: 08/15/09 12:00

Received: 11/04/09 12:27

General Chemistry - Solid

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
pH	pH Units	7.55		0.01	0.01	EPA 9045	11/09/09	11/09/09	B9K0251
Sulfate as SO4	mg/kg	202		0.80	10.0	EPA 300.0	11/20/09	11/20/09	B9K0575
Specific Conductance	umhos/cm	47		2	10	SM 2510B	11/23/09	11/23/09	B9K0639

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
RL/ML	Minimum Level of Quantitation
MCL/AL	Maximum Contaminant Level/Action Level
mg/kg	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

Timothy Jones

Approved By

Basic Laboratory, Inc.

California ELAP Cert #1677 and #2718

Page 2 of 2



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Rancho Sol Tierra

Analytical Results

Job Number: 7568.000

Date: December 17, 2009

PLATE

B-4

Appendix C

SPECIFICATIONS FOR DEMOLITION

Demolition shall include the removal of all designated structures/improvements to be removed, i.e. existing structures, asphalt pavements, utilities, pipes and unsuitable material within the project area. Excavations caused by removal of existing structure/improvements and utilities shall be cleared of all waste, debris and loose/unstable soils and refilled with properly compacted fill, as specified under the "General Site Grading" section of this report. All fill compaction should be performed under observation and testing by the Geotechnical Engineer.

Broken concrete, asphalt and other materials shall be considered waste and shall be removed from the improvement area of the site.

Any existing drain lines, wires, utilities, etc., which are to remain on the site shall be protected from damage. Buried drain lines, pipe conduits, utilities, etc. which are necessarily cut shall be either carefully and permanently capped at the property line as specified by the agency or re-routed as necessary. Utility lines not specifically noted for disposition, but which are encountered in the work shall be capped, extended, protected or re-routed as necessary for completion of the work, as directed.

All work shall be performed in accordance with the Federal Occupational Safety and Health Administration, the local Division of Occupational Safety and Health requirements, and applicable ordinances of the governing municipality.

Care shall be taken not to damage adjoining utilities or structures to remain after completion of the work. Finished work damaged by operations during demolition and site preparation shall be repaired or replaced to the satisfaction of the Owner at no cost to the Owner.

All materials resulting from demolition and site preparation not designated by the Owner to be recovered or to be relocated by the Contractor shall be removed promptly and disposed of off the site.

Upon completion of demolition and site preparation, the site shall be "raked clean", if applicable, and all waste, rubble, debris, etc. shall be removed and disposed of off the site.

Greenhouse Gas Emissions Reductions from Energy Efficiency Measures and Solar PV Systems in the Proposed Durham Villas Housing Project

Dr. David Gallo
Professor Emeritus
Department of Economics
Resident Economist, Center for Economic Development
California State University, Chico
August 1, 2012

Introduction

The proposed Durham Villas housing development consists of 140 over-55 residential units, designed with energy efficiency as a priority. It is the developer's intention to take advantage of the financial incentives of the California Advanced Homes Program, adding additional insulation and advanced windows to reduce heating and cooling load by a minimum of 30 percent. In addition, solar photovoltaic systems meeting over 95 percent of each home's annual electricity requirements will be incorporated into the design. Additional energy saving features are planned as well, including high efficiency furnaces, central air conditioner units, water heaters, and other appliances and lighting features. Compared to homes achieving the California Title 24 building standards, efficiency measures will reduce electricity and natural gas use by 1616 kWh's and 194 therms, respectively. The 2.0-2.5 kilowatt solar photovoltaic systems will reduce annual purchases from PG&E by an additional 4,547 kWh's. Homeowners will benefit through lower annual utility bills, averaging (at current rates) \$1,123 below what they would be in a home meeting the minimum California Title 24 building standards.

Carbon Dioxide Emissions Reductions

The four home models in the proposed Durham Villas development range in size from 1,385 to 1,815 square feet, averaging around 1,600 square feet. The above energy use calculations are based on typical patterns for residents of a 1,600 square foot unit.¹ For PG&E the average kWh of electricity generated produces 0.524 pounds of CO₂, while a therm (100,000 BTU's or 100 cubic feet) of natural gas produces 13.45 pounds of CO₂.² Therefore the energy use reduction for each housing unit will reduce annual CO₂ emissions by 3.19 tons. For all residents of the proposed Durham Villas housing development, annual greenhouse gas emissions will be reduced by 447 tons.

¹ <http://www.cbia.org/go/cbia/?LinkServID=311F6C70-DB43-4FE7-841A9BAEFCB09228&showMeta=0>

² <http://www.pge.com/about/environment/calculator/assumptions.shtml> Since most of the reduced energy use will be during the summer peak demand period, and a larger than average percentage of on-peak power is derived from natural gas, the actual reduction in CO₂ emissions will be larger than what is calculated here. Each kWh generated with natural gas emits 0.94 lbs (for a combined-cycle plant) or 1.34 lbs. (for a peaking combustion turbine). Using the lower emission rate of 0.94 lbs/kWh, the calculated annual reduction in CO₂ emissions is 4.48 tons per household, or 627 tons for the 140 homes in Durham Villas.

Environmental Noise Assessment

Rancho Sol Tierra

Butte County, California

Job # 2009-153

Prepared For:

Lumos & Associates

3259 Esplanade, Suite 102
Chico, CA 95973

Attn: Kevin Sevier

Prepared By:

j.c. brennan & associates, Inc.



Jim Brennan
President
Member, Institute of Noise Control Engineering

January 5, 2010

 **j.c. brennan & associates**
consultants in acoustics

INTRODUCTION

This section describes the existing noise environment in the area of the proposed Rancho Sol Tierra development, the potential of the Proposed Project to significantly increase noise levels due to project construction and increased traffic, and the potential of the Proposed Project to expose new noise sensitive uses to excessive noise levels. The relevant noise standards are contained within the Butte County General Plan Noise Element and in the California State Building Code, Title 24, Chapters 2-35. These standards were used to evaluate the need for noise mitigation measures.

PROJECT DESCRIPTION

The proposed Rancho Sol Tierra project is located in the unincorporated portion of Butte County and the town of Durham. The proposed project is a single family subdivision which consists of 116 lots which range in size from approximately $\frac{1}{2}$ acre to $\frac{3}{4}$ of an acre in size. The project includes a park site of approximately 3.5 acres in size. The project site is bordered on the north by the Durham Dayton Highway, commercial and light industrial to the northwest, orchards to the south, west and east. Figure 1 shows the project site.

ACOUSTIC TERMINOLOGY¹

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dBA) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become

¹ For an explanation of these terms, see Appendix A: "Acoustical Terminology"

the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70 dBA sound is half as loud as an 80 dBA sound, and twice as loud as a 60 dBA sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptor, Ldn, and shows very good correlation with community response to noise.

The day/night average level (Ldn) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because Ldn represents a 24-hour average, it tends to disguise short-term variations in the noise environment. CNEL is similar to Ldn, but includes a +3 dB penalty for evening noise.

Table 1 lists several examples of the noise levels associated with common situations.

Effects of Noise on People

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as hearing loss or sudden startling

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it.

With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Figure 1

Site Plan

Noise Monitor Locations & Noise
Barrier Location

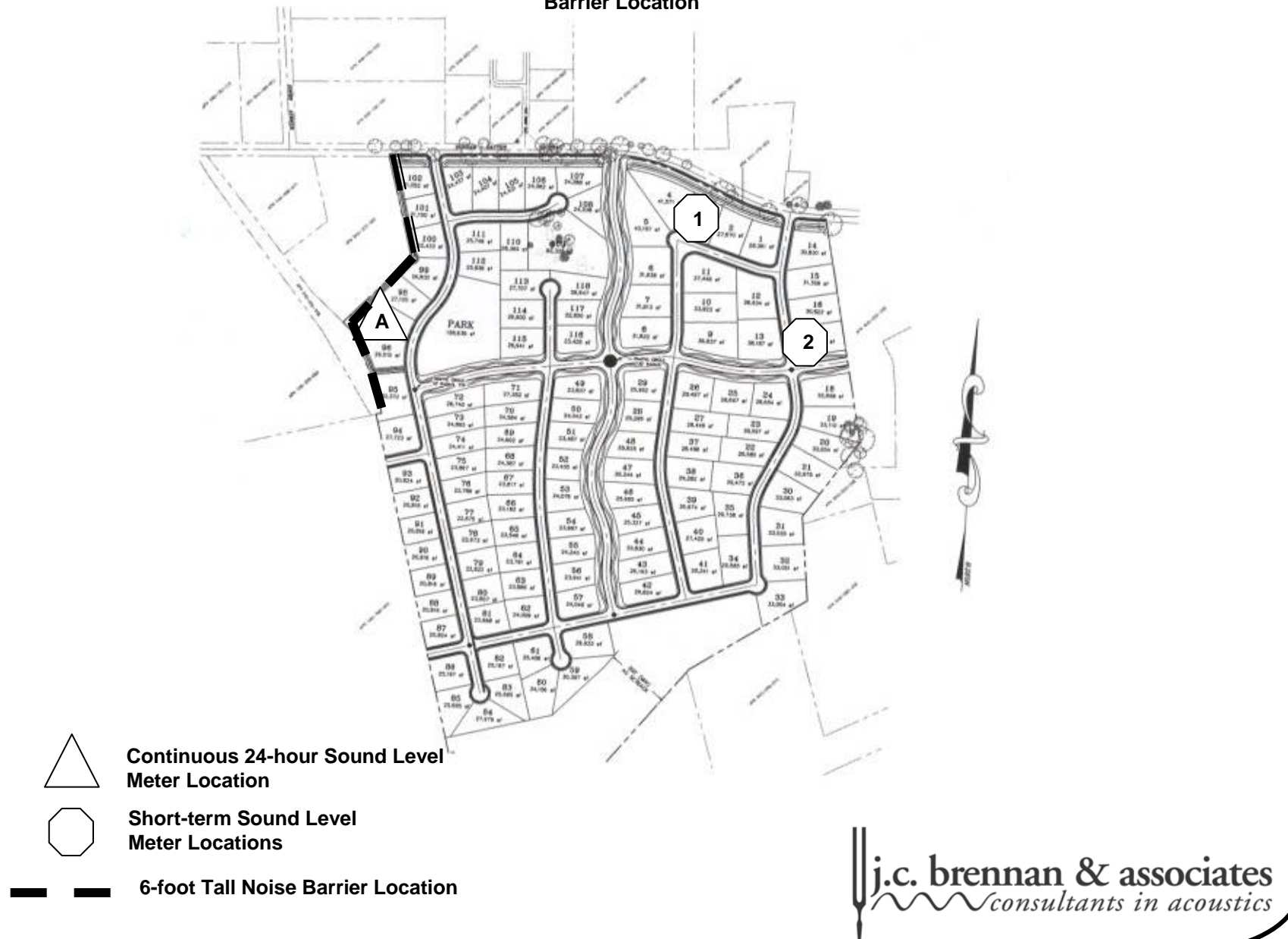


Table 1 Typical Noise Levels		
Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing
Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol. October 1998.		

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e. atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING CONDITIONS

Sources of ambient noise in the project vicinity include commercial, industrial, and transportation noise sources. The primary sources of noise in the project vicinity include traffic along the Durham Dayton Highway, railroad operations along the Union Pacific Railroad (UPRR) line to the west of the project site, and some industrial noise sources located to the northwest and west of the project site.

Existing Ambient Daytime Noise Levels

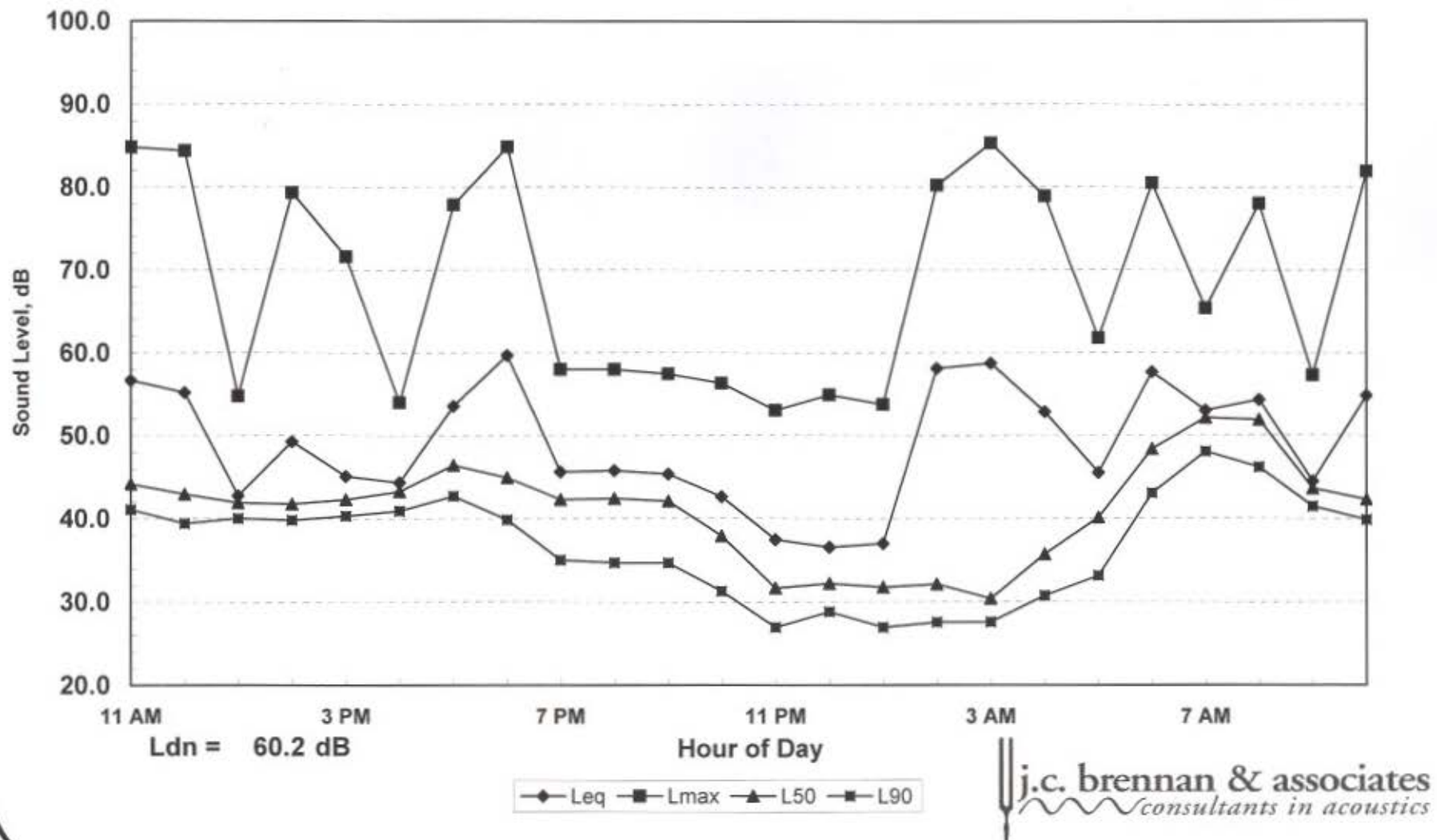
To generally quantify existing ambient noise levels in the project vicinity, continuous (24-hour) and short-term ambient noise measurements were conducted at various locations around the project site. The ambient noise measurement locations are shown on Figure 1.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used for the ambient noise level measurement survey. The meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

The sound level meters were programmed to record the maximum and average noise level at each site during the survey. The maximum value, denoted Lmax, represents the highest noise level measured. The average value, denoted Leq, represents the energy average of all of the noise received by the sound level meter microphone during the monitoring period. Table 2 shows the summary of the noise measurement data. Figure 2 graphically shows the results of the continuous measurement results.

Table 2 Summary of Measured Noise Levels									
			Average Measured Hourly Noise Levels, dBA						
Site	Location	Date	Ldn/ CNEL	Daytime (7:00 am - 10:00 pm)			Nighttime (10:00 pm - 7 am)		
				Leq	L50	Lmax	Leq	L50	Lmax
Continuous 24-hour Noise Measurement Site									
A	Northeast portion of project site	12/3-4/09	60.2 dB	53.0	45	69.8	53.9	36	67.2
Short-term Noise Measurement Sites									
1	North side of project site	12/3/09	NA	58.9	56	71.1	@ 1:35 p.m.		
2	East side of project site.	12/3/09	NA	55.5	50	66.7	@ 2:45 p.m.		
Source – j.c. brennan & associates, Inc. - 2009									

Figure 2
 Rancho Sol Tierra
 24hr Continuous Noise Monitoring - Site A
 December 3-4, 2009



Existing Traffic Noise Levels:

To determine the existing traffic noise levels at the identified noise sensitive land uses within the project vicinity, j.c. brennan & associates, Inc., employs the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA-RD-77-108) for the prediction of traffic noise levels. The FHWA Model is based upon the Calvenno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model inputs consisted of existing traffic volumes obtained from the traffic study prepared by Lumos & Associates for this project. A complete listing of the FHWA model inputs is provided in Appendix B.

Table 3 shows the predicted existing traffic noise levels in terms of the Day/Night Average Level descriptor (Ldn) at a standard distance of 75 feet from the centerlines of the existing immediate project-area roadways for existing conditions, as well as distances to existing traffic noise contours. The extent by which existing land uses in the project vicinity are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise.

Table 3 Predicted Existing Traffic Noise Levels					
			Distances to Traffic Noise Contours		
Roadway	Segment	Predicted Ldn @ 75 feet	70 dB Ldn	65 dB Ldn	60 dB Ldn
Durham Dayton Hwy	West of Midway	58 dBA	12'	27'	58'
	Midway to Jones	58 dBA	11'	25'	53'
	Jones to Van Ness	58 dBA	12'	25'	54'
	Van Ness to Lott	58 dBA	12'	25'	54'
	West of Lott	57 dBA	10'	23'	49'
Midway	South of Durham Dayton	54 dBA	7'	14'	31'
	Durham Dayton to Jones	56 dBA	9'	20'	42'
	North of Jones	58 dBA	12'	27'	58'
Jones	North of Durham Dayton	48 dBA	3'	5'	12'
Lott	South of Durham Dayton	45 dBA	2'	3'	7'
	North of Durham Dayton	49 dBA	3'	7'	15'

Existing Railroad Noise Levels (UPRR Freight Line):

The Union Pacific Railroad (UPRR) line is located approximately 650 feet west of the project site. The existing UPRR railroad operation noise levels were calculated utilizing sound exposure level (SEL) measurements for train operations at the project site collected at Noise Measurement Site A on December 3-4, 2009. The measurement location is shown on Figure 1.

A typical UPRR train generated a mean SEL of 89.6 dB at the project property line. A total of

16 trains were observed during the 24-hour period. In order to predict the Ldn noise level associated with the UPRR trains, the following formula is used.

$$\text{Ldn} = \text{Mean SEL} + 10 \cdot \log(\text{Neq}) - 49.4$$

Neq is defined as the number of daytime (7 am to 10 pm) train events and 10 times the number of nighttime (10 pm to 7 am) train events. 49.4 is 10 times the log of the number of seconds in a day.

Based upon the measurement data, and the identified railroad operations, the approximate number of daytime and nighttime train operations was obtained. The track was found to carry approximately 10 daytime (7 a.m. – 10 p.m.) trains and 6 nighttime (10 p.m. – 7 a.m.) trains per day. Based upon the equation above and the stated operational data, the existing train operations noise exposure was calculated to be 58.7 dB Ldn at the project property line.

Existing Industrial Facility Noise Levels

Existing industrial facilities are located adjacent to the northwest corner of the project site. The primary industrial facilities include Durham Pump Sales and Service and TINK. The primary industrial noise sources observed at Durham Pump and TINK were the equipment yards located to the rear of the facilities and adjacent to the project site. In addition, there is an agricultural storage facility located adjacent to the project site in the same general location.

During the site visit, the operations in the storage and equipment yards included some fork lift activity, overall operations within the buildings, while the doors were open. To quantify the noise levels associated with these facilities, the statistical noise level data collected at Site A, and adjacent to the industrial facilities was used. The median noise levels (L50) noise levels shown in Table 2 were used to determine the noise levels associated with the facilities. The average daytime hourly L50 noise levels were approximately 44 dB, with the highest measured hourly L50 noise level at 52 dB. The average nighttime hourly L50 noise levels were approximately 36 dB, with the highest measured L50 noise level at 48 dB. Using the average hourly L50 noise levels, the predicted Ldn would be 45 dB Ldn.

CRITERIA

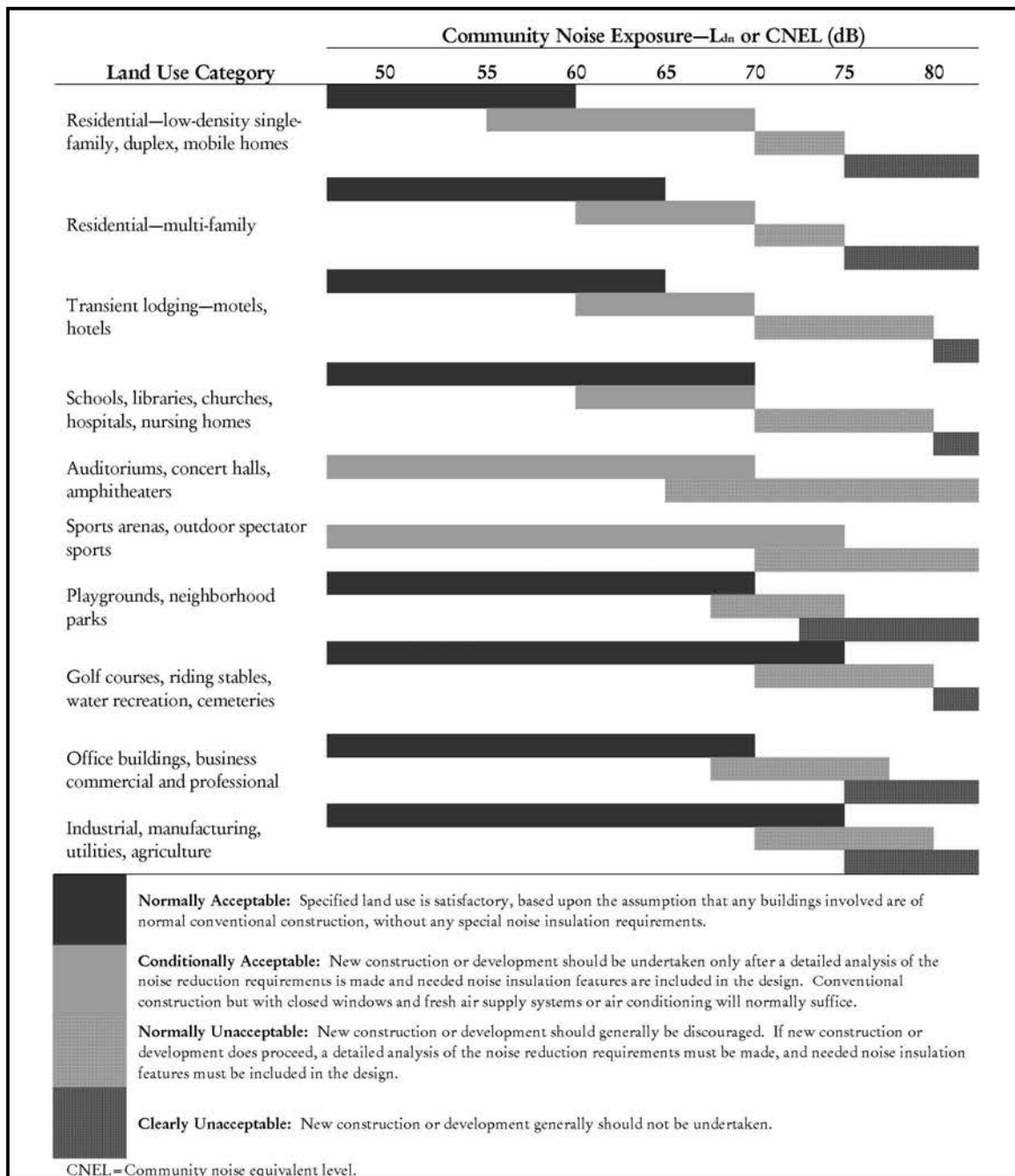
Butte County General Plan Noise Element

There are numerous policies set forth in the *Butte County General Plan Noise Element* that are related to noise. Listed below are the noise policies that are applicable to this project:

1. Endeavor to maintain an acceptable noise environment in all areas of the County
2. Where possible, control the sources of transportation noise to maintain acceptable levels.
3. Special consideration should be given to residential development and other noise sensitive areas near highways and railroads.

The Noise Element also contains the following noise compatibility chart, shown in Figure 3.

Figure 3: Butte County Noise Compatibility (Chart NO-4)



Federal

There are no federal regulations related to noise that apply to the Proposed Project.

State of California

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room. Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels are met by requiring that windows be kept close, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment.

The State of California Model Noise Control Ordinance recommends that hourly L50 noise levels should be used for assessing annoyance due to industrial noise sources. The recommended hourly standards for “rural suburban” areas are 50 dB L50 during the daytime period, and 40 dB L50 during the nighttime period. The hourly L50 noise level has been found to provide good correlation to noise sources that operate for a relatively short duration.

The L_{dn} descriptor is a composite 24-hour average noise level. This descriptor applies a +10 dBA penalty to noise levels which occur during the nighttime period (10pm to 7am). This descriptor is typically considered to provide good correlation for annoyance due to transportation related noise sources (i.e. roadway traffic, aircraft operations, and to a lesser extent railroad operations).

Generally, the L_{dn} is not considered to be the most appropriate descriptor for evaluating noise impacts associated with on-site activities such as those associated with a loading dock or air handling equipment. The loading dock generally only operates between 2 and 3 hours per day. If one applies the L_{dn} descriptor, the noise levels due to loading dock activities will be averaged over 24 hours, and the potential impact or potential for annoyance will be artificially discounted.

Vibration Criteria

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common

practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

Butte County does not contain specific policies pertaining to vibration levels. However, vibration levels associated with construction activities are discussed in this report.

Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Criteria developed by Caltrans, have determined vibration levels which would normally be required to result in damage to structures. The vibration levels are presented in terms of peak particle velocity in inches per second.

The threshold for damage to structures ranges from 2 to 6 in/sec. One-half this minimum threshold or 1 in/sec p.p.v. is considered a safe criterion that would protect against architectural or structural damage. The general threshold at which human annoyance could occur is notes as 0.1 in/sec p.p.v.

Determination of a Significant Increase in Noise Levels

Another means of determining a potential noise impact is to assess a person's reaction to changes in noise levels due to a project. Table 4 is commonly used to show expected public reaction to changes in environmental noise levels. This table was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 to 70 dBA, as this is the usual range of voice and interior noise levels. Generally, a change in noise levels which is noticeable would be considered to be a significant impact. For the purposes of this analysis an increase in traffic noise levels due to the project of more than 3 dB is considered to be significant.

Table 4 Subjective Reaction to Changes in Noise Levels of Similar Sources		
Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (Except for Tones)	1.3
3	Just Barely Perceptible	2.0
6	Clearly Noticeable	4.0
10	About Twice (of half) as Loud	10.0
Source: Architectural Acoustics, M. David Egan, 1988.		

IMPACTS AND MITIGATION MEASURES

Method of Analysis

Traffic Noise Impact Assessment Methodology

To assess noise impacts due to project-related traffic increases on the local roadway network, traffic noise levels are predicted at a representative distance for both existing and future, project and no-project conditions for the Proposed Project. Noise impacts are identified at existing noise-sensitive areas if the noise level increases which result from the project exceed 3 dB. In addition, traffic noise levels are predicted at the project site. If noise levels exceed 60 dB Ldn, they are considered to be significant.

To describe projected noise levels due to traffic, the Federal Highway Administration Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calvenno reference emissions noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions. To predict traffic noise levels in terms of L_{dn} , it is necessary to adjust the input volume to account for the day/night distribution of traffic.

The p.m. peak hour traffic volumes were compiled into segment volumes and converted into daily traffic volumes using a factor of 10. Truck usage and vehicle speeds on the local area roadways were estimated from field observations and Caltrans data. The predicted increases in traffic noise levels on the local roadway network for baseline and future conditions which would result from the project are provided in terms of Ldn at a standard distance of 75 feet from the centerlines of the project-area roadways. Tables 5 and 6 show the results of the traffic noise analyses. Table 5 shows the comparison between the Existing and Existing + Project scenarios, and Table 6 shows the comparison between the Existing and Cumulative + Project scenarios.

Table 5
Predicted Existing and Existing Plus Project Traffic Noise Levels
Rancho Sol Tierra

Roadway	Segment	Distance	Traffic Noise Levels (Ldn dBA)			Distance to Contours (feet) Existing			Distance to Contours (feet) Existing Plus Project		
			Existing	Existing Plus Project	Change	70 Ldn	65 Ldn	60 Ldn	70 Ldn	65 Ldn	60 Ldn
Durham Dayton Hwy	West of Midway	75 feet	58 dBA	59 dBA	+ 1	12'	27'	58'	13'	28'	61'
	Midway to Jones	75 feet	58 dBA	59 dBA	+ 1	11'	25'	53'	13'	28'	61'
	Jones to Van Ness	75 feet	58 dBA	59 dBA	+ 1	12'	25'	54'	13'	28'	61'
	Van Ness to Lott	75 feet	58 dBA	58 dBA	0	12'	25'	54'	13'	27'	58'
	West of Lott	75 feet	57 dBA	58 dBA	+ 1	10'	23'	49'	11'	24'	52'
Midway	South of Durham Dayton	75 feet	54 dBA	55 dBA	+ 1	7'	14'	31'	8'	17'	36'
	Durham Dayton to Jones	75 feet	56 dBA	56 dBA	0	9'	20'	42'	9'	20'	44'
	North of Jones	75 feet	58 dBA	59 dBA	+ 1	12'	27'	58'	13'	28'	60'
Jones	North of Durham Dayton	75 feet	48 dBA	48 dBA	0	3'	5'	12'	3'	6'	13'
Lott	South of Durham Dayton	75 feet	45 dBA	45 dBA	0	2'	3'	7'	2'	3'	7'
	North of Durham Dayton	75 feet	49 dBA	50 dBA	+ 1	3'	7'	15'	3'	7'	16'

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from Lumos & Associates, and j.c. brennan & associates, Inc. 2009.

Table 6
Predicted Existing and Cumulative Plus Project Traffic Noise Levels
Rancho Sol Tierra

Roadway	Segment	Distance	Traffic Noise Levels (Ldn dBA)			Distance to Contours (feet) Existing			Distance to Contours (feet) Cumulative Plus Project		
			Existing	Cumulative Plus Project	Change	70 Ldn	65 Ldn	60 Ldn	70 Ldn	65 Ldn	60 Ldn
Durham Dayton Hwy	West of Midway	75 feet	58 dBA	59 dBA	+ 1	12'	27'	58'	15'	32'	69'
	Midway to Jones	75 feet	58 dBA	59 dBA	+ 1	11'	25'	53'	15'	31'	68'
	Jones to Van Ness	75 feet	58 dBA	59 dBA	+ 1	12'	25'	54'	15'	31'	68'
	Van Ness to Lott	75 feet	58 dBA	59 dBA	+ 1	12'	25'	54'	14'	30'	65'
	West of Lott	75 feet	57 dBA	58 dBA	+ 1	10'	23'	49'	13'	27'	58'
Midway	South of Durham Dayton	75 feet	54 dBA	56 dBA	+ 2	7'	14'	31'	9'	19'	40'
	Durham Dayton to Jones	75 feet	56 dBA	57 dBA	+ 1	9'	20'	42'	11'	23'	49'
	North of Jones	75 feet	58 dBA	59 dBA	+ 1	12'	27'	58'	14'	31'	67'
Jones	North of Durham Dayton	75 feet	48 dBA	49 dBA	+ 1	3'	5'	12'	3'	7'	14'
Lott	South of Durham Dayton	75 feet	45 dBA	46 dBA	+ 1	2'	3'	7'	2'	4'	8'
	North of Durham Dayton	75 feet	49 dBA	51 dBA	+ 2	3'	7'	15'	4'	8'	18'

Notes: Distances to traffic noise contours are measured in feet from the centerlines of the roadways.

Source: FHWA-RD-77-108 with inputs from Lumos & Associates, and j.c. brennan & associates, Inc. 2009.

Railroad Noise Impact Methodology

UPRR noise impacts are assessed based upon noise measurements of train operations conducted on the site, and standard modeling of attenuation of noise levels.

Construction Noise Impact Methodology

Construction noise was analyzed using data compiled by the US Environmental Protection Agency that lists typical noise levels at 50 feet for construction equipment and various construction activities.

Noise would also be generated during the construction phase by increased truck traffic on area roadways and on-site grading. A significant project-generated noise source would include truck traffic associated with transport of heavy materials and equipment to and from construction sites and the movement of heavy construction equipment on the project site, especially during site grading. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Construction Vibration Impact Methodology

The types of construction vibration impact include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural. Table 7 shows the typical vibration levels produced by construction equipment.

Table 7 Vibration Levels for Varying Construction Equipment		
Type of Equipment	Peak Particle Velocity @ 25 feet (inches/second)	Approximate Velocity Level @ 25 feet (VdB)
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Small Bulldozer	0.003	58
Auger/drill Rigs	0.089	87
Jackhammer	0.035	79
Vibratory Hammer	0.070	85
Vibratory Compactor/roller	0.210	94
Source: <u>Federal Transit Administration, Transit Noise and Vibration Impact Assessment Guidelines, May 2006</u>		

Industrial Noise Impact Methodology

The primary noise sources associated with the adjacent industrial uses include operations in the

storage and equipment yards adjacent to the project site, and overall operations within the buildings, while the doors were open. Noise level data collected on the site adjacent to these uses will be used to assess the noise impacts.

STANDARDS OF SIGNIFICANCE

CEQA guidelines state that implementation of the project would result in significant noise impacts if the project would result in either of the following:

- a. Exposure of persons to or generation of noise levels in excess of standards established by the local jurisdiction.
- b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. For this analysis, an increase in overall traffic noise levels greater than 3 dB Ldn associated with the project is considered to be a significant increase.
- d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. .
- 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, where the project would expose people residing or working in the area to excessive noise levels.
- f. For a project within the vicinity of a private airstrip, where the project would expose people residing or working in the project area to excessive noise levels.

The project's impacts in relation to Butte County's adopted noise standards, item "a", permanent ambient noise levels, item "c," and temporary ambient noise levels, item "d," are discussed in further detail below. The project site is not located within the vicinity of a public or private airport, therefore, items "e" and "f" would not apply.

PROJECT-SPECIFIC IMPACTS AND MITIGATION MEASURES

Impact 1 Construction noise at sensitive receptors

Construction of the Proposed Project would temporarily increase noise levels during construction. This would be a ***potentially significant*** impact.

Noise from construction activities would add to the noise environment in the immediate project vicinity. Activities involved in typical construction would generate maximum noise levels, as

indicated in Table 8, ranging from 80 to 89 dB at a distance of 50 feet.

Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration, and would likely occur primarily during daytime hours.

Table 8	
Noise Levels of Typical Construction Equipment	
Equipment Type	Typical Equipment Level (dBA)- 50 ft from Source
Air Compressor	81
Backhoe	85
Concrete Pump	82
Concrete Breaker	82
Truck Crane	88
Dozer	87
Generator	78
Loader	84
Paver	88
Pneumatic Tools	85
Water Pump	76
Power Hand Saw	78
Shovel	82
Trucks	88
Source: Bolt, Beranek and Newman, Noise from Construction Equipment and Operations, Building Equipment and Home Appliances, U.S. EPA, 1971	

Construction activities, such as the use of jackhammers and heavy equipment, could expose occupants of nearby buildings to high levels of noise during the day. Therefore, construction noise would be a short term significant impact.

Mitigation Measures

The following mitigation measures are required for the Proposed Project to minimize construction noise impacts.

- MM1a Construction activities shall be restricted between the hours of 7:00 a.m. and 6:00 p.m. Mondays through Saturdays. No construction shall occur on Sundays and holidays.
- MM1b Locate fixed construction equipment such as compressors and generators as far as possible from sensitive receptors. Shroud or shield generators and compressors to reduce noise levels at nearby residences.

Significance after Mitigation

Less than significant

Impact 2 Construction vibration at sensitive receptors

Construction of the Proposed Project could result in temporarily vibration levels during construction. This would be a *potentially significant* impact.

The primary construction activities associated with the project would occur when the infrastructure such as buildings and utilities are constructed. Some construction could occur during occupancy of existing and future residential units, however, it is expected that they would occur at considerable distances from existing occupied residences and would be removed from future on-site uses. Comparing the acceptable vibration levels of 0.5 inches per second peak particle velocity to Table 7, which shows potential vibration impacts, it is not expected that vibration impacts would occur which would cause any structural damage at any nearby buildings. **This impact is considered to be less than significant.**

Mitigation for Impact 2

None required

Impact 3 The Proposed Project could expose existing receptors to significant increases in traffic noise levels

Based upon Tables 5 and 6 of this analysis, the traffic generated by the Proposed Project will not generate traffic noise increases of more than 2 dB Ldn which is not considered to be perceptible. In addition the project will not result in traffic noise levels which exceed the 60 dB Ldn exterior noise level standard at existing noise-sensitive uses. This would be a *less than significant impact.*

Mitigation for Impact 3

None required

Impact 4 The Proposed Project could expose new noise-sensitive receptors on the project site to excessive exterior traffic noise levels.

The Proposed Project could expose new noise sensitive uses to exterior noise levels in excess of the Butte County transportation noise level standards. This would be *a potentially significant* impact.

The Butte County General Plan Noise Element specifies an acceptable exterior noise level of 60 dB Ldn for exterior areas of residential uses, including common use areas. Based upon the project site plan, the nearest residential property line is 80 feet from the Durham Dayton Highway centerline. Based upon Table 6 the property lines would be located outside of the Durham Dayton Highway, Cumulative + Project, 60 dB Ldn noise level contour. This impact is considered *less than significant*.

Mitigation for Impact 4

None required

Impact 5 The Proposed Project could expose new noise-sensitive receptors to excessive railroad noise levels.

The Proposed Project could expose new noise sensitive uses to exterior noise levels in excess of the Butte County transportation noise level standards. This would be *a potentially significant* impact.

The Butte County General Plan Noise Element specifies an acceptable exterior noise level of 60 dB Ldn for exterior areas of residential uses, including common use areas. To determine the future UPRR operations noise levels on the project site, j.c. brennan & associates, Inc. used the railroad noise measurement data collected on the project site. The results of the noise level measurements indicates that the project site is currently located outside of the 60 dB Ldn railroad noise contour, previously discussed in this report. This impact is considered *less than significant*.

Mitigation for Impact 5

None required

Impact 6 The Proposed Project could expose on-site new noise-sensitive receptors to excessive noise levels due to adjacent industrial uses.

Based upon the noise measurement data collected on the project site for the adjacent industrial uses, the Proposed Project would not expose proposed residential uses in excess of 60 dB Ldn. However, based upon the State of California Office of Noise Control recommendations, the project could be exposed to industrial facility noise levels in excess of the daytime hourly noise level criterion of 50 dB L50. This would be ***a potentially significant*** impact.

j.c. brennan & associates, Inc. conducted a barrier analysis to determine appropriate barrier height to reduce exterior noise levels associated with industrial facility noise levels to within the recommended 50 dB L50 hourly noise level criterion. The analysis indicates that a barrier 6-feet in height at the adjacent property lines, as shown on Figure 1 would provide shielding to comply with the recommended 50 dB L50 hourly noise level criterion.

MM6a A barrier 6-feet in height shall be constructed along the property lines as shown on Figure 1

MM6b The first row of residences on Lots 94 through 102 shall be restricted to single story to prevent annoyance associated with the industrial operations.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

The cumulative context for noise impacts associated with the Proposed Project consists of the existing and future noise sources that could affect the project or surrounding uses. Noise generated by construction would be temporary, and would not add to the permanent noise environment or be considered as part of the cumulative context.

Impact 7 The Proposed Project would add to cumulative noise levels in the project vicinity.

The cumulative context for noise impacts associated with the Proposed Project consists of the existing and future noise sources that could affect the project or surrounding uses. Noise generated by construction would be temporary, and would not add to the permanent noise environment or be considered as part of the cumulative context. The total noise impact of the Proposed Project would be fairly small and would not be a substantial increase to the existing future noise environment. Thus, the Proposed Project would result in a ***less than significant cumulative impact***.

Traffic

Cumulative noise impacts would occur primarily as a result of increased traffic on local roadways due to the Proposed Project and other projects within the area. Table 6 above shows cumulative traffic noise levels with the Proposed Project, as compared to the existing traffic noise levels. As shown, the Proposed Project would contribute no more than 2 dB Ldn to noise levels on roadways fronting residential uses along the study area roadways, and none of the buildings would be exposed to more than 60 dB Ldn.

Non-Traffic Noise

The Proposed Project is not expected to create substantial non-traffic noise. Non-traffic noise includes increase pedestrian activity from the additional residential uses of the site. The number of people walking and interacting on surrounding roads would increase. This could raise noise levels on these streets slightly as more people utilize amenities in the area. This is not expected to substantially influence interior or exterior noise levels at nearby receptors. Mechanical equipment installed for heating, cooling, ventilation, and power supply could result in some additional noise. In addition, equipment used for lawn maintenance could also result in some increase in background noise. However, any noise from this equipment is not likely to generated substantial amounts of noise off the project site. Consequently, this would not add to any cumulative noise levels.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L ₅₀ is the sound level exceeded 50% of the time during the one hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the "Maximum" level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2009-153

Description: Existing

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Durham Dayton	West of Midway	4,570	85		15	2.5	1.5	30	75	
2		Midway to Jones	4,030	85		15	2.5	1.5	30	75	
3		Jones to Van Ness	4,140	85		15	2.5	1.5	30	75	
4		Van Ness to Lott	4,090	85		15	2.5	1.5	30	75	
5		West of Lott	2,170	85		15	2.5	1.5	40	75	
6	Midway	South of Durhan Dayton	3,090	85		15	2	1	25	75	
7		Durham Dayton to Jones	4,890	85		15	2	1	25	75	
8	Jones	North of Jones	5,460	85		15	2	1	30	75	
9		North of Durham Dayton	500	85		15	2	1	30	75	
10	Lott	South of Durhan Dayton	360	85		15	2	1	25	75	
11		North of Durham Dayton	1,030	85		15	2	1	25	75	
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Appendix B-2**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Predicted Levels**

Project #: 2009-153

Description: Existing

Ldn/CNEL: Ldn

Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Durham Dayton	West of Midway	54.8	49.6	54.5	58
2	0	Midway to Jones	54.3	49.0	53.9	58
3	0	Jones to Van Ness	54.4	49.1	54.0	58
4	0	Van Ness to Lott	54.4	49.1	54.0	58
5	0	West of Lott	55.2	48.3	50.9	57
6	Midway	South of Durham Dayton	50.9	45.7	50.3	54
7	0	Durham Dayton to Jones	52.9	47.7	52.3	56
8	0	North of Jones	55.7	49.4	53.5	58
9	Jones	North of Durham Dayton	45.3	39.0	43.1	48
10	Lott	South of Durham Dayton	41.6	36.3	40.9	45
11	0	North of Durham Dayton	46.1	40.9	45.5	49

Appendix B-3**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Noise Contour Output**

Project #: 2009-153

Description: Existing

Ldn/CNEL: Ldn

Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Durham Dayton	West of Midway	6	12	27	58	124
2	0	Midway to Jones	5	11	25	53	114
3	0	Jones to Van Ness	5	12	25	54	116
4	0	Van Ness to Lott	5	12	25	54	115
5	0	West of Lott	5	10	23	49	105
6	Midway	South of Durham Dayton	3	7	14	31	67
7	0	Durham Dayton to Jones	4	9	20	42	91
8	0	North of Jones	6	12	27	58	125
9	Jones	North of Durham Dayton	1	3	5	12	25
10	Lott	South of Durham Dayton	1	2	3	7	16
11	0	North of Durham Dayton	1	3	7	15	32

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2009-153
 Description: Existing + Project
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Durham Dayton	West of Midway	4,990	85		15	2.5	1.5	30	75	
2		Midway to Jones	4,940	85		15	2.5	1.5	30	75	
3		Jones to Van Ness	4,980	85		15	2.5	1.5	30	75	
4		Van Ness to Lott	4,660	85		15	2.5	1.5	30	75	
5		West of Lott	2,410	85		15	2.5	1.5	40	75	
6	Midway	South of Durhan Dayton	3,810	85		15	2	1	25	75	
7		Durham Dayton to Jones	5,130	85		15	2	1	25	75	
8	Jones	North of Jones	5,770	85		15	2	1	30	75	
9		North of Durham Dayton	560	85		15	2	1	30	75	
10	Lott	South of Durhan Dayton	360	85		15	2	1	25	75	
11		North of Durham Dayton	1,090	85		15	2	1	25	75	
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Appendix B-2**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Predicted Levels**

Project #: 2009-153
Description: Existing + Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Durham Dayton	West of Midway	55.2	49.9	54.9	59
2	0	Midway to Jones	55.2	49.9	54.8	59
3	0	Jones to Van Ness	55.2	49.9	54.8	59
4	0	Van Ness to Lott	54.9	49.7	54.6	58
5	0	West of Lott	55.7	48.7	51.3	58
6	Midway	South of Durham Dayton	51.8	46.6	51.2	55
7	0	Durham Dayton to Jones	53.1	47.9	52.5	56
8	0	North of Jones	55.9	49.6	53.7	59
9	Jones	North of Durham Dayton	45.8	39.5	43.6	48
10	Lott	South of Durham Dayton	41.6	36.3	40.9	45
11	0	North of Durham Dayton	46.4	41.1	45.8	50

Appendix B-3**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Noise Contour Output**

Project #: 2009-153

Description: Existing + Project

Ldn/CNEL: Ldn

Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Durham Dayton	West of Midway	6	13	28	61	132
2	0	Midway to Jones	6	13	28	61	131
3	0	Jones to Van Ness	6	13	28	61	132
4	0	Van Ness to Lott	6	13	27	58	126
5	0	West of Lott	5	11	24	52	112
6	Midway	South of Durham Dayton	4	8	17	36	77
7	0	Durham Dayton to Jones	4	9	20	44	94
8	0	North of Jones	6	13	28	60	129
9	Jones	North of Durham Dayton	1	3	6	13	27
10	Lott	South of Durham Dayton	1	2	3	7	16
11	0	North of Durham Dayton	2	3	7	16	33

Appendix B-1

FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Data Input Sheet

Project #: 2009-153
 Description: Cumulative Plus Project
 Ldn/CNEL: Ldn
 Hard/Soft: Soft

Segment	Roadway Name	Segment Description	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)
1	Durham Dayton	West of Midway	5,910	85		15	2.5	1.5	30	75	
2		Midway to Jones	5,780	85		15	2.5	1.5	30	75	
3		Jones to Van Ness	5,800	85		15	2.5	1.5	30	75	
4		Van Ness to Lott	5,470	85		15	2.5	1.5	30	75	
5		West of Lott	2,840	85		15	2.5	1.5	40	75	
6	Midway	South of Durhan Dayton	4,560	85		15	2	1	25	75	
7		Durham Dayton to Jones	6,110	85		15	2	1	25	75	
8	Jones	North of Jones	6,850	85		15	2	1	30	75	
9		North of Durham Dayton	660	85		15	2	1	30	75	
10	Lott	South of Durhan Dayton	420	85		15	2	1	25	75	
11		North of Durham Dayton	1,320	85		15	2	1	25	75	
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											

Appendix B-2**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Predicted Levels**

Project #: 2009-153
Description: Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway Name	Segment Description	Autos	Medium Trucks	Heavy Trucks	Total
1	Durham Dayton	West of Midway	56.0	50.7	55.6	59
2	0	Midway to Jones	55.9	50.6	55.5	59
3	0	Jones to Van Ness	55.9	50.6	55.5	59
4	0	Van Ness to Lott	55.6	50.3	55.3	59
5	0	West of Lott	56.4	49.5	52.1	58
6	Midway	South of Durhan Dayton	52.6	47.4	52.0	56
7	0	Durham Dayton to Jones	53.9	48.6	53.2	57
8	0	North of Jones	56.6	50.4	54.5	59
9	Jones	North of Durham Dayton	46.5	40.2	44.3	49
10	Lott	South of Durhan Dayton	42.2	37.0	41.6	46
11	0	North of Durham Dayton	47.2	42.0	46.6	51

Appendix B-3**FHWA-RD-77-108 Highway Traffic Noise Prediction Model****Noise Contour Output**

Project #: 2009-153

Description: Cumulative Plus Project

Ldn/CNEL: Ldn

Hard/Soft: Soft

			----- Distances to Traffic Noise Contours -----				
Segment	Roadway Name	Segment Description	75	70	65	60	55
1	Durham Dayton	West of Midway	7	15	32	69	148
2	0	Midway to Jones	7	15	31	68	145
3	0	Jones to Van Ness	7	15	31	68	146
4	0	Van Ness to Lott	7	14	30	65	140
5	0	West of Lott	6	13	27	58	125
6	Midway	South of Durham Dayton	4	9	19	40	87
7	0	Durham Dayton to Jones	5	11	23	49	105
8	0	North of Jones	7	14	31	67	145
9	Jones	North of Durham Dayton	1	3	7	14	30
10	Lott	South of Durham Dayton	1	2	4	8	18
11	0	North of Durham Dayton	2	4	8	18	38