Staff Report to the Planning Commission

Application Number: 04-0483

Applicant: Stephen Graves & Associates
Owner: Alfred E. Sibley
APN: 087-321-02

Agenda Date: May 27, 2009
Agenda Item #: 10
Time: After 9:00 a.m.

Project Description: Proposal to divide a 34-acre parcel into two parcels of 9.45 acres (5.13 net developable) and 24.5 acres (11.09 net developable), and to address an unpermitted residential conversion of a barn by returning the barn residence to a non-habitable structure. The project also includes bringing an existing bridge up to current code standards by widening, and other improvements to the bridge and the access driveways within the project site. Requires a Minor Land Division, a Development Permit to improve and widen an 8-foot right-of-way and to allow a non-habitable accessory structure larger than 1,000 square feet, and a Riparian Exception.

Location: Project is located approximately 4 miles north of Boulder Creek at the 17.09-mile marker along Highway 9 in Boulder Creek. The property may also be accessed off of Reynolds Drive (338 Reynolds Drive).

Supervisorial District: 5th District (District Supervisor: Mark Stone)

Permits Required: Minor Land Division, Development Permit and Riparian Exception

Technical Reviews: Archeological Site Review, Soils Report Review, Preliminary Geologic Hazards Investigation, Geotechnical Feasibility Study, Geological Report Review, Biotic Pre-Site

Staff Recommendation:

- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.
- Approval of Application 04-0483, based on the attached findings and conditions.

Exhibits

A. Project plans
B. Findings
C. Conditions
D. Negative Declaration (CEQA determination)
E. Assessor's parcel map
F. Location, Zoning & General Plan maps

Parcel Information

Parcel Size:	34.67 acres
Existing Land Use - Parcel:	Residential/ agriculture
Existing Land Use - Surrounding:	residential
Project Access:	Access to north of site from Reynolds Drive, and also from Highway 9
Planning Area:	San Lorenzo Valley
Land Use Designation:	R-R (Rural Residential)
Zone District:	SU (Special Use)
Coastal Zone:	__ Inside _x_ Outside
Appealable to Calif. Coastal Comm.	__ Yes _x_ No

Environmental Information

Geologic Hazards:	Potential landslide / seismic activity
Soils:	Geotechnical report has been reviewed and accepted
Fire Hazard:	n/a
Slopes:	5-10 acres at 0 - 30% slopes, 19-25 acres at 31 – 50% + slopes
Env. Sen. Habitat:	Limited to Riparian area
Grading:	35 cubic yards of grading proposed
Tree Removal:	No trees proposed to be removed
Scenic:	Highway 9 is a mapped Scenic Resource
Drainage:	Existing drainage adequate
Archeology:	portion mapped, Phase I fieldwork found no evidence of resources

Services Information

Urban/Rural Services Line:	__ Inside _x_ Outside
Water Supply:	San Lorenzo Valley Water
Sewage Disposal:	Private septic
Fire District:	Boulder Creek Fire Protection District
Drainage District:	Zone 8

History

The single-family residence on proposed Parcel 1 is estimated to have been built in 1937, pre-dates zoning, and is a legal non-conforming dwelling. The 2,000 square foot barn on proposed Parcel 2 was built in the 1980s, and the building permits for this structure were never finalized: a foundation inspection was performed, but no other inspections were requested. The barn has since been converted without permit to a single-family residence. A permit application was submitted to construct a bridge across the San Lorenzo River to the barn/ residence, and although the permit was never issued, the bridge was built. The original proposal submitted with this application was for a Land Division into 4 new parcels. However, after extensive analysis by staff of the environmental constraints on the project site, and the completion of a rural density matrix, the proposal was revised to a request for two parcels.

Project Setting and Analysis

The subject property is located along State highway 9 in the San Lorenzo Valley. The parcel currently takes access from Reynolds Drive off Fern Drive from Highway 9 to the north, and via an access driveway off Highway 9 to the southeast. Approximately 7.4 acres of the parcel contain slopes of greater than 50% and the San Lorenzo River flows southward along the eastern edge of the property. The property is residentially zoned (Special Use) and has a Rural Residential General Plan designation, and is currently developed with a single-family dwelling located within the proposed Parcel 1 accessed from Reynolds Drive. A portion of the site is mapped "Timber Resource", but no timber harvesting is proposed.

The proposed new building and development envelope for Parcel 2 is located on slopes of 10-30 %. The parcel contains large areas of unstable slopes and recent landslide activity, and thus it was necessary to delineate an area that is geologically suitable for future development and for the location of septic facilities. There is an existing barn within a geologically unstable area of Parcel 2 that is currently used as a second residence. It is proposed that the barn-residence will be returned to a non-habitable structure prior to map recordation. Building and development envelopes for future development of a single-family residence were identified through the geologic analysis submitted in a Preliminary Geologic Hazards Investigation by Nolan Associates, dated 2/27/06, and an Addendum to the Geologic Report dated 12/18/07. Several other small outbuildings are located in proximity to the proposed building site on Parcel 2.

The proposed new building site (Parcel 2) would use the existing access driveway and bridge from Highway 9, both of which will require upgrading. At the time that any new development is proposed for Parcel 2, it will be required that the existing access drive and the bridge are widened to 12 feet, in order to meet minimum road standards for emergency vehicle access. The building envelope is approximately 160 feet from Highway 9 at its closest point. Sight distance was determined to be adequate at the intersection of the access way with Highway 9. A Fire Department hammerhead turnaround must also be constructed as shown on Exhibit A plans. The proposed bridge and road improvements will not alter the existing overall drainage pattern of the site.

The existing bridge, in addition to widening, will receive a structural upgrade, which will require plan review letters from the project geologist and the project geotechnical engineer. According to FEMA maps and an evaluation by Jack Schultz, P.E. dated 10/3/07, all of the bridge widening and upgrading construction work would occur outside of the 100-year flood hazard area. The placement of a small amount of rip-rap is proposed within the channel to stabilize abutments, but as discussed in the mitigated Negative Declaration, this is not expected to impact the functioning of the channel, or to alter the flood hazard. The bridge and the proposed building / development envelope are above the Base Flood Elevation.

Zoning & General Plan Consistency

The subject property is a 34.78-acre parcel, located in the SU (Special Use) zone district, a designation that allows residential uses. The General Plan designation is Rural Residential (R-R). A Rural Density Matrix was completed for the subject parcel, which indicated a minimum size of 5 net developable acres is required for each lot. The proposed division of the parcel into two parcels of 5.13 and 11.09 net developable acres is consistent with the General Plan Policy for Rural Residential parcels.

Minor Land Division

The applicant proposes to divide the subject property into two separate parcels that could each be developed with a single-family residence. There is an existing residence on the proposed Parcel 1 in the northern portion of the project site. No new development is proposed for Parcel 1. The proposed new building site on Parcel 2 will be located southeast of the existing residential site and will be accessed by a separate driveway. The eastern edge of the proposed new building envelope on Parcel 2 is located approximately 50 feet away from the top of the bank of the San Lorenzo River, outside of the riparian buffer and adequately set back from riparian vegetation to protect this resource.

The existing residence on the proposed Parcel 1 is served by an existing private road (Reynolds Drive). The proposed building envelope for Parcel 2 will be served by an access driveway from Highway 9 and a bridge over the San Lorenzo River, and is located in an area that avoids nearby steep slopes and landslide areas. The septic system is proposed to be located within the proposed building / development envelope and has received preliminary approval from the County department of Environmental Health Services.

Rural Residential Density Matrix

The proposed Minor Land Division is subject to the Rural Residential Density Matrix in order to determine the appropriate density of development within the allowed General Plan density range. The County allows for development based on a rural density score that is calculated from points determined from nine different site constraint matrices. The subject property is located within the Rural Residential (R-R) General Plan land use designation. A Rural Density Matrix was completed that indicated a minimum density size of 5 net developable acres per parcel. The proposed division of the parcel into two parcels of 5.13 and 11.09 net developable acres is consistent with the allowable density.

Building and Development Envelopes

Building and development envelopes for the future development of Parcel 2 has been specified to avoid potential geologic hazard areas above the proposed building site. Because of steep slopes and landslide areas, it was important to identify an area for new development that was geologically stable, in an area of 30% or less slope and accessible. The building and development envelope locations have been reviewed and accepted by the project geologist, geotechnical engineer, and the County geologist.

Residential Development Permit

A Residential Development Permit is included in this proposal in order to widen and improve an existing 8-foot wide right-of-way for access to Parcel 2, including the widening and reconstruction of an existing 9-foot wide bridge across the San Lorenzo River. The access way and the bridge are required to be widened to 12 feet, and a hammerhead Fire Department turnaround would be constructed within the Parcel 2 development envelope. The Development Permit would also include the required conversion of an unpermitted barn structure currently being used as a residence on Parcel 2 to a non-habitable structure. The bridge and right-of-way improvements can be done at the time of future residential development of Parcel 2; however, the required conversion of the existing unpermitted barn/ residence back to a non-habitable structure will be required to occur prior to final map recordation.

Riparian Exception

A Riparian Exception will be necessary for the existing bridge over the San Lorenzo River that provides access to proposed Parcel 2, and for the proposed stabilization and repair work. The bridge will require work to widen it to 12 feet, to repair scour that has occurred, and to provide bank stabilization at each abutment. Grading work for the bridge and to upgrade/ widen the existing access road leading to the building site will consist of a maximum of 35 cubic yards of cut and 2 cubic yards of fill. The environmental review done for this proposal (Mitigated Negative Declaration) includes mitigations that will require pre-construction meetings with Environmental Planning staff prior to any work performed within the riparian corridor and erosion control measures to be implemented during construction.

Environmental Review

Environmental review has been required for the proposed project per the requirements of the California Environmental Quality Act (CEQA). A Mitigated Negative Declaration was prepared for the proposed Land Division, Riparian Exception and improvements to the bridge and access road. The project was reviewed by the County's Environmental Coordinator on December 1, 2008, and the preliminary determination to issue a Negative Declaration with Mitigations (Exhibit D) was made on December 5, 2008. The mandatory public comment period expired on January 8, 2009. The only comments received were from the applicant, regarding the timing of the required mitigations.

The environmental review process focused on the potential impacts of the project in the areas of geology/ soils, hydrology/ water supply and biological resources. The environmental review process generated mitigation measures that will reduce potential impacts from the proposed land division and future development and adequately address these issues.

Conclusion

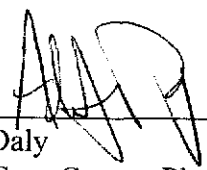
As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

Staff Recommendation

- Certify the Mitigated Negative Declaration issued on , 2008 per the requirements of the California Environmental Quality Act.
- **APPROVAL** of Application Number **04-0483,** based on the attached findings and conditions.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.co.santa-cruz.ca.us

Report Prepared By: 

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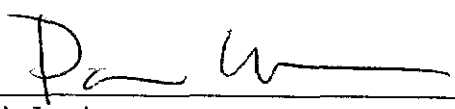
Report Reviewed By: 

Paia Levine
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Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, in that the project is located in an area designated for residential uses. While some areas of the subject property are encumbered by physical constraints to development such as steep slopes and active landslide areas, there is sufficient net developable area for residential development within two designated building envelopes. Future construction will comply with prevailing building technology, the California Building Code, and the County Building ordinance to insure the optimum in safety and the conservation of energy and resources. The proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure will not deprive adjacent properties or the neighborhood of light, air, or open space, in that adjacent properties are distant from the proposed project, and will meet all current setbacks that ensure access to light, air, and open space in the neighborhood.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that the locations of the access road and bridge to be improved, and of the unpermitted barn to be converted to a non-habitable structure, will be consistent with all pertinent County ordinances and the purpose of the SU (Special Use) zone district in that the primary residential use of the property will be one that meets all current site standards for the zone district.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed residential use is consistent with the use and density requirements specified for the Rural Residential (R-R) land use designation in the County General Plan.

The proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure will not adversely impact the light, solar opportunities, air, and/or open space available to other structures or properties, and meets all current site and development standards for the zone district as specified in Policy 8.1.3 (Residential Site and Development Standards Ordinance). The improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure will not adversely shade adjacent properties, because of the distance between the proposed improvements and adjacent development, and will meet current setbacks for the zone district that ensure access to light, air, and open space in the neighborhood.

The proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure will not be improperly proportioned to the parcel size or the character of the neighborhood as specified in General Plan Policy 8.6.1 (Maintaining a Relationship Between

Structure and Parcel Sizes), and the proposed development will comply with the site standards for the SU zone district consistent with development that could be approved on any similarly sized lot in the vicinity.

A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that the proposed improvements to the access road and bridge and conversion of an unpermitted barn to a non-habitable structure will occur on an existing developed lot. No new traffic will be generated by the proposed development, and thus the project will not adversely impact existing roads and intersections in the surrounding area.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure is located in a lightly-developed low density rural neighborhood containing a variety of architectural styles, and the proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure is consistent with the land use intensity and density of the neighborhood, and will not be visible from other surrounding residential properties.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed improvements to the access road and bridge, and conversion of an unpermitted barn to a non-habitable structure will be of an appropriate scale and type of design that would be compatible with the aesthetic qualities of the surrounding properties and will not reduce or visually impact available open space in the surrounding area.

Subdivision Findings

1. That the proposed subdivision meets all requirements or conditions of the Subdivision Ordinance and the State Subdivision Map Act.

This finding can be made, in that the project meets all of the technical requirements of the Subdivision Ordinance and is consistent with the County General Plan and the Zoning Ordinance as set forth in the findings below.

2. That the proposed subdivision, its design, and its improvements, are consistent with the General Plan, and the area General Plan or Specific Plan, if any.

This finding can be made, in that this project creates two parcels no smaller than 5 net developable acres in area is located in the Rural Residential (R-R) General Plan land use designation. The division of land on parcels with a Rural Residential (R-R) General Plan designation is allowed at densities determined by the Rural Residential Density Matrix. This proposal complies with the requirements of the Rural Residential Density Matrix, which authorizes a density of development of one dwelling unit per 5 acres of net developable land area, in that the parcels to be created will be 18.88 acres of net developable land area and 10.00 acres of net developable land area.

The project is consistent with the General Plan in that the necessary infrastructure is available to the site including public water service, private septic waste treatment, and nearby recreational opportunities. The land division is located off of a private street that provides satisfactory access to one of the two sites, and it will be required that the existing access off of Highway 9 to the other site will be brought up to current standards prior to any future proposed development of that site. The proposed land division is similar to the pattern and density of the surrounding rural residential development in the project vicinity.

3. That the proposed subdivision complies with Zoning Ordinance provisions as to uses of land, lot sizes and dimensions and any other applicable regulations.

This finding can be made, in that the use of the property will be residential in nature which is an allowed use in the SU (Special Use) zone district, where the project is located, a designation that allows residential uses when implementing the site's (R-R) Rural Residential General Plan designation. The proposed parcel configurations meet the minimum dimensional standards and setbacks for the zone district.

4. That the site of the proposed subdivision is physically suitable for the type and density of development.

This finding can be made, in that geological and geotechnical reports were prepared for the property, and the proposed parcels and the building envelopes within the two parcels are properly configured and sited to allow development that would be in compliance with the required site standards. Environmental constraints that would be adversely impacted by the proposed development, and geologically hazardous landslide areas have been avoided.

5. That the design of the proposed subdivision or type of improvements will not cause substantial environmental damage nor substantially and avoidably injure fish or wildlife or their habitat.

This finding can be made, in that no mapped or observed sensitive habitats or threatened species impede development of the site and the project has received a mitigated Negative Declaration pursuant to the California Environmental Quality Act and the County Environmental Review Guidelines.

7. That the proposed subdivision or type of improvements will not cause serious public health problems.

This finding can be made, in that the parcels can be served by the San Lorenzo Valley Water District and by adequate private septic systems. The septic leachfield and expansion area for Parcel 2 is located more than 100 feet away from the top of the bank of the San Lorenzo River.

8. That the design of the proposed subdivision or type of improvements will not conflict with easements, acquired by the public at large, for access through, or use of property within the proposed subdivision.

This finding can be made, in that the development will be located at a safe distance from existing vehicular easements, and the required improvements to the access roadway and bridge will provide a benefit to public safety.

8. The design of the proposed subdivision provides, to the extent feasible, for future passive or natural heating or cooling opportunities.

This finding can be made, in that the building envelopes within the resulting parcels are oriented to the fullest extent possible in a manner to take advantage of solar opportunities.

9. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed minor land division is not subject to the design review ordinance, as no development is proposed at this time, other than the improvement and widening of the existing access drive and bridge that access proposed Parcel 2 from Highway 9. While Highway 9 is a mapped Scenic Resource, the improvements will not be visible from the Highway 9 view corridor.

Riparian Exception Findings

1. That there are special circumstances or conditions affecting the property;

The special circumstances that affect the property is the location of the building site across the San Lorenzo River. The only access to the building site is over the existing bridge, which will be widened and stabilized to meet current safety standards.

2. That the exception is necessary for the proper design and function of some permitted or existing activity on the property;

The exception is necessary for the proper design and function of the permitted residential use of the property. The building site is located in an area that requires access over the river by way of an existing bridge.

3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located;

The granting of the exception will not be detrimental to public welfare or injurious to other property downstream or in the area in which the project is located. The proposed widening of the bridge will be carefully constructed with proper sediment and erosion control onsite.

4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative.

This finding does not apply, in that the project is not located in the Coastal Zone.

5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and elements thereof, and the Local Coastal Program Land Use Plan."

The granting of the exception is in accordance with the purpose of the Riparian Protection Ordinance and General Plan. The proposed bridge widening will include minimal grading, and proper erosion control will be implemented onsite. No vegetation will be removed, nor will the construction impact any sensitive habitat or riparian area. The work will commence during the dry season to further prevent sediment from entering the river. Environmental Planning staff will inspect the project to ensure that proper construction techniques have been implemented prior to the start of construction.

Conditions of Approval

Exhibit A: Tentative Parcel Map, 2 sheets, by Dunbar & Craig, Licensed Land Surveyors, dated 4/08, and Site Plan/ Bridge Widening Plan/ Driveway Design, 4 sheets, by Jack Schultz, P.E. dated 4/16/08.

I. Prior to exercising any rights granted by this Approval, the owner shall:

A. Sign, date and return one copy of the Approval to indicate acceptance and agreement with the conditions thereof, and

B. Submit proof that these conditions have been recorded in the official records of the County of Santa Cruz (Office of the County Recorder). The conditions shall also be recorded on the Parcel Map and are applicable to both resulting parcels.

C. Pay a Negative Declaration Environmental Notice of Determination fee of $1,993 to the Clerk of the Board of the County of Santa Cruz, as required by the California Department of Fish and Game mitigation fees program. A "letter of no effect" from the Department of Fish and Game will be accepted by the Clerk of the Board in lieu of the $1,993 fee.

D. Record a Declaration of Restriction to maintain the barn as a non-habitable structure.

II. Prior to map recordation, the applicant shall obtain final inspection of a building permit for the conversion of the barn residence on Parcel 2 to a non-habitable structure. The building permit application shall include all plans and required submittal materials for the conversion of the existing barn to a non-habitable structure. No other building permits shall be issued, and map recordation shall not occur prior to the final inspection of the required conversion of the barn to non-habitable status.

III. A Parcel Map for this land division must be recorded prior to the expiration date of the tentative map and prior to sale, lease or financing of any new lots. The Parcel Map shall be submitted to the County Surveyor (Department of Public Works) for review and approval prior to recordation. No improvements, including, without limitation, grading and vegetation removal, shall be done prior to recording the Parcel Map unless such improvements are allowable on the parcel as a whole (prior to approval of the land division). The Parcel Map shall meet the following requirements:

A. The Parcel Map shall be in general conformance with the approved Tentative Map and shall conform to the conditions contained herein. All other State and County laws relating to improvement of the property, or affecting public health and safety shall remain fully applicable.

B. This land division shall result in no more than two (2) residential parcels total. A statement shall be added to clearly state that all structures on Parcel 2 must be located within the designated building envelope, and the septic leachfield on Parcel 2 must be located within the development envelope, and no disturbance other than an access

driveway and the bridge across the San Lorenzo River are allowed outside the development envelope on Parcel 2.

C. The minimum amount of parcel area per dwelling unit shall be 5 acres of net developable land.

D. The following items shall be shown on the Parcel Map:

1. The building envelope and development envelope on Parcel 2 located according to the approved Tentative Map in conformance with the Preliminary Geologic Hazards Investigation report prepared by Nolan Associates, dated February 27, 2006.

2. Show the net developable land area of each lot to nearest square foot and to the nearest hundredth of an acre.

E. The following requirements shall be noted on the Parcel Map as items to be completed prior to obtaining a building permit on lots created by this land division:

1. A copy of a current "Will Serve" letter from the San Lorenzo Valley Water District shall be submitted with the Building Permit application.

2. The proposed septic system serving Parcel 2 shall be reviewed and approved by the County Department of Environmental Health Services.

3. The access road and bridge to Parcel 2 shall be widened to 12 feet in accordance with the Site Plan/ Bridge Widening Plan / Driveway Design plans by Jack Schultz, P.E. dated 4/16/08.

4. Prior to initiating any disturbance in the riparian area and prior to issuance of any building permit, a streambed alteration agreement from the Department of Fish and Game shall be required.

5. Grading plans by a licensed engineer or architect shall be required for all access driveways and building sites.

6. Submit 3 copies of a plan review letter prepared and stamped by a licensed geologist.

7. Submit 3 copies of a plan review letter prepared and stamped by a licensed geotechnical engineer.

8. For residential development, submit a written statement signed by an authorized representative of the school district in which the project is located confirming payment in full of all applicable developer fees and other requirements lawfully imposed by the school district in which the

project is located.

8. In order to minimize impacts from accelerated erosion, prior to building permit issuance, the project must have an approved Erosion Control Plan for review and approval of Environmental Planning Staff. The plan shall be prepared by a Certified Professional in Erosion and Sediment Control, and shall specify detailed erosion and sedimentation control measures. The plan shall include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

9. Any changes between the Parcel Map and the approved Tentative Map must be submitted for review and approval by the Planning Department.

IV. Prior to recordation of the Parcel Map, the following requirements shall be met:

A. Submit a letter of certification from the Tax Collector's Office that there are no outstanding tax liabilities affecting the subject parcels.

B. Meet all requirements of the Santa Cruz County Department of Public Works, Drainage section.

C. All requirements of the County Fire Protection District shall be met.

V. All future construction within the property shall meet the following conditions:

A. In order to minimize impacts from accelerated erosion, prior to initiating work on the road or in the creek and prior to building permit issuance, the project must have an approved Erosion Control Plan for review and approval of Environmental Planning Staff. The plan shall be prepared by a Certified Professional in Erosion and Sediment Control, and shall specify detailed erosion and sedimentation control measures. The plan shall include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

B. Any outstanding balance due to the Planning Department must be paid prior to making a Building Permit application. Applications for Building Permits will not be accepted or processed while there is an outstanding balance due.

C. In order to ensure that erosion control measures are properly implemented, prior to any disturbance, a pre-construction meeting shall be held onsite with Environmental Planning staff to inspect the erosion control measures prior to any site disturbance. The disturbance envelope shall be verified, silt fences shall be inspected, and Environmental Planning staff shall verify all other aspects of the erosion control plan.

D. All work adjacent to or within a County road shall be subject to the provisions of Chapter 9.70 of the County Code, including obtaining an encroachment permit where required. Where feasible, all improvements adjacent to or affecting a County road shall be coordinated with any planned County-sponsored construction on that road.

Obtain an Encroachment Permit from the Department of Public Works for any work performed in the public right of way. All work shall be consistent with the Department of Public Works Design Criteria unless otherwise indicated on the approved improvement plans.

E. No land clearing, grading or excavating shall take place between October 15 and April 15.

F. No land disturbance shall take place prior to issuance of building permits (except the minimum required to install required improvements, provide access for County required tests or to carry out work required by another of these conditions).

G. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.

H. Construction of improvements shall comply with the requirements of the geologic report. The geologist shall inspect the completed project and certify in writing that the improvements have been constructed in conformance with the geologic report.

I. Construction of improvements shall comply with the requirements of the geotechnical report. The geotechnical engineer shall inspect the completed project and certify in writing that the improvements have been constructed in conformance with the geotechnical report.

J. All required land division improvements shall be installed and inspected prior to final inspection clearance for any new structure on a new parcel.

K. Park dedication in-lieu fees shall be paid for the total number of bedrooms in the proposed new dwelling unit. These fees are currently $800 per bedroom, but are subject to change.

L. Child Care Development fees shall be paid for the total number of bedrooms in the proposed new dwelling unit. These fees are currently $109 per bedroom, but are subject to change.

M. Zone 8 drainage fees shall be assessed on the net increase in impervious area due to new development and also to include the increase from the approval of as-built facilities.

VI. In the event that future County inspections of the subject property disclose non-compliance with any Conditions of this Approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including Approval revocation.

VII. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, and agents, from and against any claim (including attorneys' fees), against the COUNTY, it officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.

A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.

B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:

1. COUNTY bears its own attorney's fees and costs; and

2. COUNTY defends the action in good faith.

C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder has approved the settlement. When representing the County, the Development Approval Holder shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.

D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor'(s) in interest, transferee(s), and assign(s) of the applicant.

E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the office of the Santa Cruz County Recorder an agreement, which incorporates the provisions of this condition, or this development approval shall become null and void.

VIII. Mitigation Monitoring Program

VIII. Mitigation Monitoring Program

The mitigation measures listed under this heading have been incorporated in the conditions of approval for this project in order to mitigate or avoid significant effects on the environment. As required by Section 21081.6 of the California Public Resources Code, a monitoring and reporting program for the above mitigation is hereby adopted as a condition of approval for this project. This program is specifically described following each mitigation measure listed below. The purpose of this monitoring is to ensure compliance with the environmental mitigations during project implementation and operation. Failure to comply with the conditions of approval, including the terms of the adopted monitoring program, may result in permit revocation pursuant to section 18.10.462 of the Santa Cruz County Code.

A. Mitigation Measures: Geology and Soils (Condition V.A)

In order to minimize impacts from accelerated erosion, prior to building permit issuance, the project must have an approved Erosion Control Plan for review and approval of Environmental Planning Staff. The plan shall be prepared by a Certified Professional in Erosion and Sediment Control, and shall specify detailed erosion and sedimentation control measures. The plan shall include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

B. Mitigation Measures: Geology and Soils (Condition V.C)

In order to ensure that erosion control measures are properly implemented, a pre-construction meeting shall be held onsite with Environmental Planning staff to inspect the erosion control measures prior to any site disturbance. The disturbance envelope shall be verified, silt fences shall be inspected, and Environmental Planning staff shall verify all other aspects of the erosion control plan.

AMENDMENTS TO THIS LAND DIVISION APPROVAL SHALL BE PROCESSED IN ACCORDANCE WITH CHAPTER 18.10 OF THE COUNTY CODE.

This Tentative Map is approved subject to the above conditions and the attached map, and expires 24 months after the 14-day appeal period. The Parcel Map for this division, including improvement plans if required, should be submitted to the County Surveyor for checking **at least 90 days** prior to the expiration date and in no event later than 3 weeks prior to the expiration date.

cc: County Surveyor

Approval Date: _____

Effective Date: _____

Expiration Date: _____

Paia Levine	Alice Daly
Principal Planner	Project Planner

Minor variations to this permit that do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires two years from the effective date listed below unless a building permit (or permits) is obtained for the primary improvements described in the development permit (does not include demolition, temporary power pole or other site preparation permits, or accessory structures unless these are the primary subject of the development permit). Failure to exercise the building permit and to complete all of the construction under the building permit, resulting in the expiration of the building permit, will void the development permit, unless there are special circumstances as determined by the Planning Director.

Approval Date: _____

Effective Date: _____

Expiration Date: _____

Paia Levine	Alice Daly
Principal Planner	Project Planner

Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Planning Commission, may appeal the act or determination to the Board of Supervisors in accordance with chapter 18.10 of the Santa Cruz County Code.

CALIFORNIA ENVIRONMENTAL QUALITY ACT
NOTICE OF EXEMPTION

The Santa Cruz County Planning Department has reviewed the project described below and has determined that it is exempt from the provisions of CEQA as specified in Sections 15061 - 15332 of CEQA for the reason(s) which have been specified in this document.

Application Number: 04-0483
Assessor Parcel Number: 087-321-02
Project Location: 338 Reynolds Drive, Boulder Creek CA 95006

Project Description: Proposal to divide a 43-acre parcel into two parcels of 9.45 acres and 24.5 acres, *to recognize an unpermitted residential barn by conversion to a non-habitable status and widening an existing bridge and other improvements to site access*

Person or Agency Proposing Project: Stephen Graves & Associates

Contact Phone Number: 831-465-0677

A. _____ The proposed activity is not a project under CEQA Guidelines Section 15378.

B. _____ The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060 (c).

C. _____ **Ministerial Project** involving only the use of fixed standards or objective measurements without personal judgment.

D. _____ **Statutory Exemption** other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).

Specify type:

E. __X__ **Categorical Exemption**

Specify type: Mitigated Negative Declaration

F. Reasons why the project is exempt:

In addition, none of the conditions described in Section 15300.2 apply to this project.

_____ Date:_____

Alice Daly, Project Planner

EXHIBIT D

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, PLANNING DIRECTOR

NEGATIVE DECLARATION AND NOTICE OF DETERMINATION

1. - Application Number: 04-0483 **Stephen Graves & Associates, for Alfred Sibley**
Proposal to divide a 34-acre parcel into two parcels of 9.45 acres and 24.5 acres, and to recognize an unpermitted residential conversion of a non-permitted barn by returning the barn residence to a non-habitable structure. The project also included bringing an existing unpermitted bridge up to current code standards by widening and by other structural improvements to the bridge and the access driveways within the project site. Requires a Minor Land Division and a riparian Exception. The project is located approximately 4 miles north of Boulder Creek at the 17.09-mile marker on Highway 9. The site may also be accessed off of Reynolds Drive at 338 Reynolds Drive, Boulder Creek California.
APN: 087-321-02 **Alice Daly, Staff Planner**
Zone District: SU (Special Use)
ACTION: Negative Declaration with Mitigations
REVIEW PERIOD ENDS: January 8, 2009
This project will be considered at a public hearing by the Planning Commission. The time, date and location have not been set. When scheduling does occur, these items will be included in all public hearing notices for the project.

Findings:
This project, if conditioned to comply with required mitigation measures or conditions shown below, will not have significant effect on the environment. The expected environmental impacts of the project are documented in the Initial Study on this project attached to the original of this notice on file with the Planning Department, County of Santa Cruz, 701 Ocean Street, Santa Cruz, California.

Required Mitigation Measures or Conditions:
_____ None
__XX__ Are Attached

Review Period Ends__January 8, 2009

Date Approved By Environmental Coordinator__January 28, 2009

Claudia Slater
CLAUDIA SLATER
Environmental Coordinator
(831) 454-5175

If this project is approved, complete and file this notice with the Clerk of the Board:

NOTICE OF DETERMINATION

The Final Approval of This Project was Granted by the Planning Commission

on _____. No EIR was prepared under CEQA.

THE PROJECT WAS DETERMINED TO NOT HAVE SIGNIFICANT EFFECT ON THE ENVIRONMENT.

Date completed notice filed with Clerk of the Board:_____

EXHIBIT D

NAME: Alfred Sibley
APPLICATION: 04-0483
A.P.N: 087-321-02

NEGATIVE DECLARATION MITIGATIONS

A. In order to minimize impacts from accelerated erosion, prior to map recordation, the project must have an approved Erosion Control Plan for review and approval of Environmental Planning Staff. The plan shall be prepared by a Certified Professional in Erosion and Sediment Control, and shall specify detailed erosion and sedimentation control measures. The plan shall include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

B. In order to ensure that erosion control measures are properly implemented, a pre-construction meeting shall be held onsite with Environmental Planning staff to inspect the erosion control measures prior to any site disturbance. The disturbance envelope shall be verified, silt fences shall be inspected, and Environmental Planning staff shall verify all other aspects of the erosion control plan.

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, PLANNING DIRECTOR

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: **Stephen Graves & Associates, for Alfred Sibley**

APPLICATION NO.: **04-0483**

APN: **087-321-02**

The Environmental Coordinator has reviewed the Initial Study for your application and made the following preliminary determination:

__XX__ Negative Declaration
(Your project will not have a significant impact on the environment.)

__XX__ Mitigations will be attached to the Negative Declaration.

_____ No mitigations will be attached.

_____ Environmental Impact Report
(Your project may have a significant effect on the environment. An EIR must be prepared to address the potential impacts.)

As part of the environmental review process required by the California Environmental Quality Act (CEQA), this is your opportunity to respond to the preliminary determination before it is finalized. Please contact Matt Johnston, Environmental Coordinator at (831) 454-3201, if you wish to comment on the preliminary determination. Written comments will be received until 5:00 p.m. on the last day of the review period.

Review Period Ends: **January 8, 2009**

Alice Daly
Staff Planner

Phone: **454-3259**

Date: **December 5, 2008**

Environmental Review Initial Study

Application Number: 04-0483

Date: December 1, 2008
Staff Planner: Alice Daly

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Stephen Graves & Associates

APN: 087-321-02

OWNER: Alfred Sibley

SUPERVISORAL DISTRICT: 5th

LOCATION: Project is located approximately 4 miles north of Boulder Creek at the 17.09-mile marker along Highway 9 in Boulder Creek. Project site may also be accessed off of Reynolds Drive (338 Reynolds Drive)

SUMMARY PROJECT DESCRIPTION:
This is a proposal to divide a 34-acre parcel into two parcels of 9.45 acres and 24.5 acres, and to address an unpermitted residential conversion of an existing non-permitted barn by returning the barn residence to a non-habitable structure. The project also includes bringing an existing unpermitted bridge up to current code standards by widening and by other improvements to the bridge and the access driveways within the project site. Requires a Minor Land Division and a Riparian Exception.

ALL OF THE FOLLOWING POTENTIAL ENVIRONMENTAL IMPACTS ARE EVALUATED IN THIS INITIAL STUDY. CATEGORIES THAT ARE MARKED HAVE BEEN ANALYZED IN GREATER DETAIL BASED ON PROJECT SPECIFIC INFORMATION.

X	Geology/Soils	____	Noise
X	Hydrology/Water Supply/Water Quality	____	Air Quality
X	Biological Resources	____	Public Services & Utilities
____	Energy & Natural Resources	____	Land Use, Population & Housing
____	Visual Resources & Aesthetics	____	Cumulative Impacts
____	Cultural Resources	____	Growth Inducement
____	Hazards & Hazardous Materials	____	Mandatory Findings of Significance
____	Transportation/Traffic		

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

___	General Plan Amendment	___	Grading Permit
_X_	Land Division	_X_	Riparian Exception
___	Rezoning	___	Other:
_X_	Development Permit	___	
___	Coastal Development Permit	___	

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:

California Department of Fish & Game - Streambed Alteration

ENVIRONMENTAL REVIEW ACTION

On the basis of this Initial Study and supporting documents:

___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

_X_ 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 the attached mitigation measures have been added to the project. 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.

Matt Johnston

12/5/08
Date

For: Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: 34.67 acres
Existing Land Use: Residential Agriculture
Vegetation: Mosaic characterized in part by mixed conifer forest and part oak/madrone forest.
Slope in area affected by project: 5-10 acres 0 - 30% 19-25 acres 31 – 100%
Nearby Watercourse: San Lorenzo River
Distance To: immediately adjacent

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: yes, portion
Water Supply Watershed: upper San Lorenzo
Groundwater Recharge: no

Timber or Mineral: yes, portion timber resource
Agricultural Resource: Portion of parcel

Biologically Sensitive Habitat: no
Fire Hazard: Portion of parcel
Floodplain: Floodplain and Floodway
Erosion: no
Landslide: yes- portion

Liquefaction: no
Fault Zone: no
Scenic Corridor: yes, Hwy 9 is a Scenic Road
Historic: no
Archaeology: portion mapped, Phase I fieldwork found no evidence of resources
Noise Constraint: no
Electric Power Lines: no
Solar Access: n/a
Solar Orientation: n/a
Hazardous Materials: n/a

SERVICES

Fire Protection: Santa Cruz County
School District: San Lorenzo Valley
Sewage Disposal: Private Septic

Drainage District: Zone 8
Project Access: Highway 9
Water Supply: San Lorenzo Valley Water

PLANNING POLICIES

Zone District: SU (Special Use)
General Plan: R-R (Rural Residential)
Urban Services Line: ___ Inside X Outside
Coastal Zone: ___ Inside X Outside

Special Designation: None

PROJECT SETTING AND BACKGROUND:

The subject property is located along State highway 9 in the San Lorenzo Valley. The parcel currently takes access from Hillside Drive to the north, and via Highway 9 to the southeast. Approximately 7.4 acres of the parcel contain slopes of greater than 50% and the San Lorenzo River flows southward along the eastern edge of the property. The proposed new building site is located on slopes of 10-30%. The parcel also contains large areas of recent landslide activity. The parcel is residentially zoned

(Special Use) and is currently developed with a single-family dwelling located within the northern portion of the lot that is accessed from Hillside Drive. There is also an existing non-permitted barn that is currently used as a second residence that is proposed to be returned to a non-habitable structure.

The proposed building site to the south would use the bridge from Highway 9. There are several other small outbuildings located at both the existing building site as well as in proximity to the proposed building site.

The General Plan designation is Rural Residential (R-R). A Rural Density Matrix was completed for the subject parcel, which indicated a minimum size of 5 net developable acres. The proposed division of the parcel into two parcels of 5.13 and 11.09 net developable acres is consistent with the General Plan Policy for Rural Residential parcels.

The submitted plans designate a future development envelope, however no structures are proposed at this time.

DETAILED PROJECT DESCRIPTION:

The project description is based on a Tentative Map prepared by Dunbar & Craig, dated December 20, 2007 and civil drawings prepared by Santa Cruz Drafting, dated December 20, 2007.

This project consists of dividing a 34-acre parcel into 5.13 (Lot 1) and 11.09 (Lot 2) net developable acre lots. A building site has been identified and reviewed by Nolan Associates, the project engineering geologist. The Preliminary Geologic Hazards Investigation dated February 27, 2006 was reviewed and accepted by the County Geologist.

The new parcel will be served by the existing bridge and access road that has historically been used to access the barn located at the southeastern portion of the parcel. The barn is currently being used as a second residence, and will be converted back to a non-habitable structure. The unpermitted bridge will require work to widen the structure, to repair scour that has occurred and to provide bank stabilization at either abutment. A Riparian Exception will be necessary to allow the stabilization and repair work.

Grading for the work at the bridge and to upgrade the existing access road leading to the building site consists of about 35 cubic yards of stripping/excavation and about 2 cubic yards of fill. Erosion control will be implemented during construction to include various Best Management Practices (BMPs). Mitigations will include preconstruction meetings with Environmental Planning staff, the project soils engineer and contractor prior to any work performed within or in proximity to the riparian corridor.

The proposed parcel is entirely located within the water supply watershed as well as a groundwater recharge area, however the proposed building site is not located within these mapped resource areas.

No trees are proposed for removal as a part of this project.

The proposed parcel contains an existing barn and driveway that are to be retained.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Expose people or structures to potential adverse effects, including the risk of material loss, injury, or death involving:				
A. 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 as identified by other substantial evidence?	____	____	X	____
B. Seismic ground shaking?	____	____	X	____
C. Seismic-related ground failure, including liquefaction?	____	____	X	____
D. Landslides?	____	____	X	____

A Preliminary Geologic Hazards Investigation for the project was prepared by Nolan Associates, dated February 27, 2006 (Attachment # 4), an Addendum to the Geologic Report was prepared by Nolan, dated December 18, 2007 (Attachment # 5) and a geotechnical investigation was prepared by Dees & Associates, Inc. dated December 20, 2007(Attachment # 6). These reports have been reviewed and accepted by the County Geologist (Attachment # 7). While the Geologic Report and Addendum identified potential hazards due to landsliding, strong seismic shaking and flooding, the reports conclude that these hazards can be mitigated to a significant extent by project design, including restricting any future development to the identified Geologically Feasible Building Envelope and designated setbacks.

The foundation design for the bridge improvements shall be based on the deterministic and probabilistic seismic shaking evaluation presented in the Geologic Report and the findings incorporated into the geotechnical analysis. A plan review letter from both the project Geologist and Geotechnical Engineer will be required before building permit approval for any work on the bridge.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?			X	

The Preliminary Geologic Hazards Investigation report prepared by Nolan Associates (Attachment # 4) concluded that there is a potential risk from identified landslides on the property. The recommendations contained in the geotechnical report (Attachment # 6), identify a development envelope that would provide the maximum setback practicable from the identified landslide. A site-specific geotechnical investigation is required prior to any future development on the project site, and further reports would be required at the design stage of any future development proposal.

3. Develop land with a slope exceeding 30% ?			X	

There are slopes that exceed 30% on the property. However, no improvements are proposed on slopes in excess of 30%.

4. Result in soil erosion or the substantial loss of topsoil?		X		

Some potential for erosion exists during the bridge and road improvement phase of the project; however, this potential is minimal because erosion controls are a required mitigation. Prior to map recordation, the project must have an approved Erosion Control Plan, prepared by a Certified Professional in Erosion and Sediment Control, which will specify detailed erosion and sedimentation control measures. The plan will include provisions for disturbed areas to be planted with ground cover and to be maintained to minimize surface erosion.

5. Be located on expansive soil, as defined in section 1802.3.2 of the California Building Code(2007), creating substantial risks to property?			X	

The geotechnical report for the project (Attachment # 6) did not identify any elevated risk associated with expansive soils.

	Significant Or Potentially Significant Impact	Less than *Significant* with *Mitigation* Incorporation	Less than Significant Or No Impact	Not Applicable
6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative waste water disposal systems?	____	____	X	____

The existing residence uses an onsite sewage disposal system, and a site evaluation done by County Environmental Health Services (Attachment # 8) has determined that site conditions are appropriate to support such a system.

7. Result in coastal cliff erosion?	____	____	____	X

There are no coastal cliffs on the project site.

B. Hydrology, Water Supply and Water Quality

Does the project have the potential to:

1. Place development within a 100-year flood hazard area?	____	____	X	____

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, and an evaluation by Jack Schultz, P.E. dated 10/3/07 (Attachment # 9) all work proposed to occur in conjunction with the bridge widening will occur outside of the 100-year flood hazard area. While the placement of a small amount of riprap is proposed within the channel to stabilize the abutments, this is not expected to impact the functioning of the channel or to alter the flood hazard.

2. Place development within the floodway resulting in impedance or redirection of flood flows?	____	____	X	____

According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map, dated March 2, 2006, and an evaluation by Jack Schultz, P.E. dated 10/3/07 (Attachment # 9), no portion of the proposed development lies within a 100-year flood hazard area. Both the proposed building envelope and the existing bridge are above the Base Flood Elevation. As stated above, the small amount of riprap placed in the voids at the abutments is not expected to significantly impact the flood flows.

3. Be inundated by a seiche or tsunami?	____	____	____	X

The project is not in a coastal area.

	Significant Or *Potentially* Significant Impact	Less than Significant *with* Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
4. Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?			X	

The project will rely on the San Lorenzo Water District, which has provided a will-serve letter for this project. The project is not located in a mapped groundwater recharge area.

5. Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).		X		

Runoff from this project may contain small amounts of chemicals and other contaminants. No commercial or industrial activities are proposed that would contribute a significant amount of contaminants to a public or private water supply. Potential siltation from the proposed bridge and road improvements will be mitigated through implementation of erosion control measures.

6. Degrade septic system functioning?			X	

There is no indication that existing septic systems in the vicinity would be affected by the project. A septic evaluation performed in 2007 was approved by the Environmental Health Services staff (Attachment # 8).

7. Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that could result in flooding, erosion, or siltation on or off-site?			X	

The proposed bridge widening and minor improvements to the road will not alter the existing overall drainage pattern of the site. The Department of Public Works Drainage Section staff has reviewed and approved a preliminary drainage plan.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
8. Create or contribute runoff that would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?			X	

Department of Public Works Drainage staff has reviewed the project and have determined that existing storm water facilities are adequate to handle the increase in drainage associated with the project. The project is conditioned to provide a drainage plan that demonstrates that the project will not result in an increase in the stormwater runoff rate in accordance with General Plan Policy 7.23.1. The disturbance involved in the widening of the bridge is minimal and a drainage plan will be included with the building permit application.

9. Contribute to flood levels or erosion in natural watercourses by discharges of newly collected runoff?			X	

As stated in item B-8 above, the project is conditioned to require an engineered drainage plan that will adequately address runoff, so that it would not exacerbate any existing problems with runoff into the San Lorenzo River.

10. Otherwise substantially degrade water supply or quality?		X		

As stated above, an erosion control plan prepared by a Certified Professional in Erosion and Sediment Control (CPESC) will be required as a project mitigation. BMPs will be maintained during construction.

C. Biological Resources

Does the project have the potential to:

1. Have an adverse effect on any species identified as a candidate, sensitive, or special status species, in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?		X		

According to the California Natural Diversity Data Base (CNDDB), maintained by the California Department of Fish and Game, there are three listed animal species associated with the San Lorenzo River habitat. The proposed bridge widening is not anticipated to impact these species or the riparian habitat in that netting and other

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

protective materials will be used to prevent construction debris from entering the stream. Additionally, erosion control BMPs will ensure that no sediment enters the stream. To ensure that there are no adverse effects on any protected species, a pre-construction meeting will be held onsite with Environmental Planning staff to inspect the erosion control measures prior to any site disturbance.

One special status plant species, Bonny Doon manzanita, is listed on the CNDDB, however, however, Bonny Doon manzanita is a chaparral species, and no chaparral habitat is present at the project site.

2. Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)?	____	X	____	____

As stated in C-1 above, erosion control, seasonal grading restrictions and inspections by Environmental Planning staff will be implemented to minimize any potential impact to the waterway.

3. Interfere 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 or migratory wildlife nursery sites?	____	X	____	____

As stated in C-1 and C-2 above, mitigations are required to minimize any potential impact to the waterway from sedimentation or other development activities. There are no additional migratory corridors or migratory wildlife sites in the vicinity of the project.

4. Produce nighttime lighting that will illuminate animal habitats?	____	____	X	____

Development activities will not include lighting.

5. Make a significant contribution to the reduction of the number of species of plants or animals?	____	____	X	____

Refer to C-1 and C-2 above.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
6. Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6 inch diameters or greater)?	____	____	X	____

The project will not conflict with any local policies or ordinances regarding biotic resources.

7. Conflict with the provisions of an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional, or state habitat conservation plan?	____	____	____	X

The project site is not within a Habitat Conservation Plan or Biotic Conservation Easement area, and would not be a part of any other local, regional, or state habitat conservation plan.

D. Energy and Natural Resources

Does the project have the potential to:

1. Affect or be affected by land designated as "Timber Resources" by the General Plan?	____	____	____	X

The project is adjacent to land designated as Timber Resource. However, the project will not affect the resource or access to harvest the resource in the future. The timber resource may only be harvested in accordance with California Department of Forestry timber harvest rules and regulations.

2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?	____	____	____	X

The project site is not currently being used for agriculture and no agricultural uses are proposed for the site or surrounding vicinity. There is a small vineyard on the project site that is for personal use only.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?	____	____	X	____

Other than the proposed improvements to the existing bridge and roadway, no new development is proposed for this project.

4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?	____	____	____	X

E. Visual Resources and Aesthetics

Does the project have the potential to:

1. Have an adverse effect on a scenic resource, including visual obstruction of that resource?	____	____	X	____

The project will not directly impact any public scenic resources, as designated in the County's General Plan (1994), or obstruct any public views of these visual resources.

Although Highway 9 is a designated scenic resource, the only views from the highway that will potentially be affected by the project are associated with the temporary construction for the bridge widening. This impact is temporary and largely shielded from the highway by natural vegetation and elevation and not considered a significant impact.

2. Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings?	____	____	X	____

Refer to E-1 above.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Degrade the existing visual character or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridge line?			X	

The existing visual setting is rural. No new development is proposed, other than widening the existing bridge, which would be designed and landscaped to fit into this setting.

4. Create a new source of light or glare that would adversely affect day or nighttime views in the area?			X	

The Development Permit will be conditioned to prohibit the use of exterior lighting or reflective surfaces that may adversely affect day or nighttime views in the area.

5. Destroy, cover, or modify any unique geologic or physical feature?			X	

There are no unique geological or physical features on or adjacent to the site that would be destroyed, covered, or modified by the project.

F. Cultural Resources

Does the project have the potential to:

1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5?				X

The existing structures on the property are not designated as a historic resource on any federal, State or local inventory.

2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5?			X	

Because portions of the project site have been mapped for potential archeological resources, including the area of the existing bridge to be widened and the existing barn, a Phase I archeological survey was conducted on 11/04/08, and no archeological resources have been identified in the project area. The footprint of the existing barn will not change, and all undeveloped areas of the site came up negative. There is very little ground disturbance associated with the bridge widening and road improvements, and

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

no new structures are proposed. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the responsible persons shall immediately cease and desist from all further site excavation and comply with the notification procedures given in County Code Chapter 16.40.040.

3. Disturb any human remains, including those interred outside of formal cemeteries?	____	____	X	____

Pursuant to Section 16.40.040 of the Santa Cruz County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this project, human remains are discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the sheriff-coroner and the Planning Director. If the coroner determines that the remains are not of recent origin, a full archeological report shall be prepared and representatives of the local Native California Indian group shall be contacted. Disturbance shall not resume until the significance of the archeological resource is determined and appropriate mitigations to preserve the resource on the site are established.

4. Directly or indirectly destroy a unique paleontological resource or site?	____	____	____	X

There are no known unique paleontological resources or sites on the project site, or within at least one mile of the site area.

G. Hazards and Hazardous Materials

Does the project have the potential to:

1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use, or disposal of hazardous materials, not including gasoline or other motor fuels?	____	____	____	X

No transport, storage, use or disposal of hazardous materials is anticipated in conjunction with the project.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. 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

The project site is not included on the February 27, 2008 list of hazardous sites in Santa Cruz County compiled pursuant to the specified code.

3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two miles of the project site?				X
4. Expose people to electro-magnetic fields associated with electrical transmission lines?				X
5. Create a potential fire hazard?			X	

The project design incorporates all applicable fire safety code requirements and will include fire protection devices as required by the local fire agency.

6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

No bio-engineered organisms or chemicals shall be used.

H. Transportation/Traffic

Does the project have the potential to:

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X

The project will not increase traffic on nearby roads and intersections, as no additional dwelling units are proposed.

	Significant Or Potentially *Significant* Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Cause an increase in parking demand that cannot be accommodated by existing parking facilities?	____	____	X	____

The project meets the code requirements for the required number of parking spaces and therefore new parking demand will be accommodated on site.

3. Increase hazards to motorists, bicyclists, or pedestrians?	____	____	X	____

The proposed project will comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians.

4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways?	____	____	X	____

See response H-1 above.

I. Noise

Does the project have the potential to:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____

The project will create an incremental increase in the existing noise environment. However, this increase will be small, and will be similar in character to noise generated by the surrounding existing uses.

2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies?	____	____	X	____

Per County policy, average hourly noise levels shall not exceed the General Plan threshold of 50 L_{eq} during the day and 45 L_{eq} during the nighttime. Impulsive noise levels shall not exceed 65 db during the day or 60 db at night. Sensitive receptors will

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

be too far away to experience any increase in noise levels, as the bridge is approximately 200 yards from Highway 9, and 20-30 feet lower in elevation. There are no nearby residences.

3.	Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____

Noise generated during construction will increase the ambient noise levels for adjoining areas. Construction will be temporary, however, and given the limited duration of this impact and the distance from any sensitive receptors, as discussed above, it is considered to be less than significant.

J. Air Quality

Does the project have the potential to:

1.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	____	____	X	____

The North Central Coast Air Basin does not meet State standards for ozone and particulate matter (PM10). Therefore, the regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NOx]), and dust.

No new traffic will be generated by the project, thus there is no indication that new emissions of VOCs or NOx will exceed Monterey Bay Unified Air Pollution Control District (MBUAPCD) thresholds for these pollutants and therefore there will not be a significant contribution to an existing air quality violation.

Project construction may result in a short-term, localized decrease in air quality due to generation of dust. However, standard dust control best management practices, such as periodic watering, will be implemented during construction to reduce impacts to a less than significant level.

2.	Conflict with or obstruct implementation of an adopted air quality plan?	____	____	X	____

The project will not conflict with or obstruct implementation of the regional air quality plan. See J-1 above.

3.	Expose sensitive receptors to substantial pollutant concentrations?	____	____	X	____

See J-2 above.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
4. Create objectionable odors affecting a substantial number of people?	____	____	X	____

The proposed improvements to an existing bridge and private roadway are not expected to generate objectionable odors.

K. Public Services and Utilities

Does the project have the potential to:

1. Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
a. Fire protection?	____	____	X	____
b. Police protection?	____	____	X	____
c. Schools?	____	____	X	____
d. Parks or other recreational activities?	____	____	X	____
e. Other public facilities; including the maintenance of roads?	____	____	X	____

The proposed project will not increase the need for public services. Moreover, with the proposed widening of the existing bridge, and improvements to the road within the project site, the project meets all of the standards and requirements identified by the County Fire District.

2. Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	____	____	X	____

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

Department of Public Works Drainage staff have reviewed the drainage information and have determined that downstream storm facilities are adequate to handle the increase in drainage associated with the project (Attachment # 10).

3. Result in the need for construction of *new water or wastewater treatment* facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	____	____	X	____

The project will rely on the San Lorenzo Valley Water District for water supply. A will-serve letter has been obtained from the San Lorenzo Valley Water District.
The project will be served by an on-site sewage disposal system, which Environmental Health has reviewed and approved.

4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?	____	____	X	____

The project's wastewater flows will not violate any wastewater treatment standards.

5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?	____	____	X	____

The water mains serving the project site provide adequate flows and pressure for fire suppression. Additionally, County Fire has reviewed and approved the project plans, assuring conformity with fire protection standards that include minimum requirements for water supply for fire protection.

6. Result in inadequate access for fire protection?	____	____	X	____

The proposed improvements to the existing bridge and road have been designed to meet County standards and have been reviewed and approved by County Fire. The project design includes a proposal for a fire department turnaround.

One lane will remain open at all times. Fire trucks, ambulances and other emergency vehicles will not be blocked from using the road at any time.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?			X	

The project will make an incremental contribution to the reduced capacity of regional landfills. However, this contribution will be relatively small and will be of similar magnitude to that created by existing land uses around the project.

8. Result in a breach of federal, state, and local statutes and regulations related to solid waste management?			X	

The project will not result in a breach of federal, state or local solid waste management regulations.

L. Land Use, Population, and Housing

Does the project have the potential to:

1. Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any policies adopted for the purpose of avoiding or mitigating an environmental effect. Per General Plan Policy 7.23.1 new development is required to provide on and off-site improvements to alleviate drainage problems and to require runoff levels to maintained at predevelopment rates to reduce downstream flood hazards. The project will be conditioned to control runoff in accordance with Public Works Design Criteria and the recommendations of the project geotechnical engineer.

2. Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any regulations adopted for the purpose of avoiding or mitigating an environmental effect.

3. Physically divide an established community?			X	

The project will not include any element that will physically divide an established community.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
4. Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	

The proposed project is designed at the density and intensity of development allowed by the General Plan and zoning designations for the parcel. Additionally, the project does not involve extensions of utilities (e.g., water, sewer, or new road systems) into areas previously not served. Consequently, it is not expected to have a significant growth-inducing effect.

The proposed project will not extend the road or increase its capacity.

5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?				X

The proposed project will entail a net gain in housing units.

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? (see page 2 of this report)

Yes X No ____

N. Mandatory Findings of Significance

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

   Yes ____ No X

2. Does the project have the potential to achieve short term, to the disadvantage of long-term environmental goals? (A short term impact on the environment is one which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future)

   Yes ____ No X

3. 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, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)?

   Yes ____ No X

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

   Yes ____ No X

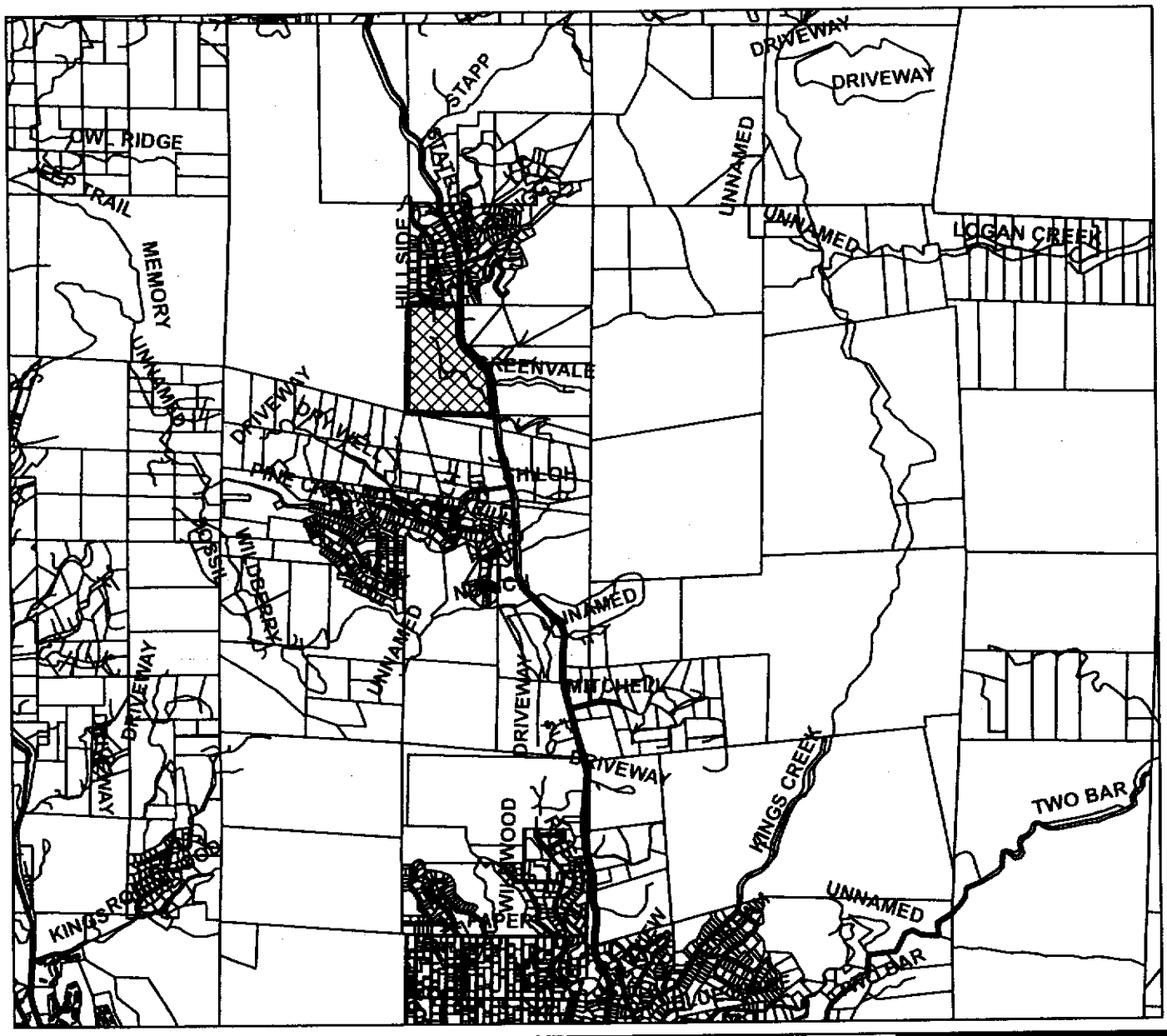
TECHNICAL REVIEW CHECKLIST

	REQUIRED	COMPLETED*	N/A
Agricultural Policy Advisory Commission (APAC) Review			X
Archaeological Review		X	
Biotic Report/Assessment		X	
Geologic Hazards Assessment (GHA)			X
Geologic Report		X	
Geotechnical (Soils) Report		X	
Riparian Pre-Site			X
Septic Lot Check		X	
Other:			

Attachments:

1. Project Maps
2. Project Plans, dated 4/16/08, prepared by Jack Schultz, P.E.
3. Tentative Map & Preliminary Improvement Plans prepared by Dunbar & Craig, dated December 20, 2007
4. Preliminary Geologic Hazards Investigation, prepared by Nolan Associates, dated 2/27/06
5. Addendum to Geologic Report, by Nolan Associates, dated 12/18/07
6. Geotechnical Feasibility Study by Dees and Associates, Inc. dated 12/20/07
7. County Geologist review letter for Geotechnical Report, by Joseph Hanna, dated 10/16/08
8. Environmental Health Services Agency Site Evaluation, dated 6/13/05
9. Flood elevation study by Jack Schultz, P.E. dated 10/3/07
10. County of Santa Cruz Discretionary Application Comments dated 9/17/08

Location Map



LEGEND

- APN: 087-321-02
- Assessors Parcels
- Streets
- State Highways

Environmental Review Inital Study

ATTACHMENT 1 OF 4

APPLICATION 04-0483

N

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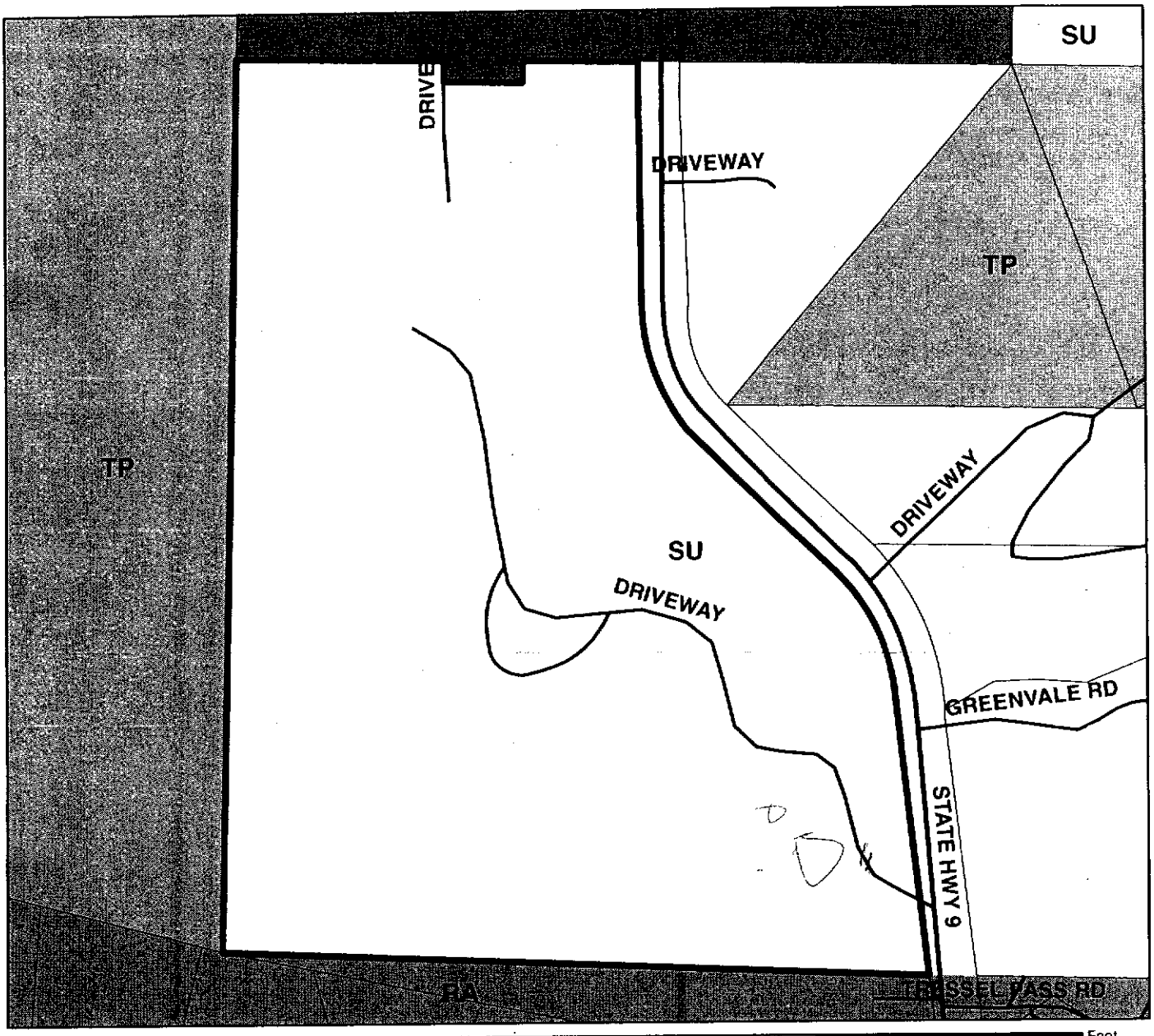
Map Created by
County of Santa Cruz
Planning Department
December 2008

Zoning Map



LEGEND

- APN: 087-321-07
- Assessors Parcels
- Streets
- State Highways

STREAMTYPE

- PERENNIAL
- SPECIAL USE
- TIMBER PRODUCTION
- AGRICULTURE RESIDENTIAL
- RESIDENTIAL-SINGLE FAMILY

Environmental Review Inital Study
ATTACHMENT 1, 2 of 4
APPLICATION 04-0483

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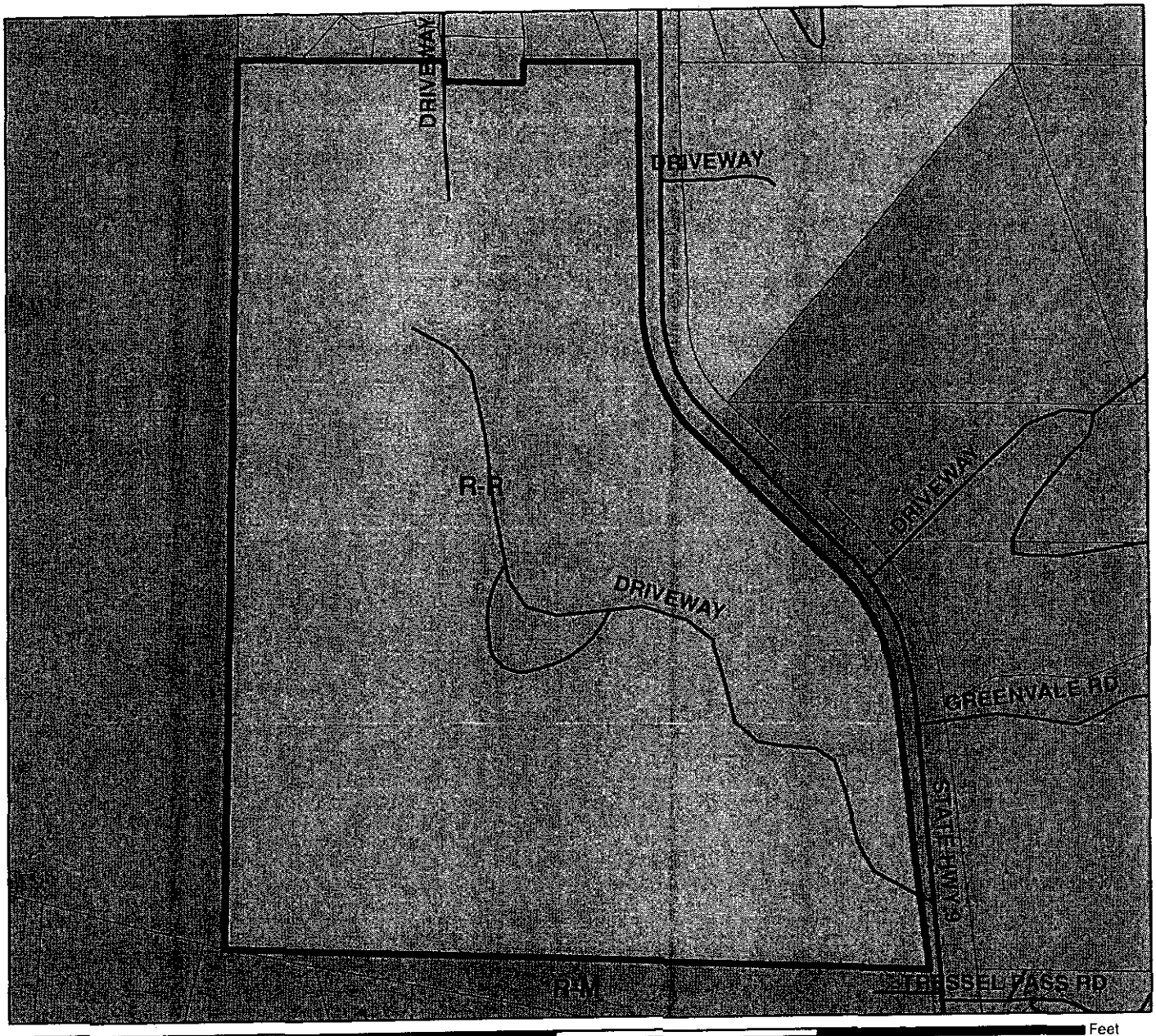
Map Created by
County of Santa Cruz
Planning Department
September 2008

General Plan Designation Map



0 230 460 920 1,380 1,840 Feet

LEGEND

- APN: 087-321-02
- Assessors Parcels
- Streets
- State Highways

STREAMTYPE

- PERENNIAL
- Residential-Rural
- Residential-Mountain

Environmental Review Inital Study
ATTACHMENT 13 of 14
APPLICATION 04-0483

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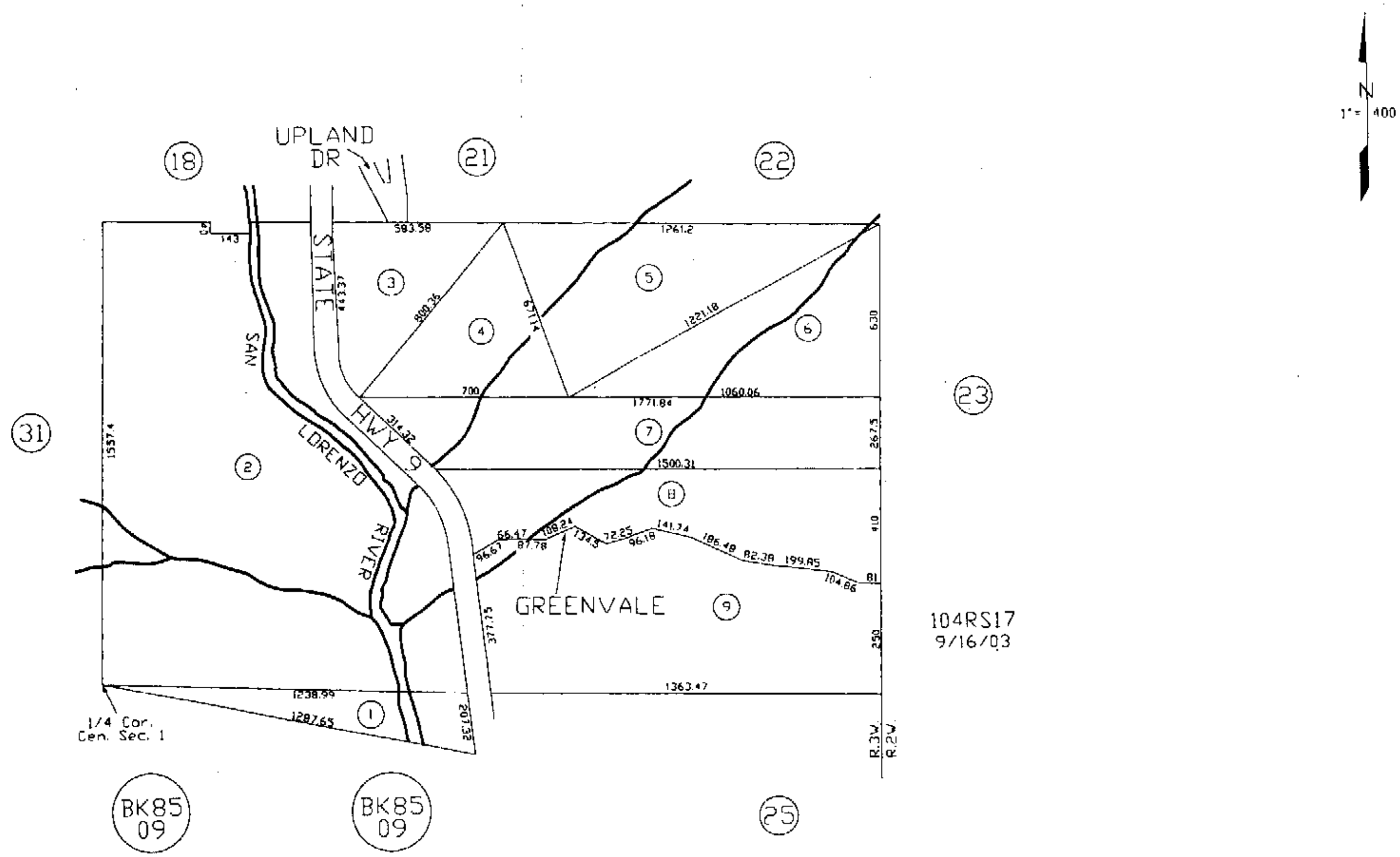
Map Created by
County of Santa Cruz
Planning Department
September 2008

FOR TAX PURPOSES ONLY

POR. SEC. S. 1/2 36, T.8S., &
N. 1/2 SEC 1, T.9S., R.3W., M.D.B. & M.

Tax Area Code
90-103

87-32

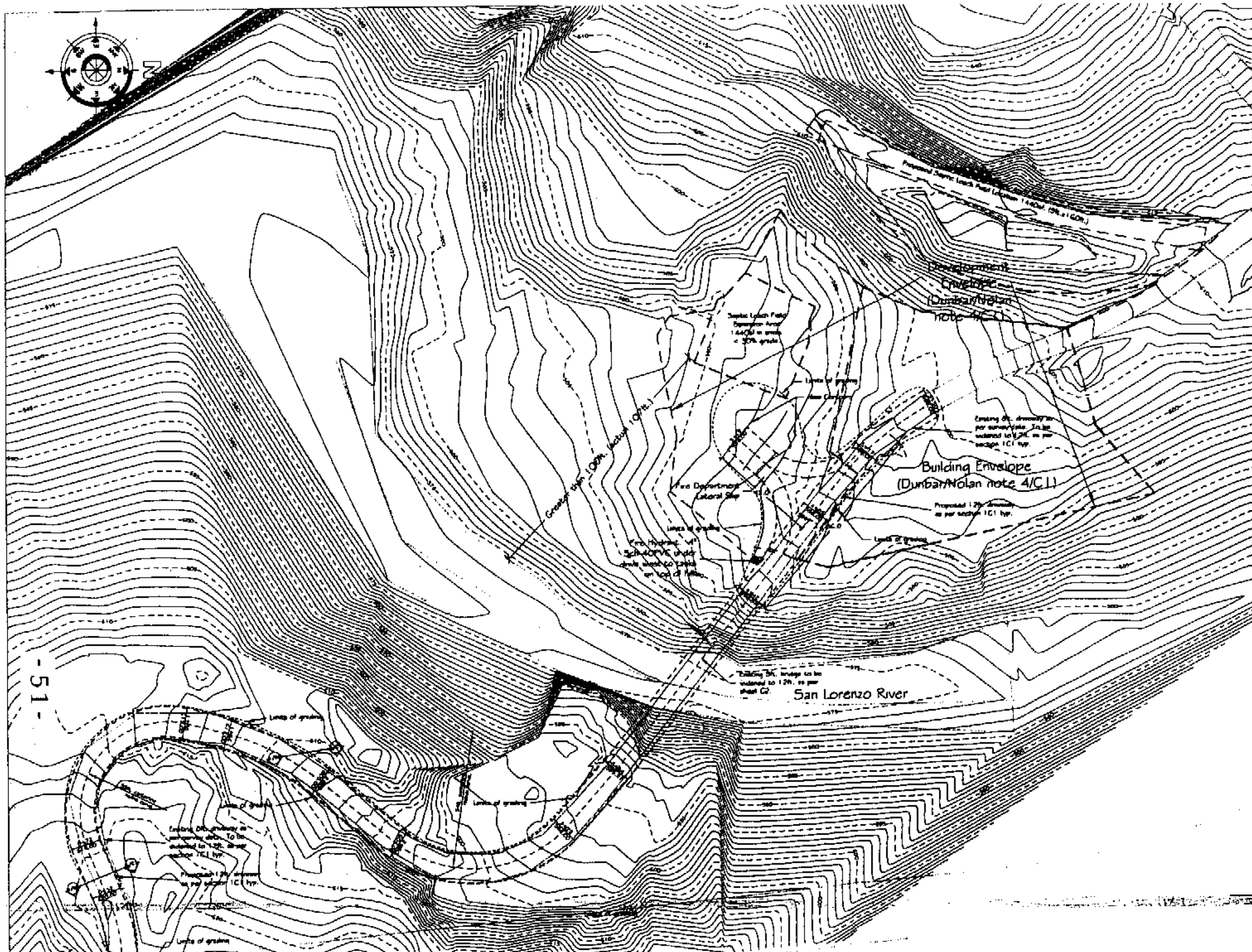


Environmental Review Inital Study
ATTACHMENT 1, 4 of 4
APPLICATION 04-0483

Note - Assessor's Parcel & Block
Numbers Shown in Circles.

Assessor's Map No. 87-32
County of Santa Cruz, Calif.
Nov. 1993

Electronically orsen 11/24/93 CB
Rev 5/26/98 KSA (C4)
Rev 8/30/01 nvn (changed page refs)
Rev 10/14/03 CB (104RS17)



Site plan and Driveway Design

Site Notes:

1. Intent of Grading: Provide driveway to building envelope for a future SFD. No improvements are proposed or required for the minor land division. All improvements to the existing site will be addressed at the building permit stage.

2. All survey, property line, and existing road/structure information provided by Dunbar & Craig, 1011 Cedar St., Santa Cruz, 95060 831-425-7533.

3. All earthwork and foundation construction shall comply with the Geotechnical Investigation prepared by Dees and Associates, 501 Mission St., Suite 8A, Santa Cruz, CA 95060 and Geological Investigation prepared by Nolan Associates 1509 Seabright Ave, St 2, Santa Cruz, CA 95062 831-423-7006.

4. Building envelope site defined by Dunbar & Craig April 16, 2008.

5. Septic design provided by Jack Schultz PE, 831-426-9301.

Driveway Notes:

1. Estimated earthwork, not including residence (not for contractor bidding purposes)
   Cut: 3± CY   Fill: 2± CY
   Shrinkage: 1± CY   Stripping: 32± CY (12" topsoil)

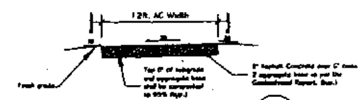
2. Asphalt concrete shall be type B and shall conform to the provisions in Section 39 of the standard specifications and these special provisions. The aggregate shall conform to the grading specified in Section 39-2.02 of the standard specification for the 1/2" maximum, medium gradation. Double chip seal coat shall be in conformance with Section 37 of Caltrans standard specifications. Aggregate base shall be class 2 in conformance with Section 26 of the State of California standard specifications.

Drainage Notes:

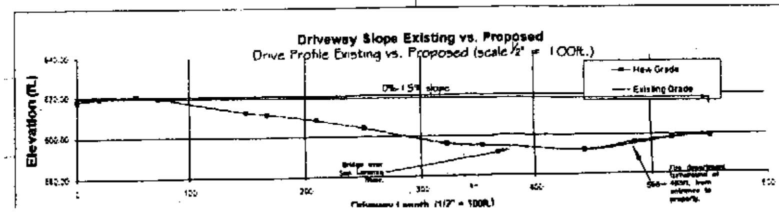
1. Post-Development Runoff will not be greater than Pre-Development runoff. Per Dees and Associates plan review letter, the proposed building envelopes have the ability to retain additional runoff onsite. Runoff mitigation measures for the proposed building site, if necessary, will be addressed during the building permit stage.

2. Bridge drainage shall be directly through slots cut in the bridge surface. Drainage shall not be directed towards the bridge abutments.

Table of Contents:



Driveway Section 0+52 (1/C1)
Typical drive surface



04-18-2008 | PO

Santa Cruz Drafting

Sibley Minor Land Division
Boulder Creek, California
Jack Schultz P.E. - Civil Engineering

Building Site:
17525 Highway 9
Boulder Creek, CA 95006
APN: 087-321-02

Owner/Subdivider:
Sibley Alfred E / Shepard Ele[...]
336 Reynolds Dr.
Boulder Creek, CA 95006
831-427-3686

Civil Engineer:
Jack Schultz, P.E.
Civil Engineer CA-65877
ofc: (831)-426-9301
mbl: (831)-419-4928
email: jschultz@cruzio.com

Land Use Consultant:
Stephen Graves & Associates
2735 Porter Street
Soquel, CA 95073
831-465-0677

Drawings:
Santa Cruz Drafting
Peter Odryna
ofc: (831)464-6463
mbl: (831)334-2191
fax: (866)881-6355
email: peter@odryna.net

Date:	4/18/08
scale:	1" = 20ft.
Version:	Sibley_d3
Job:	2007-03
Sheet #	C1

Environmental Review Inital Study
ATTACHMENT 2, 1 of 3
APPLICATION 04-0483

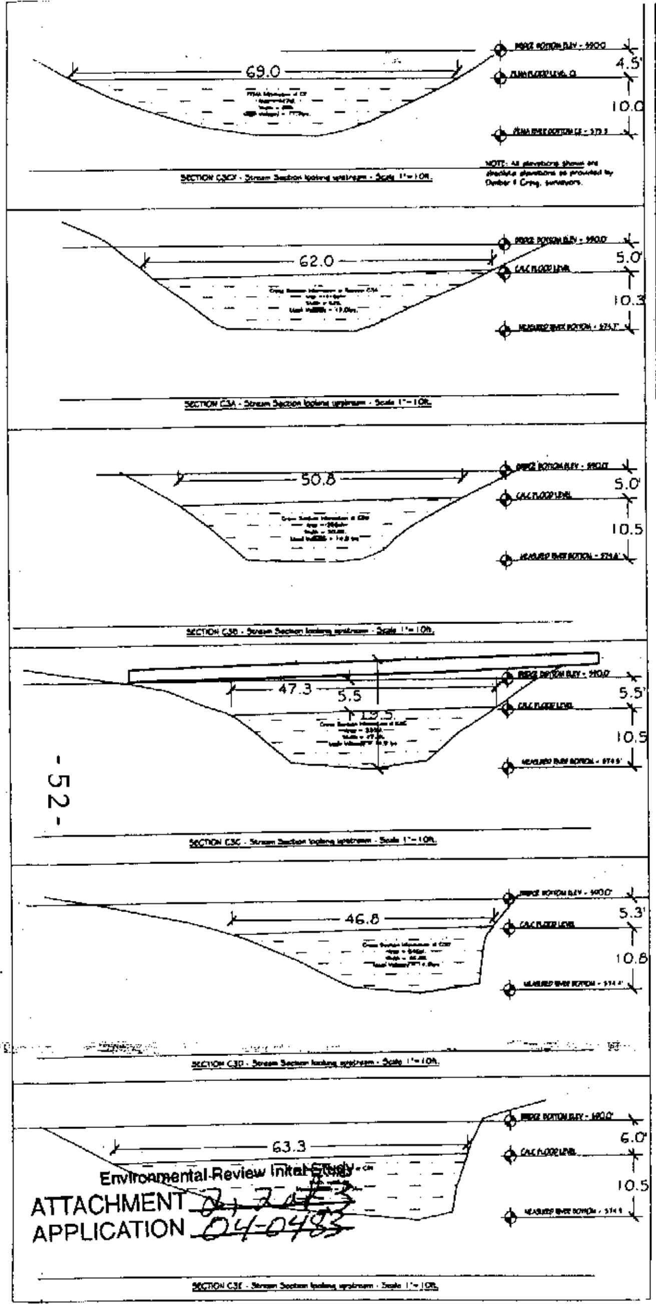
Sibley Minor Land Division

Boulder Creek, California

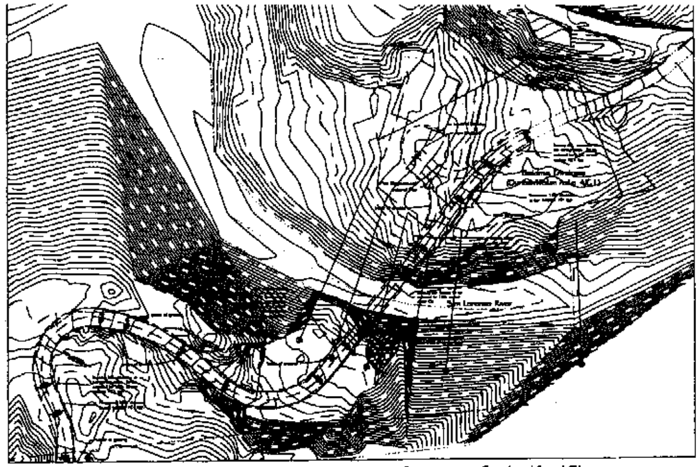
Jack Schultz P.E. - Civil Engineering

Santa Cruz Drafting

04-18-2008	PO



Environmental Review Inital Study
ATTACHMENT 2, 2 of 3
APPLICATION 04-0483



Plan View San Lorenzo River at Bridge Crossing - Scale 1"=40'
Plan also shows Culvert Extension Plan

Culvert Extension Construction Notes:

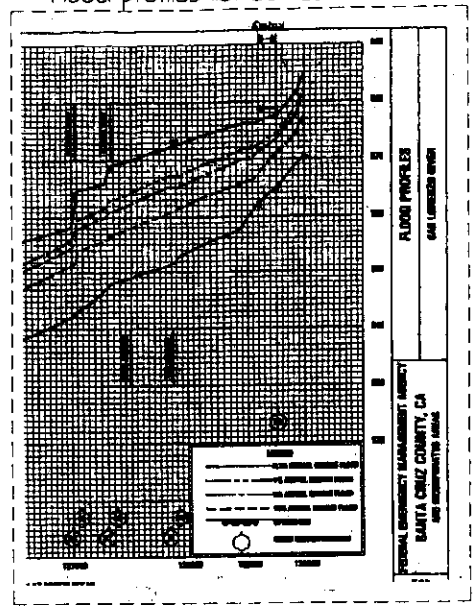
1. Rip-rap shall be size D24. Rip-rap shall be installed from above using appropriate equipment. Location of rip-rap on diagram is schematic and may be modified by project civil engineer to fit site conditions. No rip-rap shall be placed below stream high water level.
2. Contractor shall provide netting or other protection to prevent material from entering stream.
3. Culvert shall be extended to surface of rip-rap face. Culvert extension shall match existing culvert with approved coupling and shall be firmly supported by rip-rap. Rip-rap beyond culvert extension shall serve as an energy dissipater.
4. Installation and location of the rip-rap shall be approved by project civil engineer. Contact Jack Schultz PE at 831-426-9301 prior to commencement of project to verify location and placement of rip-rap.

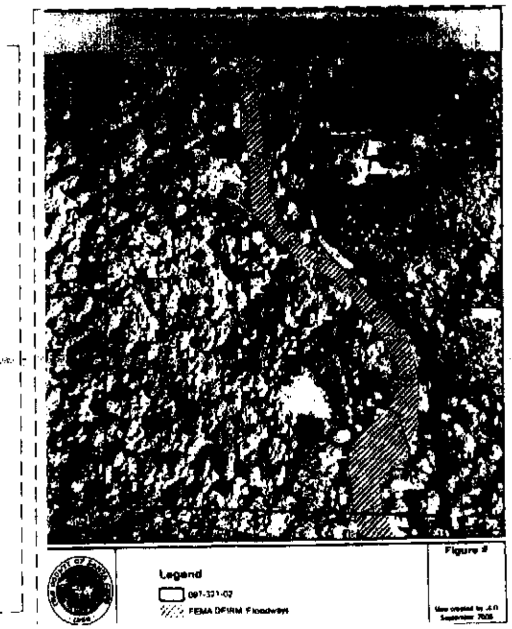
FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
San Lorenzo River (continued)								
CA	109,377	[illegible]	1,[illegible]	8.2	[illegible]	[illegible]	[illegible]	0.0
CB	109,[illegible]	103	1,877	[illegible]	491.7	491.7	491.7	0.0
CC	111,706	177	1,780	[illegible]	[illegible]	[illegible]	[illegible]	0.0
CD	112,780	[illegible]	878	16.1	497.4	497.4	497.4	0.0
CE	113,[illegible]	[illegible]	[illegible]	12.3	[illegible]	[illegible]	[illegible]	0.0
CF	113,[illegible]	140	2,2[illegible]	5.1	[illegible]	[illegible]	503.7	0.0
CG	113,651	[illegible]	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0
CH	114,573	[illegible]	[illegible]	10.3	[illegible]	[illegible]	[illegible]	0.1
CI	114,780	91	1,132	[illegible]	[illegible]	507.9	[illegible]	0.1
CJ	116,358	136	1,416	4.3	[illegible]	519.8	520.[illegible]	0.5
CK	121,130	[illegible]	881	7.1	[illegible]	[illegible]	[illegible]	0.0
CL	121,[illegible]	[illegible]	1,026	[illegible]	535.7	535.7	535.7	0.0
CM	122,8[illegible]	97	[illegible]	[illegible]	541.1	541.1	541.1	0.0
CN	123,[illegible]	[illegible]	1,130	6.4	547.4	547.4	547.4	0.0
CO	123,873	[illegible]	1,117	5.8	547.[illegible]	547.[illegible]	547.[illegible]	0.0
CP	125,340	58	[illegible]	12.[illegible]	[illegible]	551.3	551.3	0.0
CQ	125,[illegible]	[illegible]	[illegible]	11.[illegible]	[illegible]	[illegible]	[illegible]	0.0
CR	126,580	34	[illegible]	14.4	[illegible]	[illegible]	561.7	0.0
CS	127,146	[illegible]	[illegible]	10.0	564.[illegible]	564.[illegible]	564.[illegible]	0.0
CT	127,670	47	477	11.2	[illegible]	[illegible]	[illegible]	0.0
CU	127,735	52	547	16.5	568.2	568.2	568.2	0.0
CV	12[illegible]	55	750	7.4	572.2	572.2	572.[illegible]	0.0
CW	[illegible]	74	741	7.5	573.2	573.[illegible]	573.[illegible]	0.0
CX	130,317	80	447	11.2	[illegible]	[illegible]	[illegible]	0.0
CY	131,187	51	347	14.5	581.7	581.7	581.7	0.0
CZ	132,201	40	811	8.3	[illegible]	[illegible]	601.1	0.0

1 Feet Above Mouth at Pacific Ocean

TABLE 10	FEDERAL EMERGENCY MANAGEMENT AGENCY SANTA CRUZ COUNTY, CA (AND INCORPORATED AREAS)	FLOODWAY DATA SAN LORENZO RIVER

Flood profiles for San Lorenzo River





Building Site:
17525 Highway 9
Boulder Creek, CA 95006
APN: 087-321-02

Owner/Subdivider:
Sibley Alfred E / Shepard Ele
356 Reynolds Dr.
Boulder Creek, CA 95006
831-427-3686

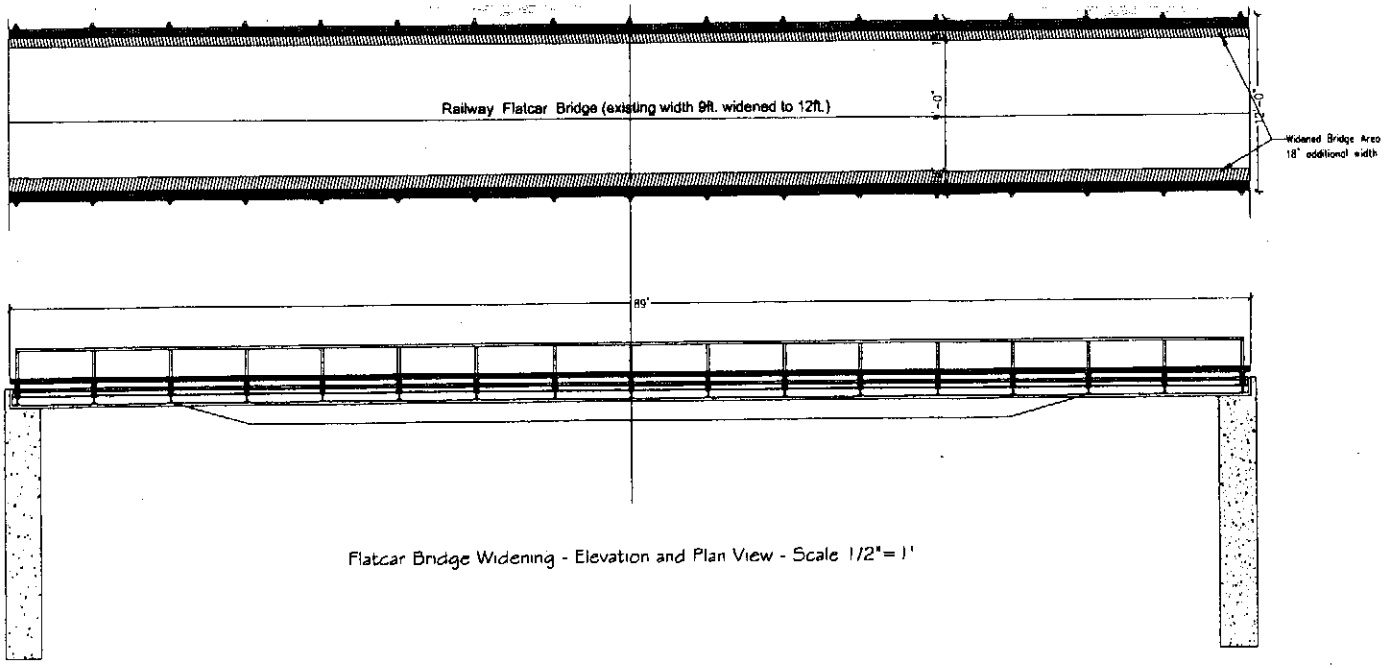
Civil Engineer:
Jack Schultz, P.E.
Civil Engineer CA-65877
ofc: (831)-426-9301
mbl: (831)-415-4928
email: jschultz@cruzio.com

Land Use Consultant:
Stephen Graves & Associates
2735 Porter Street
Soquel, CA 95073
831-465-0677

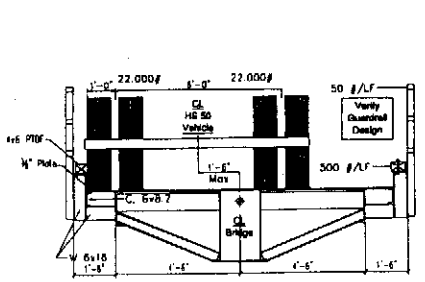
Drawings:
Santa Cruz Drafting
Peter Odryna
ofc: (831)464-8463
mbl: (831)334-2191
fax: (866)651-6355
email: peter@odryna.net

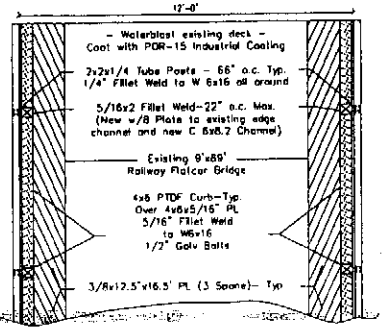
Date:	4/16/08
scale:	As Shown
Version:	Sibley_43
Job:	2007-43
Sheet #	C3

Bridge Widening Plan



Flatcar Bridge Widening - Elevation and Plan View - Scale 1/2"=1'





Section 1/C2 Typical Plan and Section - Scale 1"=1'

Environmental Review Initial Study
ATTACHMENT 2 3 of 3
APPLICATION 04-0483

Construction Notes

1. General

A. Stream Protection - Contractor to provide netting or other protection so that no construction materials or debris enters stream.

B. Scaffolding - Contractor to provide staging as necessary to comply with all safety regulations.

C. Welding
1. All shop fabrication shall be done in a certified welding shop.
2. Field welding to be performed under continuous supervision by a Certified Welding Inspector.

2. Materials

A. Steel
1. Structural Shapes - ASTM A36
2. Plate - ASTM-A588

B. Welding Rod - All position E7018

C. Wooden Members (Alternate for Curb and Guard railings)
1. #1 PTDF
2. Pulled out ends per manufacturer.
3. Provide "Bitathane" or equal insulating cushion at all contacts between PTDF and steel.

D. Fasteners
1. Bolts in contact with PTDF Curb and/or Railing - HDGlv- ½" dia. min.
2. All fasteners <1/2" dia. in contact with PTDF must be stainless steel or with coating certified for contact w/ pressure treated lumber.

3. Repair and Preparation

A. Struts
1. Straighten bent struts as practical with hand tools.
2. Sister weakened struts w/ 3"x2"x5/16" mild steel angle material.

B. Grind or wirebrush existing structure as needed for welds.

C. Waterblast the accessible structure - remove loose paint and rust.

4. Deck Extension Support and Guard Rail Posts
(Portions may be pre-assembled in a certified welding shop.)

A. Extension Supports - W 6x16
1. Cope horizontal portion to fit existing 12" plate channel as needed to maintain line and horizontal position relative to existing side stringer. (Maximum gap 1/8" -- unless bonded plate used.)
2. ¼" Fillet weld all sides of connections.
3. 3/8" plate welded to top of vertical member to be pre-drilled to receive PTDF curb (if used in lieu of steel).

B. Outer Stringer (New) - C 6x8.2
1. Channel receiving deck extension plate to be spliced approx. at center of W 6x16 vertical members.
2. ¼" Fillet weld channel to extension supports at all connections.

C. Guard Rail Posts - T 2.8x2.8x5/16"
1. ¼" Fillet Weld 3 sides - connection to W 6x16.
2. Weld plate on top (w/ bore 'f wooden rail).

5. Extension Plate
A. 3/8" Plate - 1" bearing min on existing and new stringers.
B. 5/16"s (4"Max) Fillet Welds 10" o.c. - both sides.
(Note: Each weld section to extend weld size at each end. i.e. 4" Note 4-5/8" overall.)

6. Curb and Guard Rails
(Provide sketch of proposed rail for review by Engineer)
A. Curb: 6x6 PTDF or A 6x3-1/2x1/4" angle.
1. Continuous over three spaces - approx. 18'
2. Fasten w/ ½" HDG bolts (w/ malleable iron washers if steel curb).

B. Guard Rails:
1. Top Rail: 3x6 PTDF or 3x3x3/16" Tubing.
2. Intermediate Rails: 2x2x3/16" Square Tube or 2x6 PTDF.

7. Finish
A. Coat all steel surfaces w/ POR-15 per manufacturer's recommendations.

8. Abutment Erosion Protection
A. Material may be gabions, gabion blankets or 1 ton min. riprap.
B. Review placement on outside bank (west) w. Engineer.

04-16-2008	PO

Santa Cruz Drafting

Sibley Minor Land Division
Boulder Creek, California

Jack Schultz P.E. - Civil Engineering

Building Site:
7535 Highway 9
Boulder Creek, CA 95006
APN: 087-321-02

Owner/Subdivider:
Sibley Minor E.T.Shepard Est
336 Reynolds Dr.
Boulder Creek, CA 95006
831-427-3686

Civil Engineer:
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Civil Engineer CA-63877
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Date:	4/16/08
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Version:	Sibley_d3
Job:	2007-03
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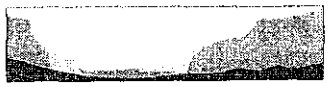


• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

PRELIMINARY GEOLOGIC HAZARDS INVESTIGATION
Property at 17525 Highway 9
Boulder Creek, California
Santa Cruz County APN 087-321-02

Prepared for :
Mr. Al Sibley
210 Ross Street
Santa Cruz, CA 95060

Job No. 05063
February 27, 2006

TABLE OF CONTENTS

PLATES 1,2,3 - In rear pocket

NOTE: This report should not be considered complete without all listed figures and plates.

INTRODUCTION

This report presents the results of our preliminary geologic hazards investigation for a parcel located on the west side of California State Highway 9, approximately 4 miles north of Boulder Creek, California (Figure 1: Topographic Index Map). The purpose of our study was to evaluate risks posed to the project by geologic hazards. Our investigation was directed towards evaluating the principal geologic hazards relevant to this site, including landsliding, ground failure due to strong seismic shaking, and flood-related hazards. There are two existing residences on the parcel, one of which is permitted with Santa Cruz County and one of which is not. This investigation was intended to address potential geologic hazards associated with 1) the existing, non-permitted residence, 2) an existing bridge that crosses the San Lorenzo River, serving the non-permitted residence, and 3) permitting and developing an accessory dwelling unit on the subject property. This project does not include any evaluation of the permitted house near the northern portion of the subject property.

Due to nature of this project, some of the discussion of this report pertains to development sites that are existing and some that are proposed. To eliminate confusion, we will refer to each item specifically, where necessary. When referring to all of the three items listed above, we will refer to them as the 'areas of development,' where the related discussion pertains to all three items similarly.

The scope of our investigation included the following tasks:

1. A review of pertinent geologic literature and maps for the study area.

2. Inspection of several series of stereographic aerial photos dating back to the 1940's to assess the past stability of slopes on and near the property.

3. Two days of geologic mapping of the property and environs.

4. Excavation and logging of four geologic test pits.

5. Co-logging five geotechnical borings, advanced by Dees & Associates.

6. Data analysis and geologic evaluation of the areas of development.

7. Preparation of this report summarizing our findings, conclusions and recommendations.

We were provided with the following project documents:

1. A letter requiring a soils report with the assistance of an engineering geologist, completed by Cathy Graves of the County of Santa Cruz Planning Department, dated November 8, 2005.

2. A 'Geotechnical Feasibility Study' by Dees & Associates, project number SCR-0080, dated March 23, 2005.

3. A Tentative Parcel Map with boundary and topographic information for the subject property, by Dunbar and Craig, Licensed Land Surveyors no. 5615, dated November 2003, printed at a scale of 1"=60'.

SITE DESCRIPTION

The subject property is an irregularly shaped parcel of about 34.7 acres, encompassing predominantly east-facing slopes on the west side of the San Lorenzo River (Figure 1). The San Lorenzo River flows southward through eastern portions of the subject property and roughly parallels the eastern property boundary (Figure 1, Topographic Index Map). On the subject property, the current course of the San Lorenzo River is flanked by flat to gently sloping river terraces that have been incised into the underlying bedrock. During our investigation, we visited the subject property on six occasions between November 2005 and January 2006. During these visits we consistently observed the San Lorenzo River flowing in its bedrock channel at shallow depths.

The existing residence is located atop a gently-sloping portion of a spur ridge crest, approximately 260 feet west of the San Lorenzo River, in the southeastern portion of the subject property (Plate 1: Geologic Site Map). The area downslope of the residence is vegetated predominantly by redwood trees, and the area surrounding and upslope of the residence has non-native grasses, small plants, and grape vineyards. From our historic aerial photo research, it appears the areas surrounding and upslope of the residence were cleared sometime between 1975 and 1982, presumably for construction of the residence. The balance of the property is vegetated predominantly by redwood, madrone, and oak trees. During our field reconnaissance, we observed two springs. Both springs were seen flowing out of the large landslide mass shown on Plate 1, locally incising flatter sections of landslide deposits or occupying the inboard edges of dirt roads before continuing downslope to the east.

Topographic elevation of the property ranges from approximately 570 to 900 feet above mean sea level (Figure 1). Slopes in the area of investigation range from 0% (where associated with grading, river terraces and river bottoms, or unit surfaces of landslide masses) to over 200% (where associated with head scarps of landslides and river bank incision). The existing residence is located on a flat, graded pad. On the south side of the residence, the flat pad extends for

approximately thirty to forty feet, with 55% downhill slopes beyond that. On the north side of the residence, the flat pad extends for approximately twenty-five feet, where it meets the generally flat driveway area. On the east side of the residence, the flat pad extends for approximately seventeen feet, with downhill slopes ranging between 24% and 40% beyond that. On the west side of the residence, the flat pad extends for approximately six feet, where a 1' to 3' high wood retaining wall is located. Slopes above this retaining wall have multiple, small, terraced benches for grape vineyards, but the overall slopes are 26% for approximately fifty feet, then steepen to 31% for approximately forty feet (Plate 1 & Plate 2: Geologic Cross Sections).

One topographic anomaly worth noting is an abandoned railroad grade, which cuts across the slopes just downhill to the east of the existing residence (Plate 1). Here we observed a flat, graded railroad grade that cuts into the natural slopes while staying approximately parallel to contours. This railroad grade has both uphill and downhill cuts. The uphill cuts range between 0.5:1 and near vertical and are up to 11.5 feet high. The downhill cuts are 0.5:1 and up to 5.0 feet high. Both uphill and downhill railroad cuts display evidence for recent small failures and sloughing.

The existing residence is accessed by an approximately 700-foot-long dirt and base rock driveway with an approximately 500-foot-long asphalt paved loop at its end that completes the access to the existing residence. This driveway includes a 90-foot-long bridge that crosses the San Lorenzo River approximately 350 feet from California State Highway 9.

REGIONAL GEOLOGY

The subject property is located within the central portion of the Coast Ranges Physiographic Province of California, a series of coastal mountain chains that parallel the pronounced northwest-southeast directed structural grain of Central Californian geology. The property is located on the southwest flank of the central Santa Cruz Mountains, which are mostly underlain by a large, elongate structural unit known as the Salinian Block. The Salinian Block is floored with granitic and metamorphic rocks of Mesozoic age, and is separated from contrasting basement rock of the Franciscan Complex to the northeast and southwest by the San Andreas and Nacimiento-San Gregorio-Sur faults, respectively. The granitic basement is overlain by a sequence of dominantly marine sedimentary rocks of Cretaceous to Pliocene age and non-marine sediments of late Pliocene to Pleistocene age (Figure 2: Regional Geologic Map).

Throughout the Cenozoic Era, this portion of California has been dominated by tectonic forces associated with lateral or "transform" motion between the North American and Pacific lithospheric plates, producing long, northwest-trending faults such as the San Andreas and San Gregorio, with horizontal displacements measured in tens to hundreds of miles. Accompanying the horizontal (strike-slip) movement of the plates have been episodes of compressive stress, reflected by repeated episodes of uplift, deformation, erosion and deposition of sedimentary rocks. Near the crest of the Santa Cruz Mountains, this tectonic deformation is evidenced by

steeply dipping folds, overturned bedding, faulting, jointing, and fracturing in the sedimentary rocks older than the middle Miocene. Along the coast, the on-going tectonic activity is most evident in the formation of a series of uplifted marine terraces. The Loma Prieta earthquake of 1989 and its aftershocks are the most recent reminders of the geologic unrest in the region.

REGIONAL FAULTING AND SEISMICITY

California's broad system of strike-slip faulting has a long and complex history. Locally, the San Andreas, Zayante-Vergeles and San Gregorio faults and the Monterey Bay-Tularcitos fault zone present a seismic hazard to the subject property. These faults are associated with Holocene activity (movement in the last 11,000 years) and are therefore considered to be active (Petersen, et al, 1996). Local faults are discussed in detail in Appendix A of this report.

The region as a whole is subject to on-going seismicity. The most severe historic earthquakes to affect the subject property are the 1906 San Francisco Earthquake and the 1989 Loma Prieta Earthquake, with Richter magnitudes of about 8.3 and 7.1, respectively. Other historic earthquakes of note include two magnitude 6.1 earthquakes in Monterey Bay in 1926 and a host of smaller or more distant events. Refer to Figure 3 for a map showing the locations of faults and historic earthquake epicenters around the Monterey Bay area. The intensity of seismic shaking that could occur at the site from an earthquake generated by local active faults will be discussed in a later section.

SITE GEOLOGY

The Geologic Site Map (Plate 1), Geologic Cross Sections (Plate 2) and Geologic Test Pit Logs (Plate 3) depict relevant topographic and geologic information collected for the subject property and vicinity.

Stratigraphy and Earth Materials

Butano Sandstone: upper sandstone member (Tbu)

As mapped by Brabb (1989), the northeastern portions of the subject property is underlain by the upper sandstone member of the Butano Sandstone bedrock of Eocene age and the Twobar Shale Member of the San Lorenzo Formation of Eocene age (Figure 4 & Plate 1). The upper sandstone member of the Butano Sandstone is described by researchers as thin-bedded to very thick bedded medium gray, fine- to medium-grained arkosic sandstone containing thin interbeds of medium-gray siltstone, measuring about 3,200 feet in thickness (Brabb, 1989).

San Lorenzo Formation: Twobar Shale member (Tst)

As mapped by Brabb (1989), the central portion subject property is underlain by the Twobar Shale Member of the San Lorenzo Formation of Eocene age (Figure 4 & Plate 1). The Twobar

Shale Member of the San Lorenzo Formation is described by researchers as very thin bedded and laminated olive-gray shale, measuring about 790 feet in thickness along Kings Creek (Brabb, 1989).

San Lorenzo Formation: Rice's Mudstone member (Tsr)

As mapped by Brabb (1989), the southwestern corner of the subject property is underlain by the Rice's Mudstone member of the San Lorenzo Formation, of Oligocene and Eocene age (Figure 4: Local Geologic Map; & Plate 1). The Rice's Mudstone member of the San Lorenzo Formation is described by researchers as olive-gray mudstone and massive medium light-gray, very fine- to fine-grained arkosic sandstone with a thick bed of glauconitic sandstone at its base, measuring about 1,700 feet in thickness along Bear Creek (Brabb, 1989).

Quaternary Fluvial Terrace Deposits (older) (Qt)

We observed a relatively older generation of fluvial terrace deposits. These deposits are older than the fluvial deposits (Qf) that were observed flanking the San Lorenzo River, evidence by their abandoned and elevated nature, and their considerable distance (565 feet) from the modern river channel of the San Lorenzo River.

We encountered these older fluvial terrace deposits in test pit (TP-4), uphill and west of the existing residence. These deposits were observed a minimum thickness of 11 feet here, with the base of this deposit not observed in our excavation. They are generally horizontal layers of gray, reddish-brown, and olive-gray sandy clay to clayey sand. The lateral limits of these deposits are approximately located on our Site Geologic Map (Plate 1).

Quaternary Fluvial Terrace Deposits (Qf)

We observed fluvial terrace deposits blanketing both the western and eastern sides of the San Lorenzo River. These deposits were formed on a broad, relatively flat bedrock surface carved by the ancestral San Lorenzo River. Since the formation of these terraces, the San Lorenzo River has incised down through the thickness of these recent fluvial deposits, and down further into the underlying bedrock.

We observed these fluvial deposits in geologic test pit (TP-1) and geotechnical borings (B-3, B-4, & B-5). These deposits and their associated soils were observed up to 13 feet thick. They are consistently moderately- to well-sorted fine-grained sand with a coarser basal layer of silty fine-grained sand with rounded pebbles and cobbles up to 10" in diameter.

Quaternary Colluvium (Qc)

Colluvium overlies the bedrock on the flanks of the ridge on the property. Colluvium is produced by gravitational (downslope) creep and mixing of the loose soils that develop near the

ground surface by weathering and biologic activity. These colluvial deposits are not depicted on the Geologic Site Map (Plate 1) and Geologic Cross Sections (Plate 2). We typically display colluvium only where it is inferred to form deposits thicker than 5 feet. It is our opinion that in the investigation area colluvial deposits are not present greater than 5 feet in thickness.

Colluvium was observed at the mouth of a small, intermittent drainage approximately 220 feet north of the areas of development. These deposits were formed as a thin depositional fan at the mouth of a focused drainage uphill to the west . These colluvial deposits are depicted on the Geologic Site Map (Plate 1). It is our opinion that in these colluvial deposits are not greater than 5 feet in thickness.

Quaternary Landslide Deposits (Qls_R, Qls_Y, Qls_O, Qls_U)

Multiple landslides of varying age, size, and depth have occurred on the subject property and environs. These landslides have displaced intact soils and bedrock downslope of their origin to varying distances. These deposits were observed during our field reconnaissance mapping, subsurface investigation, and aerial photo inspection, and are depicted on our Site Geologic Map (Plate 1), Geologic Cross Sections (Plate 2), and Geologic Test Pit Logs (Plate 3).

We have delineated three types of landslide deposits according to their apparent age as observed in the field from criteria discussed later in the 'Landsliding' section of this report. From youngest to oldest, we observed Recent Landslide Deposits (Qls_R), Younger Landslide Deposits (Qls_Y), and Older Landslide Deposits (Qls_O). Each of these landslide types are discussed in greater detail later in the 'Landsliding' and 'Landslide Hazard' sections of this report. An "unclassified" landslide (Qls_U) is shown on the Santa Cruz County Landslide Map (Figure 5) on the extreme northeastern corner of the subject property. This landslide is depicted on Plate 1. However, we did not evaluate this landslide in the field.

Artificial Fill (af)

Previous grading has resulted in the placement of artificial fill, 1) around the outer edges of the flat pad where the existing residence is located, 2) locally along the downslope edge of road and the main access driveway, 3) underneath and adjacent to Highway 9 due to grading for the highway, and 4) along the downslope edge of the flat pad where the existing water tanks are located upslope from the existing residence (Plate 1). Some other areas of unmapped fill of minor thicknesses may exist in other areas. We presume these other areas of fill are no thicker than 2 feet, and are not pertinent to the project.

Artificial fill was observed in test pit TP-1, where backfilling and spreading of soils related to bridge construction has probably occurred. The test pit exposures suggest that artificial fill here is approximately 0.5' thick. Artificial fill was also observed in test pit TP-2, where pad grading

has occurred. The test pit exposures suggest that artificial fill at the thickest point of the fill wedge is approximately 2.0' thick (Plate 3, Geologic Trench Logs). The thickness of the fill wedge surrounding the edge of the graded pad may vary laterally.

The other locations of artificial fill were observed only during our field reconnaissance mapping and can be postulated to exist from 1 to 4 feet in thickness from projected original topographic surfaces (Plate 2, Cross Section A-A'). One additional area of artificial fill was observed under and adjacent to Highway 9. The edge of this fill slope appears to partially within the eastern edge of the subject parcel. This artificial fill slope appears to be approximately 15-20 feet thick, is a considerable distance from the areas of development, and is considered not pertinent to the project.

Local Geologic Structure and Faulting

Folding

Bedding within the subject property, as mapped by Brabb (1989; see Figure 4), is folded into a southeast plunging anticline known as the Butano Anticline, with beds on the northeastern limb dipping steeply to the northeast and beds on the southwestern limb dipping moderately to the southwest. In the areas of development, we measured beds striking west or northwest, and dipping from 30 to 64 degrees to the south or southwest. These measurements were recorded within trench exposures, head scarps of recent landslides, and river bottom outcrops.

Although our bedding measurements are roughly consistent with the published mapping, the location of the axis of the Butano Anticline was found to be approximately 450 feet north of it location on the regional geological maps, which were mapped at the scale of 1:24,000 (and compiled at a scale of 1:62,500) by Brabb (1989). Due to the larger scale (1"=40') of the mapping during this investigation, we have modified the location of the Butano Anticline and the folded contacts of the bedrock formations to match a more accurate location for the axis of the Butano Anticline and the bedrock contacts that it folds. Such adjustments are common when applying regional scale geologic mapping to specific sites. The rocks observed within the 9 total subsurface excavations, agree with and support the modified locations of the bedrock contacts.

Faulting

Published geology maps (Brabb, 1989) and Santa Cruz County fault maps (Hall, 1974) show no faults cross the subject property, although both maps depict a northwest-trending fault passing near the northeast corner of the subject property. This fault is shown offsetting Tertiary age rocks. Hall et al. (1974) describes this fault as a bedrock fault with a maximum age of faulting as Tertiary.

We do not anticipate that this fault will be a seismogenic source or a source of ground surface displacement and will not impact the areas of development.

Table 1 shows distances and directions to faults considered active by The State of California and Santa Cruz County. These faults are discussed in detail in Appendix A.

TABLE 1
Distances and Directions to Local Faults

Fault	Distance from Site (km)	Distance from site (miles)	Direction from site
Zayante-Vergeles	4.35	2.70	southwest
San Andreas (main trace)	8.89	5.52	northeast
Monterey Bay-Tularcitos	28.29	17.58	south
San Gregorio	16.09	10.00	southwest

Landsliding

Multiple landslides of varying age, size, and depth have occurred on the subject property and environs. These deposits were predominantly observed during our field reconnaissance mapping and are depicted on our Site Geologic Map (Plate 1) and Geologic Cross Sections (Plate 2).

We have delineated three types of landslide deposits according to their apparent age as observed in the field. Recent Landslide Deposits (Qls_R) were observed with 1) fresh, very distinct scarps, 2) relatively little healing of its landslide geomorphology, and 3) tilted redwoods without growth correction. Younger Landslide Deposits (Qls_Y) were observed with 1) distinct scarps, 2) a moderate amount of diffused landslide geomorphology, and 3) a rejuvenated growth of disturbed vegetation. Older Landslide Deposits (Qls_O) were observed with 1) distinct or indiscernible scarps, 2) a moderate to high amount of diffused landslide geomorphology, and 3) no discernible vegetation disruption.

We also encountered Younger Landslide Deposits in geotechnical boring B-3 (Figure 9) to a depth 7.0 feet below the ground surface. We did not observe a basal shear within these deposits, and observed undisturbed, underlying, presumably Holocene age, fluvial deposits from 7.0 to 18.0 feet below the ground surface. We interpret this to be evidence that the boring was advanced within the zone of accumulation of this particular landslide deposit and that this Younger Landslide Deposit has a relative age younger than that of the presumably Holocene age fluvial deposits that underlie it. Determining the quantitative age of either the underlying, older fluvial deposits or the overlying, Younger Landslide Deposits may be possible, but is beyond the scope of this project.

The County of Santa Cruz Landslide Map (Cooper-Clark, 1975; Plate 1 & Figure 5) covering the subject property depicts numerous 'questionable' and 'unclassified' landslides in the close vicinity of the subject property. This map shows the toe of a west-directed, "unclassified

landslide deposit" crossing onto the eastern edge of the subject property. We observed some evidence for this large landslide during our historic aerial photo research. We also found intact bedrock outcrops in the river bottom immediately below the inferred toe of this landslide, that corresponds well with the local geology (Plate 1). This landslide does not impact the areas of development.

GEOLOGIC HAZARDS

The following sections discuss potential geologic hazards on the property associated with landsliding, strong seismic shaking, and river flooding on the subject property. Other potential geologic hazards are not applicable to the subject property. We have made recommendations in a following section that outline steps to reduce risks from these geologic hazards to acceptable levels, where applicable. As outlined in Appendix B, "ordinary" risks are considered acceptable for habitable structures, including the existing residence. "Moderate" risks are acceptable for non-habitable structures, including driveways, detached retaining walls, drainage outfalls and septic systems. Our hazard assessments, and associated recommendations, are related only to the areas of development.

Landslide Hazards

The geologic evaluation of landslide hazard is based on a qualitative assessment of geologic conditions around the areas of development. Among the factors considered are the distribution, ages, and types of landsliding in the areas of development; the steepness of slopes; and the occurrence of geologic conditions in the area that would favor landslide formation, such as weak bedrock. In this type of assessment, often the best indicator of landslide hazard is the past behavior of slopes in the area. Consequently, the type and location of past landsliding is heavily relied upon as an indicator of possible future occurrence of landsliding. It should be pointed out, however, that there is always some potential for landsliding in areas of steep slopes or mountainous terrain, regardless of past conditions, and anyone building in such areas must be prepared to assume some risk due to landsliding. No amount of qualitative or quantitative analysis can be expected to identify every factor that might cause landsliding to occur.

Bedrock Landsliding

The County of Santa Cruz Landslide Map (Cooper-Clark, 1975; Figure 5) covering the subject property depicts numerous 'questionable' and 'unclassified' landslides in the vicinity of the subject property. We observed multiple landslides of varying age and size within the area of investigation (Plate 1). We consider the high amount of landsliding in the area to be related to the relatively weak nature of the underlying bedrock. Our Site Geologic Map (Plate 1) shows the areas of development are located within the Twobar Shale member of the San Lorenzo Formation and coincides with our observations during our field reconnaissance mapping of bedrock outcrop and subsurface excavations. Previous researchers (Brabb, 1989) describes the Twobar Shale member of the San Lorenzo Formation as exhibiting very thin-bedded and

laminated beds of shale. We observed similar rock types within the areas of development and consider this to be a relatively weak and landslide-prone rock type. For example, we observed a 1-2"-thick bentonite layer in Test Pit (TP-3). It appears that although the main direction of movement for this Younger Landslide is eastward, it may have failed due to the presence of this dipping, weak rock layer. We believe the rupture of this Younger Landslide may have begun along this bentonite bed that dips 30° towards the south-southeast, and then became dominated by the gravitational movement, downslope towards the east. This bentonite layer observed in Test Pit (TP-3) was the only occurrence of bentonite that we observed in our subsurface and field mapping investigations. The distribution of this rock type with the Twobar Shale would be difficult to assess, and the possibility of this weak rock type occurring within other portions of the Twobar Shale member should be considered during design. Your geotechnical engineer should use care when analyzing the stability of slopes that are underlain by these types of bedrock.

We observed multiple bedrock landslides within the area of investigation on the southern portion of the subject property. We will discuss two of these landslides in detail below, due to their relevance to the project.

We identified a relatively large landslide complex along the southern boundary of the subject parcel, labeled as a Older Landslide Deposit (Qls_O) on our Site Geologic Map (Plate 1). The scarps and lateral margins within the upper limits of this landslide complex are somewhat healed and indistinct, but has several well-developed, generally flat unit surfaces. These unit surfaces demonstrate that this landslide is composed of multiple and complex landslides of multiple generations within the initial landslide deposit. In addition to these multiple generations of Older Landslide Deposits, we were able to identify and locate two Younger Landslide Deposits and two Recent Landslide Deposits within or along the margins of this large Older Landslide Deposit (Plate 1).

The toe of this large landslide complex appears to have overridden the presumably Holocene age fluvial deposits that flank the San Lorenzo River. We interpret this to be evidence that the toe of this large Older Landslide Deposit has a relative age younger than that of the presumably Holocene age fluvial deposits that underlie it. Determining the quantitative age of either the underlying, older fluvial deposits or the overlying landslide complex may be possible, but is beyond the scope of this project. Since the areas of development are not within the downslope path of the landsliding or landslide deposits, and are distant from it, we consider this large, Older Landslide Deposit to pose a minimal hazard to the project.

We also identified a relatively smaller landslide north of the existing residence, and underlying the existing storage shed (labeled as a Younger Landslide Deposit on Plate 1). The head scarp was identified as a 1 to 2 foot-high scarp just west of our geologic test pit (TP-3). Within test pit (TP-3), we observed a discontinuous, clay-lined, polished, strong parting surface that generally coincided with a 1-2"-thick bed of bentonite. In this excavation, this bentonite bed appears to broadly define the landslide rupture surface, and therefore, the depth of landsliding. In test pit

(TP-3), the materials above the rupture surfaces are deeply weathered landslide deposits with multiple internal parting surfaces (Plate 3; see log for Test Pit TP-3). Below this rupture surface was relatively intact, thinly-bedded siltstone and shale, with a bedding attitude that agrees with the general structure of the subject site. We also observed subtle geomorphic indicators of landsliding (e.g. unit surface, over-steepened landslide toe) within the paved driveway loop (Plate 2; see cross section B-B'). Due to grading for the driveway, the limits of this landslide were difficult to ascertain from geomorphic surface expression. To better understand the geometry and size of this landslide, we co-logged a geotechnical boring (B-3) that was advanced near the southeastern corner of the paved driveway loop. We identified 7 feet of landslide deposits overlying 11 feet of undisturbed fluvial deposits, before we encountered intact sandstone and siltstone beds of bedrock. Using this evidence, we presume that the toe of this landslide appears to have overridden the presumably Holocene age fluvial deposits that flank the San Lorenzo River.

A portion of the driveway and the septic system for the existing residence are located within the mapped boundaries of this landslide. If the landslide were to reactivate, either the driveway loop and/or the existing septic system could be damaged. We consider this landslide to have a relative age younger than that of the presumably Holocene age fluvial deposits that underlie it. Similarly with the previously discussed large landslide complex near the southern edge of the subject property, determining the quantitative age of either the underlying, older fluvial deposits or the overlying landslide may be possible, but is beyond the scope of this project. Since the location of the lateral margins of this landslide are poorly constrained, we have set back the geologically suitable building envelope from the landslide to a line defined by intact bedrock observed in boring B-1 and test pit TP-2. If our recommendations are followed (specifically, if habitable structures are restricted to our 'Geologically Feasible Building Envelope'), we consider this landslide to pose a minimal hazard to the project.

The County of Santa Cruz Landslide Map (Cooper-Clark, 1975; Figure 5) covering the subject property also depicts the toe of a west-directed, "unclassified landslide deposit" projecting into the eastern edge of the subject property. Due to the distance of 330 feet from the areas of development this landslide does not pose a geologic hazard to the project.

Soil Creep

The slopes on the subject property are blanketed by soils and weathered bedrock, which is prone to downslope creep. Creeping soils have the potential to cause damage to building sites on sloping terrain. The existing residence is located atop a flattened ridge crest where creeping soils present a low hazard.

The potential location of an accessory dwelling unit just upslope of the existing residence does have the potential for soil creep. Along this spur ridge, we consider depths of 13 feet thick along its side flanks and 5 feet thick along the center of the spur ridge crest to be prone to soil creep.

Seismic Shaking Hazards

Seismic shaking at the subject site will be intense during the next major earthquake along one of the local fault systems. Modified Mercalli Intensities (see Table A1) of up to ***VIII*** are possible at the site, based on the intensities reported by Lawson et al. (1908) for the 1906 earthquake and by Stover et al. (1990) for the 1989 Loma Prieta earthquake. It is important that our recommendations regarding seismic shaking be considered in the design for the proposed hazard mitigations and site improvements.

Our seismic shaking evaluation for the site included an estimate of expected seismic shaking intensities based on both deterministic and probabilistic methods. A deterministic assessment considers only the effects of the largest ground motion that can be expected at a site, regardless of how likely it is to occur within the typical 50-year design life of a single family residence. A probabilistic seismic analysis differs from a deterministic analysis in that it evaluates the probability for shaking of a certain intensity to occur at a particular site.

It is important to note that the ground acceleration values given below are not directly equivalent to seismic or pseudo-static coefficients used in slope stability analyses (CGS, 1997). The project geotechnical engineer may use these values toward the development of appropriate stability coefficients (i.e. the seismic coefficient "k"), based on state and local jurisdictional regulations, and on appropriate geotechnical procedures.

Deterministic Seismic Shaking Analysis

The intensity of seismic ground shaking is typically characterized as the peak acceleration that a point on the ground experiences during the shaking. Acceleration is measured as a proportion of the acceleration of the Earth's gravity, g. For the purpose of evaluating deterministic peak ground accelerations for the site, we have considered four seismic sources: the San Andreas, Zayante-Vergeles and San Gregorio faults and the Monterey Bay-Tularcitos fault zone. While other faults or fault zones in this region may be active, their potential contribution to deterministic seismic hazards at the site is overshadowed by these faults.

Table 2 shows relevant fault data, including the expected maximum magnitude earthquake, estimated recurrence interval, and the distance from the site for each of these fault systems. Fault data are from databases by WGONCEP (1996) and Petersen et al. (1996). Also shown are the deterministically calculated seismic shaking parameters based on the fault data, including calculated on-site accelerations and duration of seismic shaking at the site. These accelerations are based on an attenuation relationship derived from the analysis of historical earthquakes. The accelerations listed in Table 2 are for sites founded on rock. It is important to note that predicting seismic shaking intensity is a field that is dominated heavily by theory, with a paucity of near-field data to define the attenuation relationship for nearby faults. Therefore, we caution that the listed values are approximations, rather than precise predictions. Actual measured "free-field" accelerations may be larger.

TABLE 2
Faults, Earthquakes and Deterministic Seismic Shaking Data

Fault	$M_{W(MAX)}$[1]	RI[2] (years)	Distance to site (km)	PGA[3] (g)	PGA + ∂[3] (g)	MCEGM[4] (g)	EPA[5] (g)	Duration[6] (sec)
Monterey Bay-Tularcitos	7.1	2841	28.29	0.16	0.24	0.24	0.12	17
Zayante-Vergeles	6.8	8821	4.36	0.63	0.98	0.95	0.47	13
San Andreas (1906 rupture)	7.9	210	8.89	0.50	0.73	0.75	0.38	38
San Gregorio	7.3	400	16.09	0.30	0.44	0.45	0.23	21

[1] $M_{W(MAX)}$ = Moment magnitude of maximum expected earthquake (Cao et al., 2003)
[2] RI = Recurrence Interval (Petersen, et al., 1996)
NOTE: The estimation of recurrence interval is an ongoing effort conducted by numerous researchers, employing a variety of techniques, and using information from a rapidly growing database. The recurrence interval estimates cited in this report are therefore provided only to give a very general indication of the relative frequency of maximum earthquakes on the San Andreas, Zayante-Vergeles and San Gregorio faults and the Monterey Bay-Tularcitos fault zone.
[3] PGA = Mean Peak Horizontal Ground Acceleration; PGA + ∂ = Mean Peak Horizontal Ground Acceleration plus one dispersion (Sadigh et al., 1997)
[4] MCEGM = Maximum Considered Earthquake Ground Motion (FEMA, 1998)
[5] EPA = Effective Peak Acceleration (Naeim and Anderson, 1993)
[6] Duration of strong seismic shaking (Dobry et al., 1978)

The estimated mean peak horizontal ground acceleration (PGA) represents the expected seismic shaking intensity at the site, generated by the maximum characteristic earthquake for each fault system, having a moment magnitude (M_W) as shown in Table 2. The mean peak horizontal acceleration plus one dispersion (PGA+∂) is a conservative design value, roughly equivalent to the mean value plus one standard deviation of the ground motion probability distribution derived from the attenuation data.

FEMA (1998) and the National Earthquake Hazards Reduction Program suggest that in regions of high seismicity, such as coastal California, the appropriate design level for ground shaking is the deterministically derived mean peak horizontal ground acceleration multiplied by 1.5. The maximum considered earthquake ground motion (MCEGM) represents the application of this method to the subject property. The MCEGM values are roughly equivalent to the deterministically derived PGA+∂ value.

Naeim and Anderson (1993) found that effective peak acceleration (EPA) is more typically about 75 percent of the peak acceleration. Effective peak acceleration is comparable to "repeatable high ground acceleration" (after Ploessel and Slossen, 1974) and is generally considered to represent the large number of lower amplitude peaks on an accelerogram recording. The EPA may be more relevant to design of structures than the peak acceleration or maximum considered earthquake ground motion.

The duration of strong shaking is dependent on magnitude. Dobry et al. (1978) suggested a relationship between magnitude and duration of "significant" or strong shaking expressed by the formula:

$$Log\ D = 0.432\ M - 1.83,$$

where D is the duration and M is the magnitude. Bear in mind that the duration of strong seismic shaking may be even more critical as a design parameter than the peak acceleration itself.

Table 2 shows that the maximum earthquake on the Zayante-Vergeles fault (M_w of 6.8) will generate the largest deterministically-derived ground motion values at the property: the PGA, PGA+∂, MCEGM and EPA values (see Table 2 footnotes for explanation of these terms) for this fault are 0.63 g, 0.98 g, 0.95 g and 0.47 g, respectively. The estimated ground motions for maximum events on the San Andreas and San Gregorio faults and the Monterey Bay Fault Zone are lower.

It is important to note that the recurrence intervals shown in Table 2 indicated that a maximum event on the San Andreas fault is much more likely to occur during the project lifetime than a maximum event on other local faults. The San Andreas event would produce PGA, PGA+∂, MCEGM and EPA values 0.50 g, 0.73 g, 0.75 g and 0.38 g, respectively. Also, the duration of strong shaking associated with a M_w 7.9 earthquake (the maximum expected earthquake for the San Andreas fault) is estimated to be about 38 seconds, which is significantly longer than strong shaking durations associated with other local faults.

Probabilistic Seismic Shaking Analysis

The U.S. Geological Survey and the California Geological Survey together produced a probabilistic seismic risk study for the state of California (Petersen et al., 1996; Cao et al., 2003). Probabilistic ground motions based on that study for the proposed building sites are listed in Table 3. These estimated ground motions assume a soil profile type Sc (soft rock), per the 2001 California Building Code (CBSC, 2002).

TABLE 3
Probabilistic Ground Motions
(10% probability of being exceeded in 50 years)

Ground Motion Measure	Acceleration in Soft Rock (g)
Peak Ground Acceleration (g)	0.54
Spectral Acceleration (g) at 0.2 sec.	1.21
Spectral Acceleration (g) at 1.0 sec.	0.63

The ground motion intensities shown in Table 3 are the seismic shaking intensities that have a 10% chance of being exceeded in 50 years. The "10% in 50 year" ground motion cited in Table 3 is considered appropriate for a residential structure.

River Flood Hazards

Flooding

The perennial San Lorenzo River crosses the subject property near its eastern boundary, flowing southward. It currently is contained in a deep channel with a bedrock base, flanked by elevated fluvial terraces. The hazards associated with river flooding typically affect engineered structures by either direct innundation by flood waters or damage to foundations due to undermining of embedded materials.

FEMA has produced flood insurance maps for the County of Santa Cruz (Figure 6). These flood maps show base flood elevations and indicate that the subject property contains areas of both 100-year and 500-year floods. The existing residence and the proposed accessory dwelling unit, are both outside of FEMA's 100-year flood zone by at least 40 vertical feet and 150 horizontal feet. We consider the flooding hazard posed to Geologically Suitable Building Envelope to be low.

The existing bridge that crosses the San Lorenzo River and provides access to the existing residence straddles the 100-year flood zone. We will discuss the flood hazards to this specific structure below.

Bridge Undermining

The existing bridge that crosses the San Lorenzo River appears to be an old railroad flat car that has been engineered with a concrete pier foundation. Based on the base flood levels of the San Lorenzo River, and the elevations provided by Dunbar & Craig (Licensed Land Surveyors) it appears that the bridge is several feet above the 100-year base flood elevation of 574'.

As part of our site evaluation, we investigated the geology of the bridge abutments. The bridge abutments are supported by concrete piers.

At the western edge of the bridge, within test pit (TP-1), we encountered 7 feet of fluvial sand deposits overlying bedrock where the concrete pier was observed (Plate 3). The surveyed elevation of the western edge of the bridge is approximately 579', placing the top of the underlying bedrock at elevation 572' where the pier is embedded. This places the 100-year base flood level of 574', two feet above the top of intact bedrock (Plate 2; see cross section C-C').

At the eastern edge of the bridge, within boring (B-4), we encountered 13 feet of these fluvial sands deposits (Figure 11). Utilizing the same criteria for the western edge of the bridge, we

have calculated that the 100-year base flood level of 574' at the eastern edge of the bridge is four feet above the top of intact bedrock at 570'.

It is our opinion that during a flood event, the unconsolidated sands of the fluvial terraces could be eroded and undermine the concrete pier foundation for the existing bridge during a 100-year flood event. This could expose the generally flat bedrock surface that underlies these fluvial terraces. It is also conceivable that the fluvial terrace deposits that compose the non-engineered approaches to the bridge could also be prone to mass erosion during this 100-year flood event.

We observed the concrete pier of the western bridge foundation penetrating a minimum of one foot into bedrock, although the bottom of the pier was not observed (Plate 3; see TP-1). We do not know the total depth of the bedrock embedment of the piers for either side of the bridge. Determining these depths was beyond the scope of this investigation. It is our opinion that the bridge foundation should be designed to be embedded into bedrock in order to survive the potential mass erosion of the overlying fluvial terrace deposits.

CONCLUSIONS

Based on the information gathered and analyzed, it is our opinion that there are potential hazards posed to the subject property from landsliding (including creeping soils), strong seismic shaking, and flooding.

In our opinion, the hazards posed by landsliding, seismic shaking, and flooding can be mitigated to a significant extent by project design. The following section contains recommendations for reducing the risks associated with these geologic hazards to ordinary levels for the areas of development, and moderate levels for non-habitable structures (Appendix B). Provided our recommendations are followed, the areas of development are subject to the specified risks.

Our recommendations are intended principally to lower the risks posed to habitable structures by geologic hazards. This report in no way implies that the subject property will not be subject to earthquake shaking, landsliding, faulting or other acts of nature. Such events could damage the property and affect the property's value or its viability in ways other than damage to habitable structures. We have not attempted to investigate or mitigate all such risks and we do not warrant the project against them. We would be happy to discuss such risks with you, at your request.

RECOMMENDATIONS

1. Construction of habitable structures should be restricted to the Geologically Suitable Building Envelope shown on Plate 1. The location designated on Plate 1 is based in part on the scope of this investigation and is not meant to imply that it is the only geologically feasible building site on the parcel. We reserve the right to amend the building envelope recommendations where consistent with sound geologic judgement. Our building envelope incorporates the following setbacks.

A. Habitable structures should be restricted to areas with slopes displaying gradients of 30% or less to reduce the amount of soil creep hazard.

B. Habitable structures should be confined to a zone cleared of landsliding by our geologic test pits and geotechnical borings in order to mitigate this hazard.

2. Foundation and pavement designs should be developed by a geotechnical engineer. Your geotechnical engineer should consider the results of our investigation, including our assessment of landslide prone bedrock type, creeping soils, and seismic shaking at the site. If required, our cross section A-A' (Plate 2) may be used for slope stability analyses. We should be consulted during the slope stability modeling process to help insure that the stability model accurately incorporates the geology of the site.

3. Foundation designs for the bridge crossing the San Lorenzo River should be developed by a geotechnical engineer. Your geotechnical engineer should consider the results of our investigation, including our assessment of mass erosion around the bridge foundation and seismic shaking at the site. If required, our cross section C-C' (Plate 2) may be used for analyses. We should be consulted during the bridge design process to help insure that it accurately incorporates the geology of the site.

4. Structures that are located within 10 feet of our trenches should be designed to accommodate settlement within the trenches. Alternatively, the existing loose trench backfill may be removed and replaced with engineered fill within 10 feet of any foundations, subject to the approval, recommendations and supervision of the project geotechnical engineer.

5. We recommend that all drainage from improved surfaces such as walkways, driveways, patios, and roofs be captured by closed pipe or lined ditches and dispersed on site in such a way as to maintain the pre-development runoff patterns as much as possible. At no time should any concentrated discharge be allowed to spill directly onto the ground adjacent to structures or to fall directly onto steep slopes, nor should any discharge be injected below ground surface on the ridge crest or near any steep slopes. Energy dissipaters, such as level spreaders, should be used for drainage discharge. The control of runoff is essential for erosion control and prevention of water ponding against foundations.

6. The project engineers should review the findings of our deterministic and probabilistic seismic shaking evaluation and incorporate these findings into their analysis, where appropriate. Given the potential for strong seismic shaking to occur during the lifetime of the proposed structures, all structures should be designed to the most current standards of the California Building Code and Uniform Building Code, at a minimum.

7. In the event that the youthful landslide underlying a portion of the circular driveway reactivates, the driveway and the existing septic leach field within the landslide boundaries may be damaged. The property owner should decide whether they want to mitigate this hazard at the present time or repair the damage at the time any such reactivation occurs. We cannot estimate the likelihood of reactivation with present information.

8. We recommend that home owners implement the simple safety procedures outlined by Peter Yanev in his book, *Peace of Mind in Earthquake Country*. This book contains a wealth of information regarding earthquakes, seismic design and precautions that the individual home owner can take to reduce the potential for loss of life, injury and property damage.

9. We request the privilege of reviewing final project plans for conformance with our recommendations. If we are not permitted such a review, we cannot be held responsible for misinterpretation or omission of our recommendations.

INVESTIGATION LIMITATIONS

1. The conclusions and recommendations noted in this report are based on probability and in no way imply the site will not possibly be subjected to ground failure or seismic shaking so intense that structures will be severely damaged or destroyed. The report does suggest that implementation of the recommendations contained within will reduce the risks posed by geologic hazards.

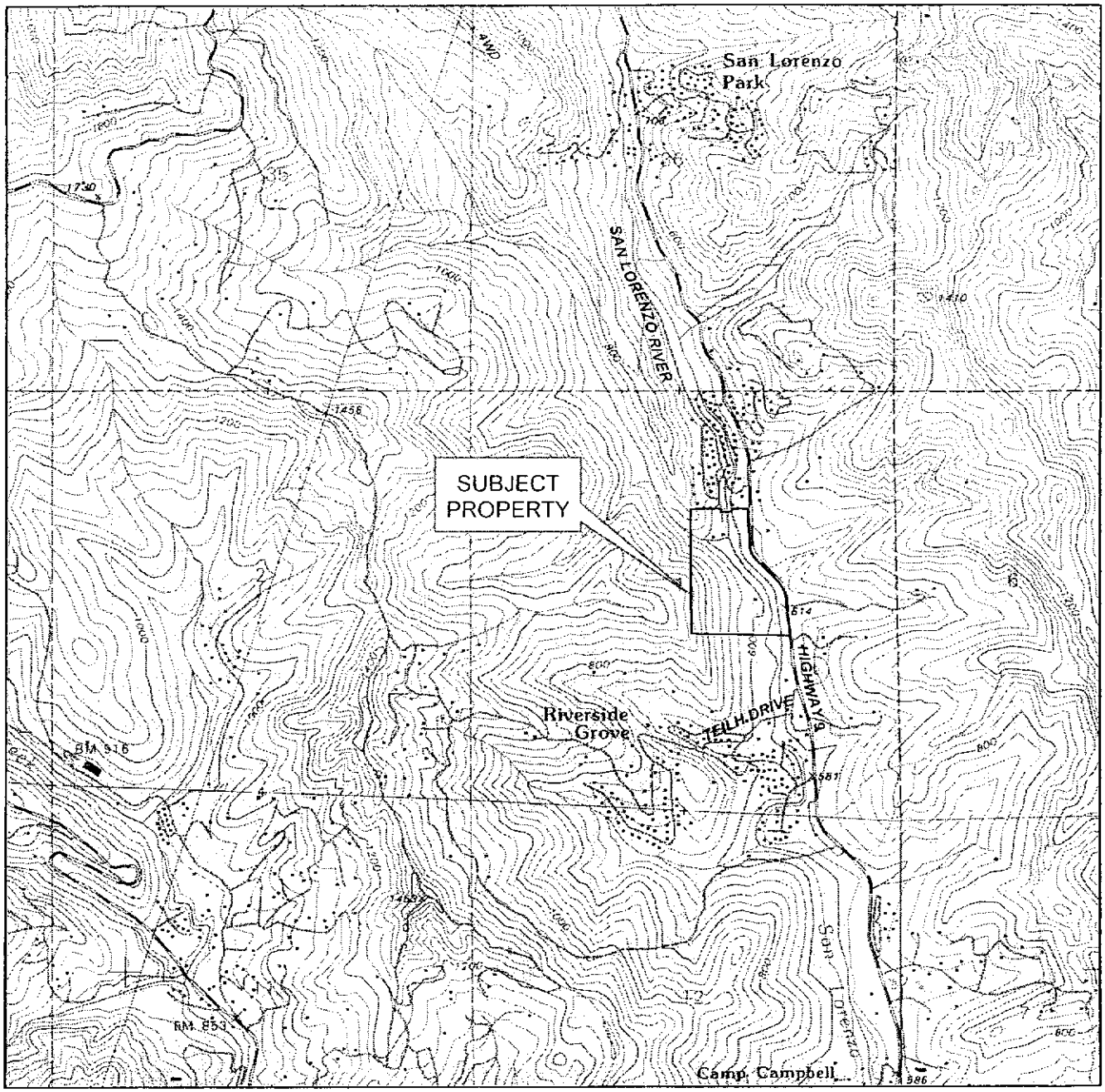
2. This report is issued with the understanding that it is the duty and responsibility of the owner or his representative or agent to ensure that the recommendations contained in this report are brought to the attention of the architect and engineer for the project, incorporated into the plans and specifications, and that the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. If any unexpected variations in soil conditions or if any undesirable conditions are encountered during construction or if the proposed construction will differ from that planned at the present time, Nolan Associates should be notified so that supplemental recommendations can be given.

4. The findings of this report are valid as of the present date. However, changes in the conditions of the property and its environs can occur with the passage of time, whether they be due to natural processes of the works of man. In addition, changes in applicable or appropriate standards occur whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or partially, by changes outside our control. Therefore, the conclusions and

recommendations contained in this report cannot be considered valid beyond a period of two years from the date of this report without review by a representative of this firm.

5. Our services consist of professional opinions and recommendations made in accordance with generally accepted engineering geology principles and practices. No warranty, expressed or implied, including any implied warranty of merchantability or fitness for the purpose is made or intended in connection with our services or by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings.



BASE MAP: USGS, 1991, Big Basin 7.5-minute topographic quadrangle, scale 1:24,000.

N

SCALE 1:24,000

1000 0 1000 2000 feet

1 INCH = 2000 FEET

Environmental Review Inital Study
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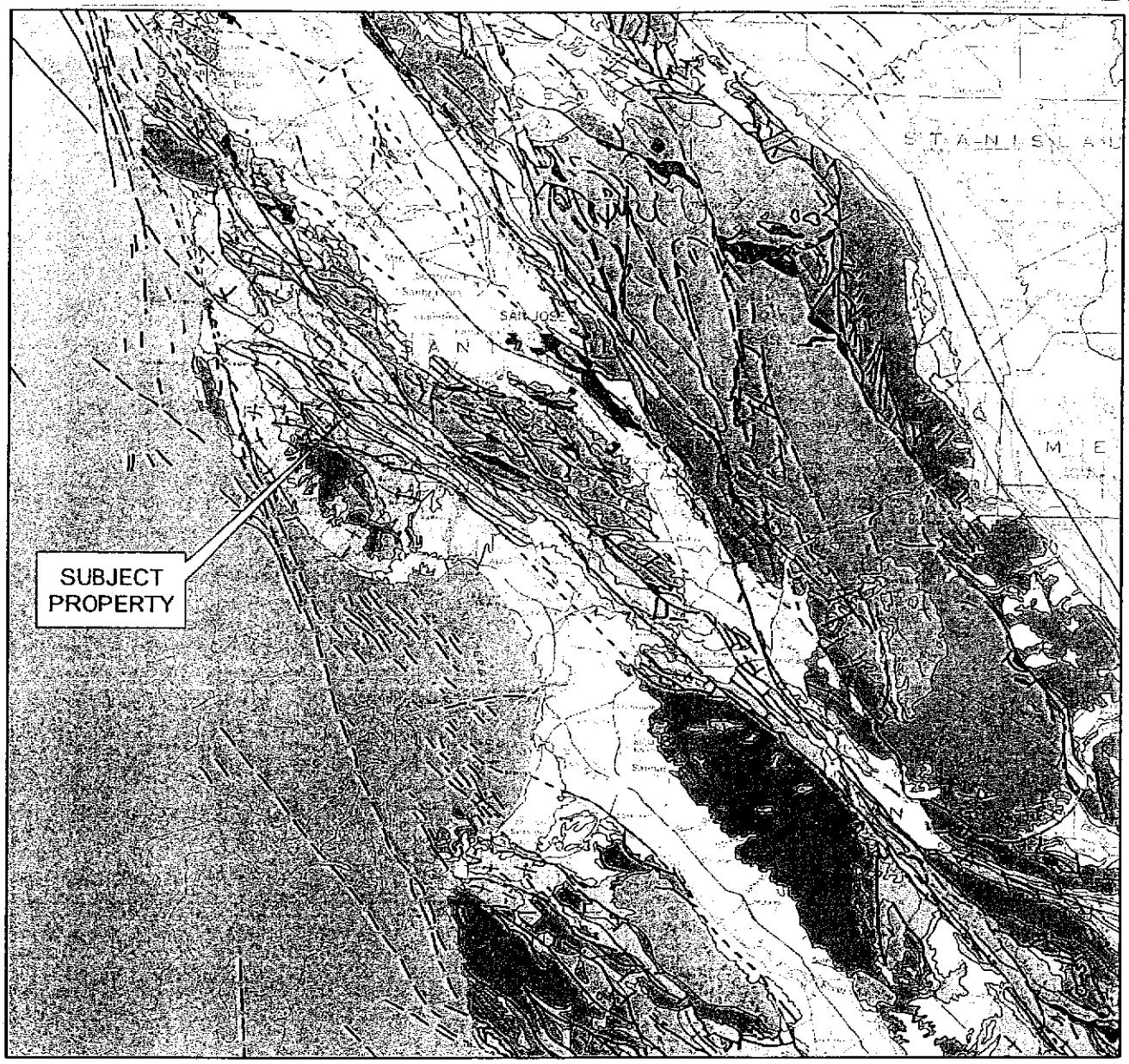
• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

Topographic Index Map
Lands of Sibley
Highway 9, Boulder Creek, California
Santa Cruz County APN 087-321-02

FIGURE # **1**
JOB # **05063**



Reference: Jennings, 1977, Geologic Map of California
Digital Data: Saucedo et al., 2000, GIS Data for the Geologic Map of California

N

Legend

Geologic Units

- Quaternary Deposits
- Quaternary Volcanics
- Tertiary Sedimentary Rocks
- Tertiary Volcanic Rocks
- Pre-Tertiary Sedimentary Rocks
- Pre-Tertiary Volcanic Rocks
- Grantic Intrusive Rocks
- Franciscan Complex
- Ultramafic Rocks
- Pre-Tertiary Metamorphic Rock
- Pre-Cambrian Metamorphic and Igneous Rocks

Symbols

- contact
- fault, certain
- fault, approximate
- fault, concealed or inferred
- anticline
- monocline
- syncline

SCALE 1:1,000,000

10 0 10 20 Miles

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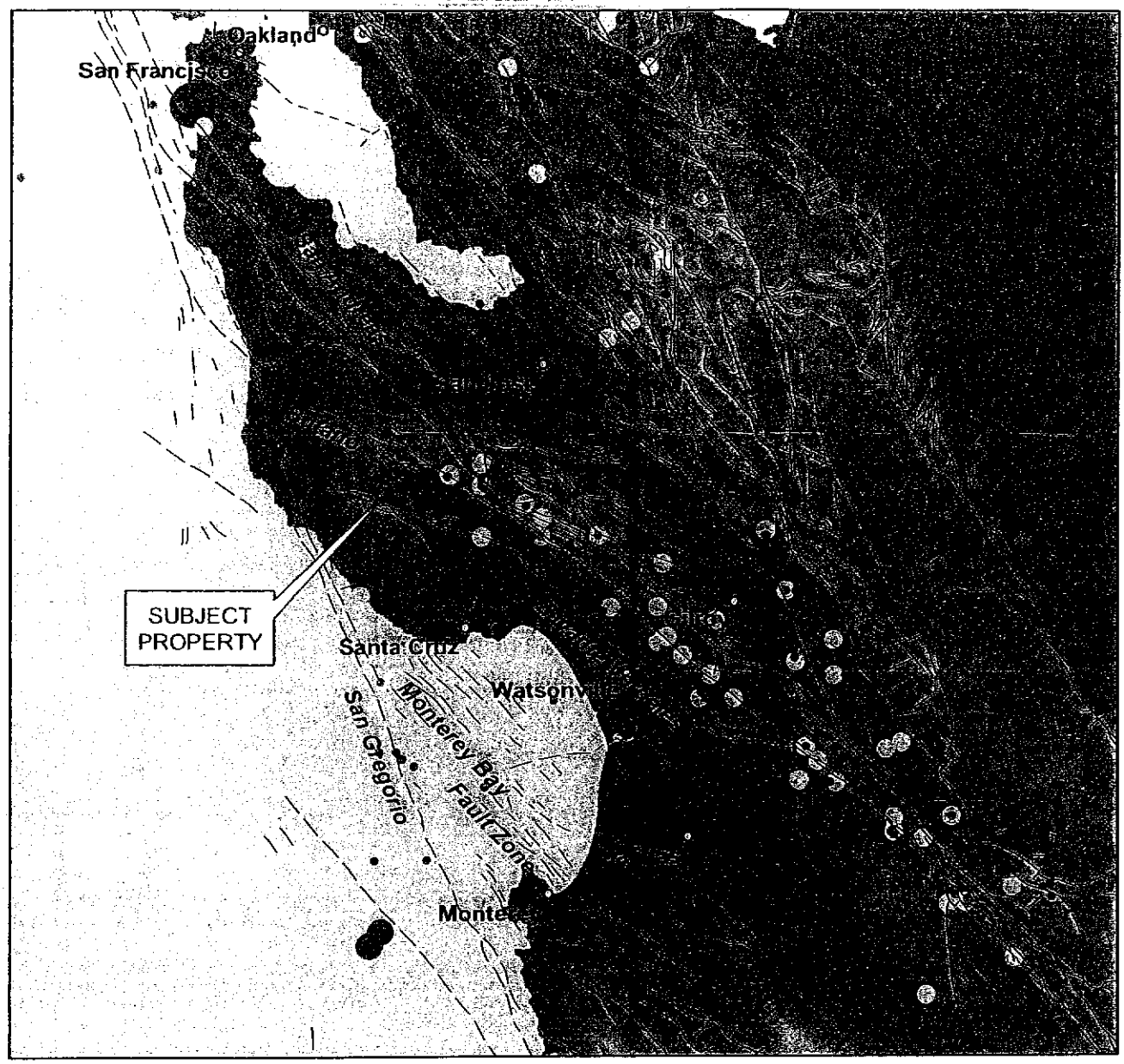
APPLICATION 04-0483

- Engineering Geology
- Hydrogeology
- GIS Services

NOLAN ASSOCIATES

Regional Geologic Map
Lands of Sibley
Highway 9, Boulder Creek, California
APN 087-321-02

FIGURE # **2**
JOB # **05063**



Seismicity Information: CGS, 2000, Magnitude 4 and greater earthquakes
Fault Information: Jennings, 1977, Geologic map of California

N

EXPLANATION

Symbols

- fault, certain
- fault,approx. located
- fault, concealed or inferred

Earthquake Magnitude

- 4.0 to 4.99
- 5.0 to 5.99
- 6.0 to 6.99
- 7.0 +

SCALE 1:1,000,000

10 0 10 20 Miles

Environmental Review Inital Study

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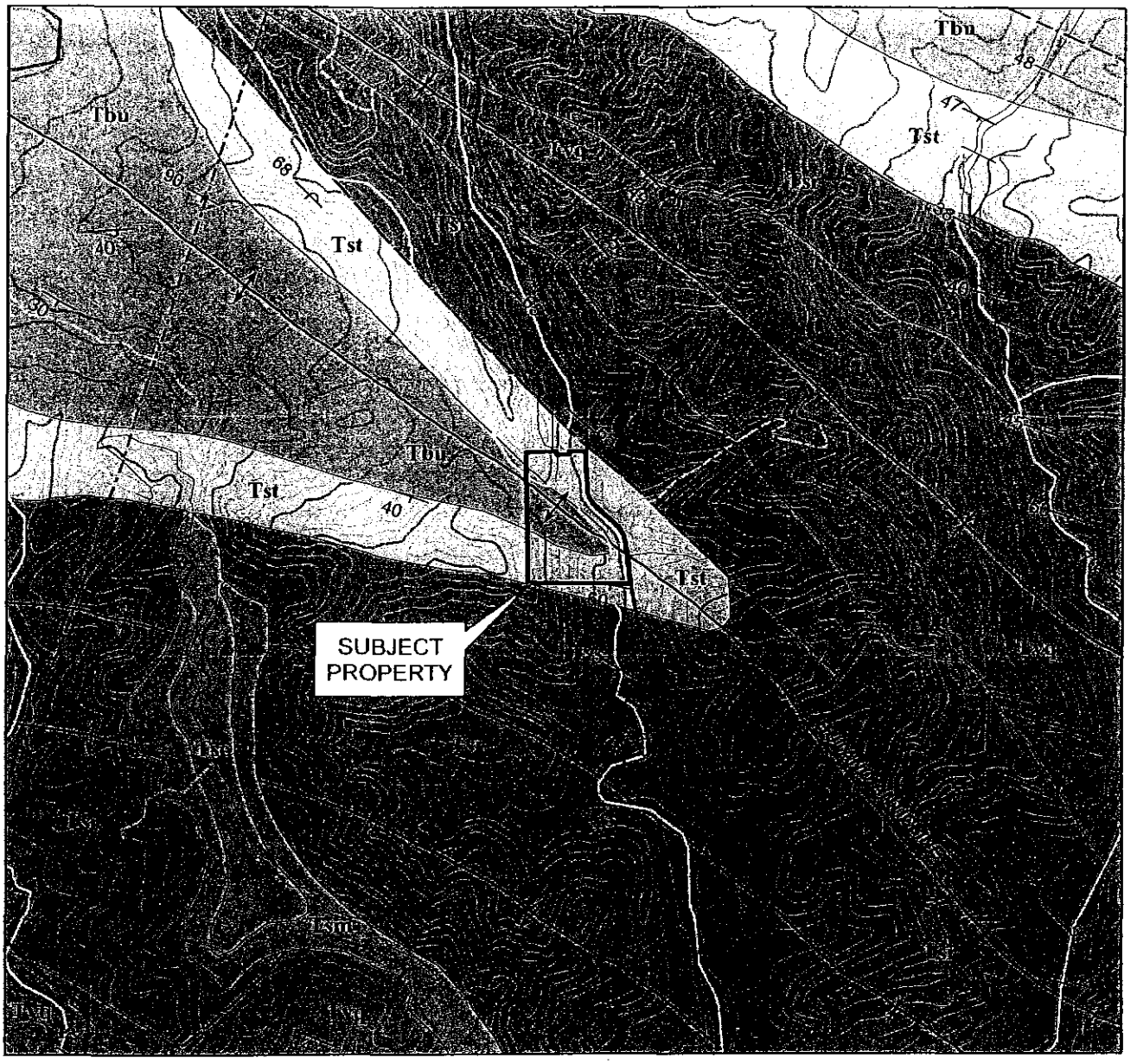
APPLICATION 04-0433

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

Regional Seismicity Map
Lands of Sibley
Highway 9, Boulder Creek, California
 APN 087-321-02

FIGURE # **3**
JOB # **05063**



Reference: E.E. Brabb, 1989, Geologic Map of Santa Cruz County, California, scale 1:62,500
Digital Compilation: Graham et al., 1997: USGS Open-File Report 97-489

EXPLANATION

SYMBOLS

- bedding, certain
- bedding, vertical
- bedding, overturned
- fault, certain
- fault, approximate
- contact, certain
- contact, approximate

LTYPE

- f.a., anticline, certain
- f.a., anticline, approx. located
- f.a., syncline, certain
- f.a., syncline, approx. located

UNITS

- Tsc: Santa Cruz Mudstone
- Tsm: Santa Margarita Sandstone
- Tvq: Vaqueros Sandstone
- Tsr: San Lorenzo Formation: Rice's Mudstone member
- Tst: San Lorenzo Formation: Twobar Shale member
- Tbu: Butano Sandstone: upper sandstone member

N

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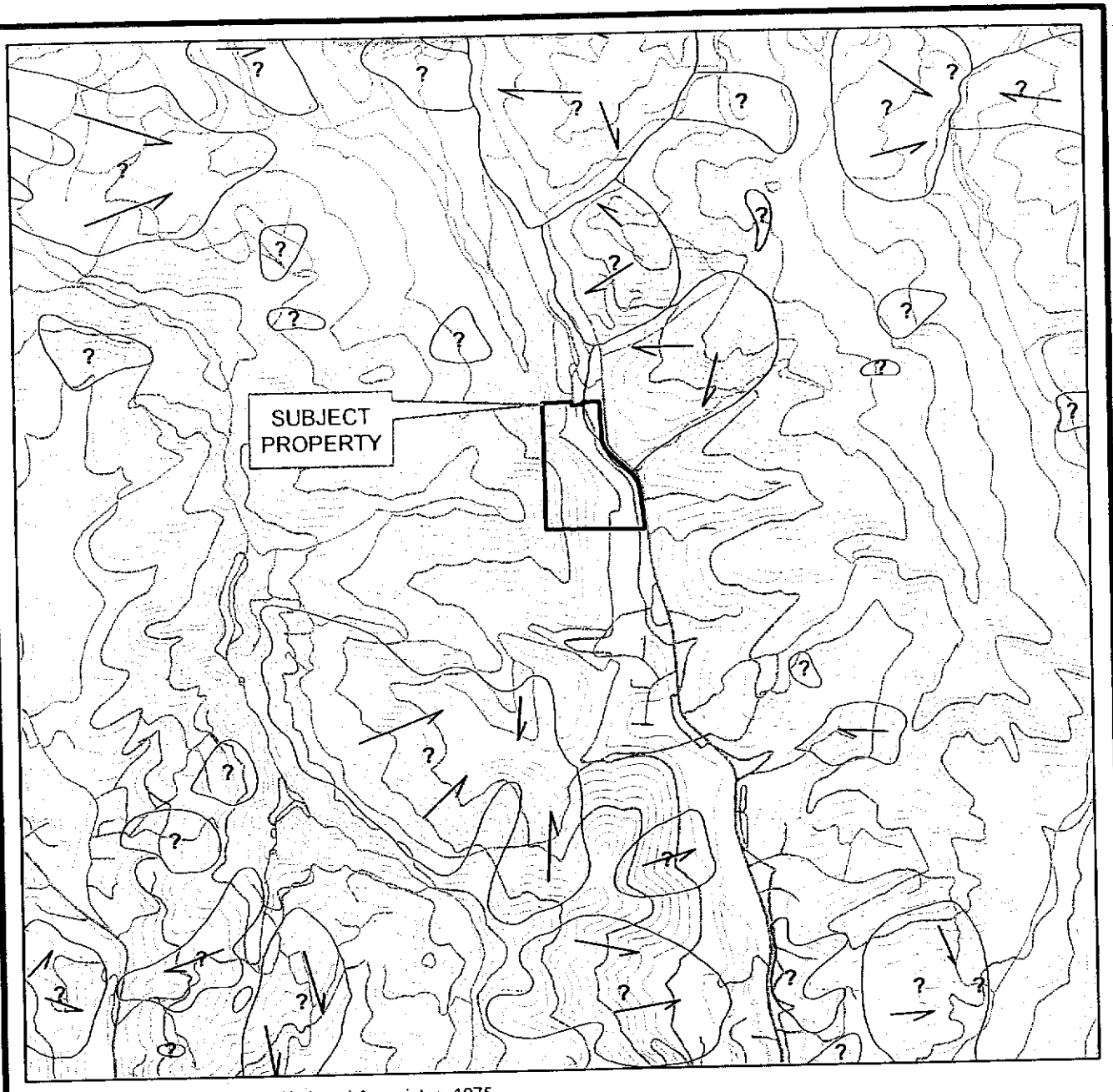
SCALE 1:24,000
1,000 0 1,000 2,000
Feet

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

Local Geologic Map
Lands of Sibley
Highway 9, Boulder Creek, California
Santa Cruz County APN 087-321-02

FIGURE # **4**
JOB # **05063**



Landslide Mapping: Cooper-Clark and Associates, 1975
Digital Compilation: Roberts et al. , 1998

EXPLANATION

SYMBOLS

contact, certain

topographic escarpment

LANDSLIDE DEPOSITS

DR: Definite, recent movement

D: Definite

P: Probable

?: Uncertain

Unclassified

N

Environmental Review Initial Study
ATTACHMENT 4, 27 of 34
APPLICATION 04-0483

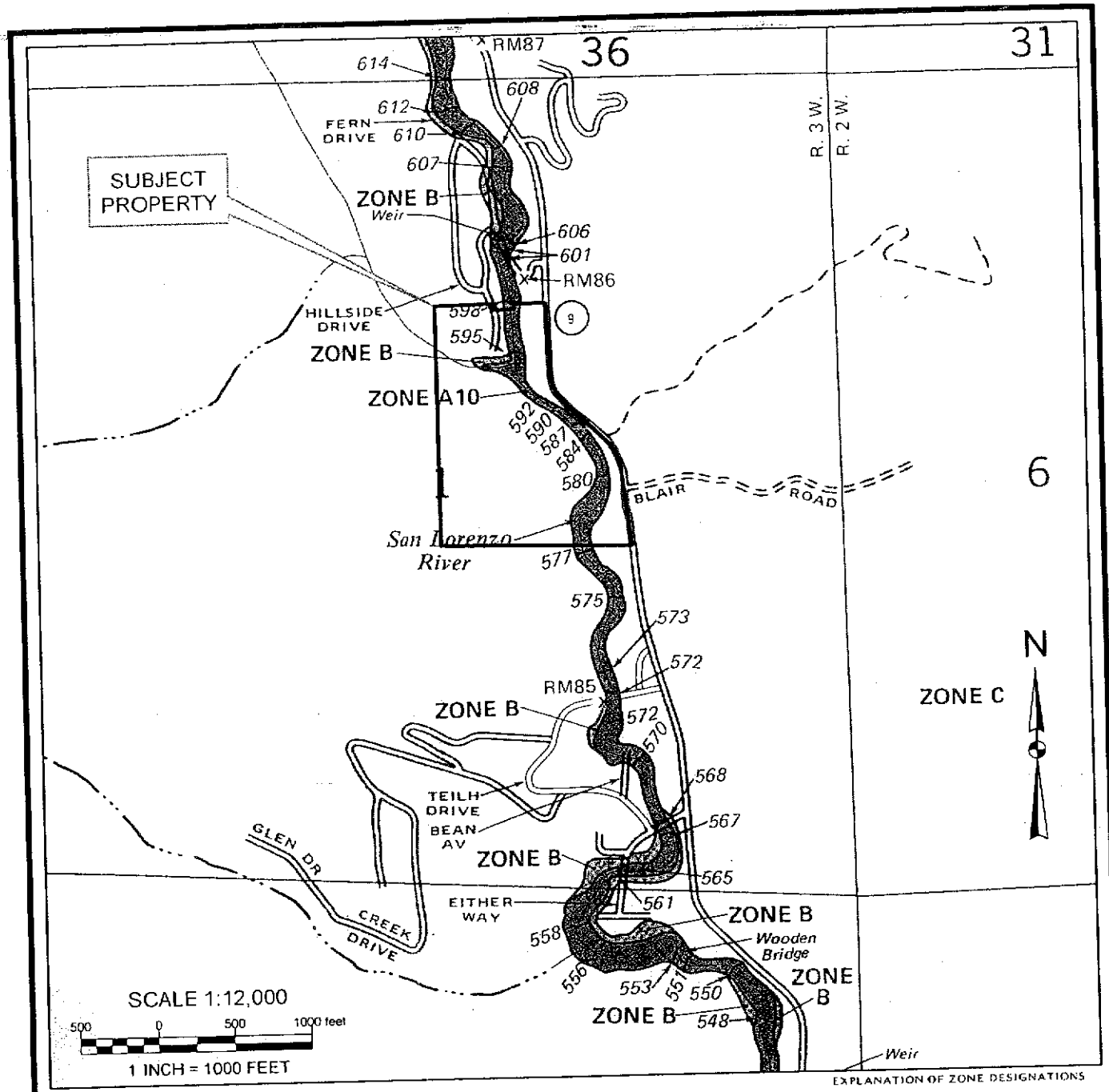
SCALE 1:24,000
1,000 0 1,000 2,000 Feet

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES

Santa Cruz County Landslide Map
Lands of Sibley
Highway 9, Boulder Creek, California
APN 087-321-02

FIGURE # **5**
JOB # **05063**



EXPLANATION OF ZONE DESIGNATIONS

BASE MAP: FEMA, 1986, Flood Insurance Rate Map Santa Cruz County, Panel 95 of 450, Community Panel no. 060353 0095B, scale 1:12,000.

KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations
100-Year Flood Boundary
500-Year Flood Boundary
Base Flood Elevation Line With Elevation in Feet**
Base Flood Elevation in Feet Where Uniform Within Zone**
Elevation Reference Mark
Zone D Boundary
River Mile

513
(EL 987)
RM7x
•M1.5

** Referenced to the National Geodetic Vertical Datum of 1929

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

Environmental Review Inital Study
ATTACHMENT 4, 28 of 34
APPLICATION 04-0483

• Engineering Geology
• Hydrogeology
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NOLAN ASSOCIATES

FEMA Flood Map
Lands of Sibley
Highway 9, Boulder Creek, California
- 81 - Cruz County APN 087-321-02

FIGURE # **6**
JOB # **05063**

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

Job #: 05063 Date: 26 January 2006
Client: Sibley Logged by: SEB
Location: Highway 9

Driller: California Geotech (4" Diam. "Superman")

BORING B-1
SHEET 1 OF 1

depth (ft)	sample ID	blows	soil description	NOTES
1	L	4		
2		7		
		10	@2.5' silty clay with trace sand; dark brown; slightly moist; soft.	SOILS
3	T	2		
		3		
4		3	@4.0' silty clay with few fine-grained sand; mottled reddish-brown and gray; slightly moist to damp; soft.	
5				
6	L	8		
		9		
7		11	@6.5' layers of weathered siltstone and fine-grained sandy siltstone; gray and orangish-brown; slightly moist; medium dense.	
8				
9			@8.5' distinct color change to dominantly orangish-brown, from dark brown and gray above; no observable change in texture.	WEATHERED BEDROCK
10				
11	T	7		
		14		
12		18	@12.0' siltstone and fine-grained sandstone; orangish-brown; slightly moist; moderately fractured; no visible clays on fracture faces.	
13			@13.0' drilling becomes harder.	
14				BEDROCK
15	L	12		
		44		
16		50/5"	@16.0' siltstone and fine-grained sandstone; orangish-brown; dry; hard; dense; refusal with sampler.	
17			BOTTOM OF BORING @16.0 FEET BELOW GROUND SURFACE NO GROUNDWATER	
18				
19				

Environmental Review Inital Study
ATTACHMENT 4, 29 of 34
APPLICATION 04-0483

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

Job #: 05063 Date: 26 January 2006
Client: Sibley Logged by: SEB
Location: Highway 9

Driller: California Geotech (4" Diam. "Superman")

BORING B-2
SHEET 1 OF 1

depth (ft)	sample ID	blows	soil description	NOTES
				SOILS
1				
2	L	1 2 3	@2.5' silty clay; grayish-brown and dark brown; moist to damp; soft.	
3	T	2 3 6		WEATHERED BEDROCK
4			@4.0' silty clay; grayish-brown to orangish-brown; slightly moist; common angular siltstone and fine-grained sandstone fragments.	
5				
6	T	5 8 14	@6.5' siltstone and fine-grained sandstone; orangish-brown and gray; slightly moist to dry; dense; moderately fractured; apparent bedding is visible within sample; trace to no illuvial clays on fracture faces.	
7				
8				BEDROCK
9				
10				
11	L	6 18 35	@11.5' fine-grained sandy siltstone; gray and orangish-brown; dry; very dense; slightly fractured.	
12			BOTTOM OF BORING @11.5 FEET BELOW GROUND SURFACE NO GROUNDWATER	
13			NOTE: TOP OF BORING IS ~1.0' BELOW NATRUAL GROUND SURFACE DUE TO TERRACE GRADING WITHIN GRAPE VINEYARD.	
14				
15				
16				
17				
18				
19				

Environmental Review Inital Study
ATTACHMENT 4, 30 of 34
APPLICATION 04-0483

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

Job #: 05063
Client: Sibley
Location: Highway 9

Date: 26 January 2006
Logged by: SEB

Driller: California Geotech (4" Diam. Truck Mounted)

BORING B-3
SHEET 1 OF 2

depth (ft)	sample ID	blows	soil description	NOTES
1				
2	L	8 12 14	@3.0' silty clay; dark brown; moist; small subangular blocky peds with moderately thick dark brown clay films on ped faces; no parting surfaces observed.	LANDSLIDE DEPOSITS
3				
4	T	4 6 9	@4.5' silty clay with trace sand; gray and orangish-brown; moist; medium subangular blocky peds with moderately thick gray and orangish-brown illuvial clays on ped faces and between peds; few roots; no parting surfaces observed.	
5				
6	T	6 6 7	@6.5' sandy silt to sandy clay; mottled gray and brown; moist to wet; slight increase in moisture from above; few angular siltstone clasts 1/8" to 1/4" long; no parting surfaces observed; trace roots.	
7				
8	T	4 6 10	@7.0 - 8.0' sandy silt to sandy clay; mottled gray and reddish-brown; moist; spongy; not dense. @8.0 - 8.5' moderately-sorted, fine-grained sand; mottled gray and reddish-brown; slightly moist to dry.	
9				
10				
11	T	8 10 14	@10.0 - 11.5' well-sorted, fine-grained sand; orangish-brown; dry; poorly-consolidated.	
12				FLUVIAL DEPOSITS
13				
14	L	10 10 10		
15			@15.0' pebbly medium- to coarse-grained sand with some clay and few cobbles; orangish-brown; slightly moist; poorly- to moderately-consolidated; few rounded cobbles up to 2" in diameter.	
16				
17				
18			@18.0' color change to gray; drilling becomes harder.	BEDROCK
19				

Environmental Review Inital Study
ATTACHMENT 4, 31 of 34
APPLICATION 04-0483

BORING LOG CONTINUES ON NEXT PAGE

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

Job #: 05063
Client: Sibley
Location: Highway 9

Date: 26 January 2006
Logged by: SEB

Driller: California Geotech (4" Diam. Truck Mounted)

BORING B-3
SHEET 2 OF 2

depth (ft)	sample ID	blows	soil description	NOTES
			BORING LOG CONTINUED FROM PREVIOUS PAGE	
	T	37 50/5"	@20.0 - 21.0' fine-grained sandstone with few thin interbeds of siltstone; gray; dry; dense; visible microfault with 1cm offset of beds along tight, clay-lined fracture; refusal with sampler.	BEDROCK
21			BOTTOM OF BORING @ 21.0 FEET BELOW GROUND SUFACE NO GROUNDWATER NOTE: TOP OF BORING IS AT THE BASE OF A ~1.0' HIGH VERTICAL CUT FOR PAVED DRIVEWAY	
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				

Environmental Review Inital Study
ATTACHMENT 4, 32 of 34
APPLICATION 04-0483

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

Job #: 05063 Date: 26 January 2006
Client: Sibley Logged by: SEB
Location: Highway 9

Driller: California Geotech (4" Diam. Truck Mounted)

BORING B-4
SHEET 1 OF 1

depth (ft)	sample ID	blows	soil description	NOTES
1				SOILS
2	L	4 3		
3		6	@2.5' well-sorted fine-grained sand with trace clay; orangish-brown and tan; dry; poorly-consolidated; few roots.	
4	T	3 3 3	@4.5' well-sorted fine-grained sand with trace clay; orangish-brown and tan; dry; poorly-consolidated.	
5				
6	T	3 3 4	@6.5' well-sorted fine-grained sand with trace clay; orangish-brown and tan; dry; poorly-consolidated.	FLUVIAL DEPOSITS
7				
8				
9				
10				
11	T	5 9 7	@11.5' pebbly medium- to coarse-grained sand with some clay; orangish-brown, gray and brown; slightly moist; rounded pebbles up to 1" long.	
12				
13				
14	T	19 30 50/5"	@14.5' siltstone and fine-grained sandstone; gray; wet; dense; hard; moderately fractured.	BEDROCK
15			BOTTOM OF BORING @ 14.5 FEET BELOW GROUND SURFACE NO GROUNDWATER	
16				
17				
18				
19				

Environmental Review Inital Study
ATTACHMENT 4 33 of 34
APPLICATION 04-0483

• Engineering Geology
• Hydrogeology
• GIS Services

NOLAN ASSOCIATES
1509 Seabright Avenue, Suite A2
Santa Cruz, California 95062
831-423-7006 / na@nolangeology.com

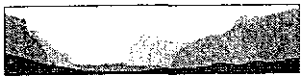
Job #: 05063 Date: 26 January 2006
Client: Sibley Logged by: SEB
Location: Highway 9

Driller: California Geotech (4" Diam. Truck Mounted)

BORING B-5
SHEET 1 OF 1

depth (ft)	sample ID	blows	soil description	NOTES
1–2				SOILS
3–4				FLUVIAL DEPOSITS
5–6	L	5 7 7	@6.5' well-sorted fine-grained sand with trace clay; orangish-brown and tan; dry; poorly-consolidated.	
7			BOTTOM OF BORING @ 6.5 FEET BELOW GROUND SURFACE NO GROUNDWATER	
8–19				

Environmental Review Inital Study
ATTACHMENT 4, 34 of 34
APPLICATION 04-0433



- Engineering Geology
- Hydrogeology
- GIS Services

NOLAN ASSOCIATES

December 18, 2007 Job No. 05063

Mr. Al Sibley
210 Ross Street
Santa Cruz, CA 950650

Subject: Addendum to Geologic Report
for Sibley Minor Land Division
Boulder Creek, California

Reference: *"Preliminary Geologic Hazards Investigation*
Property at 17525 Highway 9
Boulder Creek, California
Santa Cruz County APN 087-321-02"
Report by Nolan Associates, dated February 27, 2006

Dear Mr. Sibley:

At your request, we have revised our recommendation for a geologically feasible building envelope, as given in our original geologic report for the project, referenced above. The newly designated geologically feasible building envelope is based on the geologic information presented in our earlier geologic report and a large diameter boring completed on 8/30/2007 (LDB-1 on the attached Plate 1). The February 27 geologic report provided a provisional recommendation for a building site contingent on the results of a large diameter boring. The large diameter boring revealed landslide material at a provisional building site. Consequently, we have designated an alternate building site. The newly designated building site is consistent with the hazard evaluation provided by the report and the results of the large diameter boring.

The attached revised Plate 1 depicts the new geologically feasible building envelope. All other recommendations from our original report remain in effect. Please provide us with a copy of the final development plans for our review so that we may confirm that our recommendations have been incorporated into the plan.

1509 Seabright Avenue, Suite A2 Santa Cruz, CA 95062 · Tel. 831-423-7006 · Fax 831-423-7008 · email: na@nolangeology.com

If you have any questions or comments regarding this matter, please contact us at your earliest convenience.

Sincerely,
Nolan Associates

Jeffrey M. Nolan
Principal Geologist
C.E.G. #2247

attachments: Plate 1, revision of 12/18/07

cc: Jack Schultz
Stephen Graves

Dees & Associates, Inc.
Geotechnical Engineers
501 Mission Street, Suite 8A, Santa Cruz, CA 95060

Phone: 831 427-1770
Fax: 831 427-1794
Email: dna@dslextreme.com

December 20, 2007

Project No. SCR-0080

MR. ALFRED SIBLEY
% Stephen Graves & Associates
2735 Porter Street
Soquel, California 95073

Subject: Geotechnical Feasibility Study for a Proposed Homesite

Reference: Proposed Single Family Residence
338 Reynolds Drive, Boulder Creek
APN 087-321-02
Santa Cruz County, California

Dear Mr. Sibley:

Our firm prepared a geotechnical investigation for a homesite on the property in April 2006 in conjunction with the geologists Nolan Associates. We understand the homesite evaluated in April 2006 has now been abandoned and a new homesite is being considered. The new homesite is located just west of the bridge in the vicinity of the existing dirt driveway, Figure 2.

The purpose of our feasibility study was to determine if it is feasible, from a geotechnical standpoint, to construct a single family residence in the newly proposed homesite. The specific scope of our services was as follows: 1) perform a site reconnaissance, 2) review data in our files regarding the site and vicinity, 3) discuss the project with Stephen Graves & Associates and Nolan Associates, 4) review of the site topographic map provided to us, 5) perform engineering analysis, and 6) prepare a letter report presenting the results of our feasibility study.

Site and Project Description

The site is located at 17525 Highway 9 in Santa Cruz County, California, Figure 1. The 34.7 acre site is located just north of Riverside Grove in Boulder Creek. The property lies on an east facing slope that descends to the San Lorenzo River and Highway 9. The proposed homesite is located in the southeast corner of the site on a gently sloping terrace that follows the west bank of the San Lorenzo River. Slope gradients are on the order of 10 to 30 percent in the building envelope. An 18 foot high river bank borders the eastern edge of the proposed homesite. The river bank is sloped about 40 to 50 percent.

Site drainage is by sheet flow towards the San Lorenzo River. The San Lorenzo was flowing at the time of our investigation.

Environmental Review Initial Study
ATTACHMENT 6, 1 of 6
APPLICATION 04-0483

Subsurface Soil Conditions

The geologic report prepared by Nolan Associates in 2006 indicates the proposed homesite is underlain by fluvial deposits and Two Bar Shale bedrock. Boring 3, drilled on the terrace about 150 feet northwest of the proposed homesite encountered medium dense landslide material deposited from an old landslide that occurred on the slope above the terrace and fluvial deposits over very dense bedrock located 18 feet below grade. The fluvial deposits consisted of medium dense, fine to medium grained sands with some clay and cobbles. A test pit was excavated by the geologist adjacent to the western bridge abutment. The test pit encountered 7 feet of fluvial deposits over bedrock. The fluvial deposits consisted of sands and silty sands.

Based on the subsurface soil data obtained during our previous investigations at the site, we anticipate encountering 10 to 15 feet of fluvial deposits over Two Bar Shale below the proposed homesite.

Seismic Hazards

The 2006 geology report prepared for the original homesite indicates geologic hazards at the site include landsliding and strong seismic shaking.

Landsliding

Although there are no landslides indicated on the County of Santa Cruz Landslide Map, (Cooper-Clark), there were numerous landslides identified at the site by the project geologist. These landslides are discussed in detail in the geologic report. The toe of a massive landslide deposit lies just south of the proposed homesite. The homesite is set back about 60 feet from the edge of the landslide deposit. The other landslides identified at the site are located well away from the proposed homesite and should not affect the proposed development.

There is a steep slope that descends to the San Lorenzo River just below the homesite. We recommend having a geotechnical engineer evaluate the slope and develope site specific foundation recommendations for the proposed improvements.

Liquefaction

Liquefaction occurs when saturated fine grained sands, silts and sensitive clays are subject to shaking during an earthquake and the water pressure within the pores build up leading to loss of strength.

The site is not mapped as being underlain by potentially liquefaction soils and based on the soil data obtained from the test pit and boring drilled near the homesite and the lack of a groundwater table, we do not anticipate a liquefaction potential below the homesite.

Discussions and Conclusions

The new single family residence proposed at the site appears feasible from a geotechnical

standpoint. Potential geotechnical concerns for the proposed homesite include re-activation of the landslide deposit located south of the development envelope, loose surface soils in the proposed foundation zones, slope instability along the top edges of the steep slope descending to the San Lorenzo River, erosion on the steep slopes above and below the homesite and strong seismic shaking.

It is not known whether the landslide deposit south of the development envelope will move in the future. Therefore, the homesite should be set back from the landslide deposit. We understand the homesite indicated on the Site Plan, Figure 2, is set back from the landslide deposit per the recommendations of Nolan Associates.

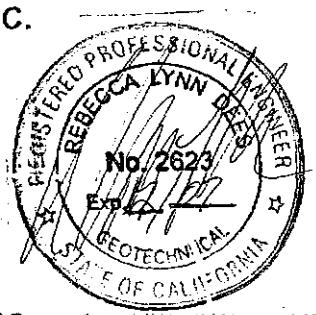
A design level geotechnical investigation should be performed prior to constructing improvements at the site. The design level investigation should include borings to determine the subsurface soil conditions, laboratory testing to determine the soils engineering characteristics, an evaluation of the steep slopes above and below the homesite, engineering analysis and development of site specific recommendations for building foundations, retaining walls, site grading and drainage and erosion control.

The opinions expressed in this letter are based on a visual examination of the property, review of our files, review of the geology report prepared for a different homesite on the property and discussions with Stephen Graves & regarding the proposed improvements. While we believe that our conclusions are well founded, it is possible that there may be undiscovered conditions that would cause us to revise our opinions and/or recommendations. This letter, therefore, should not be construed to be any type of guarantee or insurance. A more detailed study should be undertaken to develop design-level geotechnical recommendations for construction of new structures.

Should you have any questions, please do not hesitate to call our office.

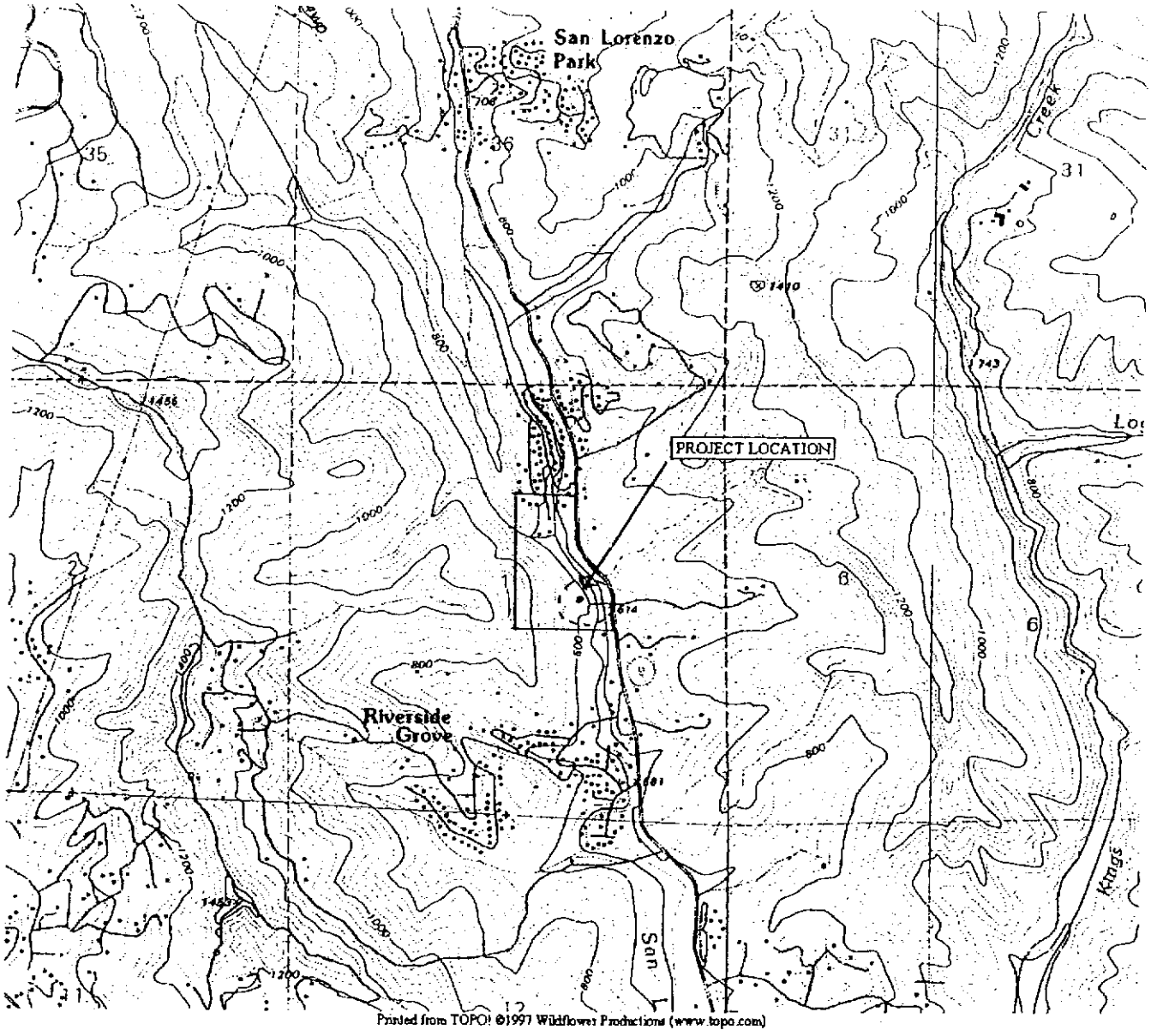
Very truly yours,

DEES & ASSOCIATES, INC.



Rebecca L. Dees
Geotechnical Engineer
G.E. 2623

Copies: 5 to Addressee
1 to Nolan Associates



Environmental Review Inital Study
ATTACHMENT 6 4 of 6
APPLICATION 04-0483

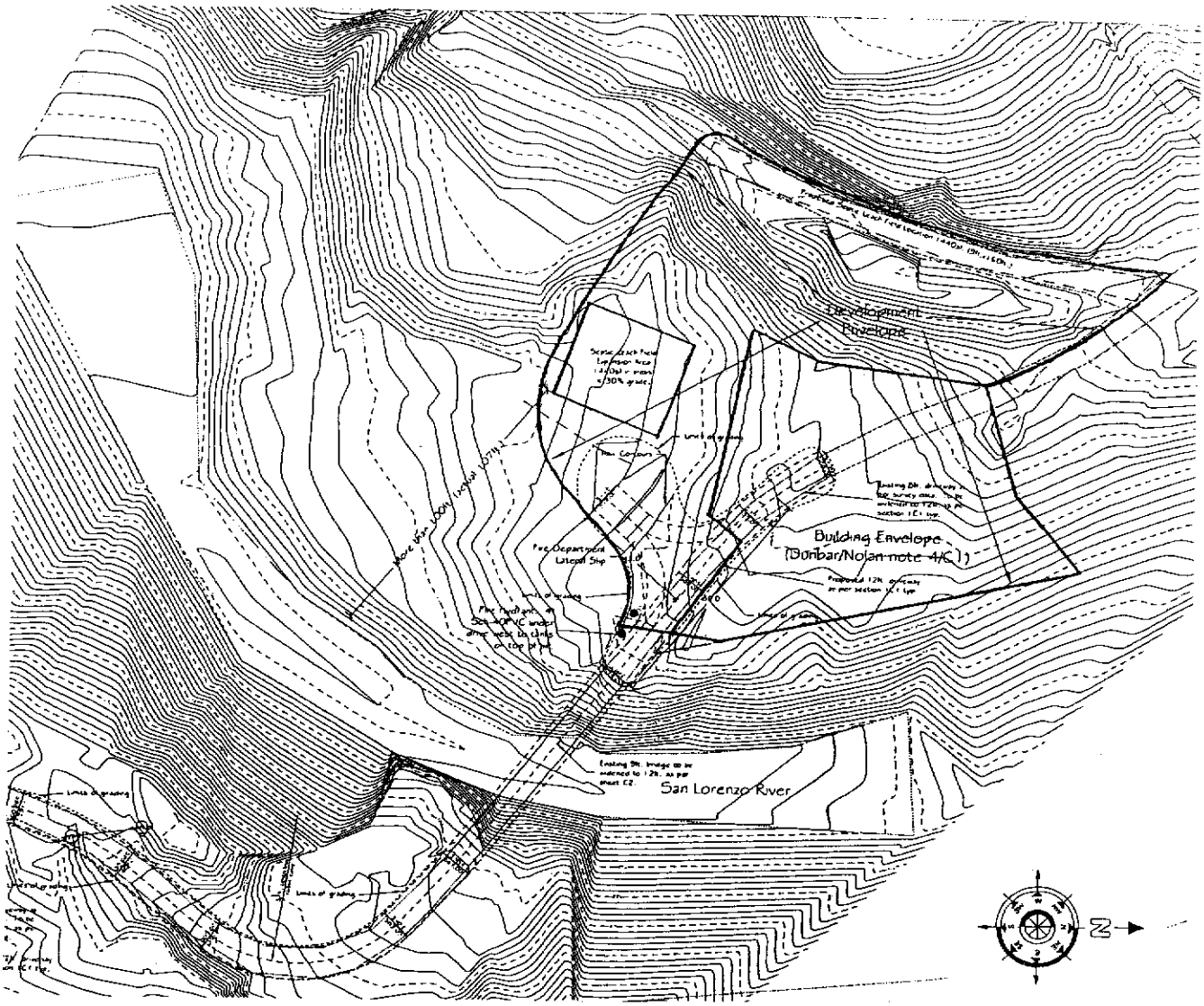
SITE VICINITY MAP/TOPOGRAPHIC MAP
HIGHWAY 9, BOULDER CREEK, APN 087-321-02
SANTA CRUZ COUNTY, CALIFORNIA

SCALE	NTS
DRAWN BY	AT
DATE	FEB. 2006
REVISED	
JOB NO	SCR-0080

DEES & ASSOCIATES
GEOTECHNICAL ENGINEERS
501 MISSION STREET, SUITE 8A, SANTA CRUZ, CA 95060
(831) 427-1770

FIGURE NO. 1

SHEET NO 1 OF 1



Site Plan	Approx. 1"=60'
17525 Highway 9 APN: 087-321-02 SANTA CRUZ COUNTY, CALIFORNIA	December 2007 Drawn By: JC
Project No. SCR-0080	FIGURE 2

Environmental Review Initial Study
ATTACHMENT 6 ~~5 of 6~~
APPLICATION 07-0483

Dees & Associates, Inc.
Geotechnical Engineers
501 Mission Street, Suite 8A, Santa Cruz, CA 95060

Phone: 831 427-1770
Fax: 831 427-1794
Email: dna@dslextreme.com

December 20, 2007

Project No. SCR-0080

MR. ALFRED SIBLEY
% Stephen Graves & Associates
2735 Porter Street
Soquel, California 95073

Subject: Geotechnical Plan Review

Reference: Proposed Single Family Residence
338 Reynolds Drive, Boulder Creek
APN 087-321-02
Santa Cruz County, California

Dear Mr. Sibley:

As requested we have reviewed the proposed improvement plans, Sheets C1, C2, C4 and Sheet 2, for the new single family residence proposed at the referenced site. Sheets C1, C2 and C4 were prepared by Jack Schultz and are dated November 29, 2007, December 5, 2007 and December 20, 2007, respectively. Sheet 2 was prepared by Dunbar and Craig and is last dated December 2007. Our Geotechnical Feasibility Study for the homesite is dated December 20, 2007.

The plans indicate the proposed development envelope is located at the west end of the existing bridge at the site. The proposed homesite is located in the northwest portion of the development envelope. The septic leachfield will be located on an abandoned railroad grade located on the slope above the homesite and the expansion leach field will be located to the south of the homesite. A fire truck turn around is proposed at the end of the bridge.

Site drainage will be retained on-site. There appears to be adequate room to disperse runoff south of the homesite and depending on the actual layout of the residence, there may be room to disperse runoff elsewhere on the site as well. The final discharge location of all collected drainage should be reviewed by a geotechnical engineer prior to installation.

The aforementioned plans were prepared in accordance with the recommendations of our Geotechnical Feasibility Study for a Proposed Homesite, dated December 20, 2007. Our review is preliminary in nature and does not take the place of an in depth geotechnical study of the site. A design level geotechnical investigation should be performed to develop site specific recommendations for the proposed improvements.

If you have any questions, please call our office.

Very truly yours,

DEES & ASSOCIATES, INC.

REGISTERED PROFESSIONAL ENGINEER
REBECCA LYNN DEES
No. 2623
Exp. 6/07
GEOTECHNICAL
STATE OF CALIFORNIA

Rebecca L. Dees
Geotechnical Engineer
G.E. 2623

Copies: 3 to Addressee

SCR-0169 | 1/19/07

Environmental Review Inital Study
ATTACHMENT 6, 6 of 6
APPLICATION 04-0483

COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123
TOM BURNS, PLANNING DIRECTOR

October 16, 2008

Alfred Sibley
C/o Stephen Graves and Associates
2735 Porter Street
Soquel, CA 95073

Subject: ***Geotechnical Engineering Report*** by Dees and Associates, Dated March 23, 2005 and December 20, 2007, SCR-0080; and **Engineering Geology Report** by Nolan Associates December 18, 2007, Job Number 05063

Reference: **APN:** **087-321-02**
APPL#: **04-0483**

Dear Applicant:

The purpose of this letter is to inform you that the Planning Department *has accepted* the subject reports. This letter is written to support the staff report for the parcel map. A site-specific geotechnical report will be necessary before the issuance of any Building Permits. The following items shall be required:

1. The reports' recommendations become conditions of this permit.

2. All construction must be located within the Building and Development Envelope specified by the engineering geologist. The envelope must be shown on the parcel map.

3. A civil engineer's grading, drainage and erosion control plan will be required for access roadway and other grading.

4. Show the Base Flood Elevation on the building plans cross-sections and profiles for the Bridge. The Bridge must comply with all FEMA standards.

5. The project geotechnical engineer, or a similar qualified testing laboratory, must be employed to provide ***constant inspection*** and testing of all the fill material placed on the site. Before final inspection, a written summary of the compaction testing must be submitted to the County. With this summary, a copy of the grading plan must be submitted that indicates the relative compaction tests' location, and all related test data must be included in a table with a reference number that correlates the table data to the test location indicated on the grading plan. This testing includes the backfill of any retaining walls.

Environmental Review Inital Study
ATTACHMENT 7, 1 of 3
APPLICATION 04-0483

6. The civil engineer, geotechnical engineer and engineering geologist must all provide final letters that indicate that the home has been constructed in accordance with the recommendations of their respective reports and plans.

7. The consultants must e-mail a PDF of their reports to pln953@co.santa-cruz.ca.us .

Our acceptance of the reports is limited to its technical content. Other project issues such as zoning, fire safety, septic or sewer approval, etc. may require resolution by other agencies.

Please call the undersigned at (831) 454-3175, or email at pln829@co.santa-cruz.ca.us if we can be of any further assistance.

Sincerely,

Joe Hanna CEG
County Geologist

Cc Nolan Associates
Dee and Associates
Alice

Environmental Review Inital Study
ATTACHMENT F, 2 of 3
APPLICATION 04-0483

NOTICE TO PERMIT HOLDERS WHEN A SOILS REPORT AND ENGINEERING GEOLOGIST HAVE BEEN PREPARED, REVIEWED AND ACCEPTED FOR THE PROJECT

After issuance of the building permit, the County requires your soils engineer to be involved during construction. Several letters or reports are required to be submitted to the County at various times during construction. They are as follows:

1. **When a project has engineered fills and / or grading,** a letter from your soils engineer must be submitted to the Environmental Planning section of the Planning Department prior to foundations being excavated. This letter must state that the grading has been completed in conformance with the recommendations of the soils report. Compaction reports or a summary thereof must be submitted.

2. **Prior to placing concrete for foundations,** a letter from the soils engineer must be submitted to the building inspector and to Environmental Planning stating that the soils engineer has observed the foundation excavation and that it meets the recommendations of the soils report.

3. **At the completion of construction,** a *final letter* from your soils engineer is required to be submitted to Environmental Planning that summarizes the observations and the tests the soils engineer has made during construction. The final letter must also state the following: "Based upon our observations and tests, the project has been completed in conformance with our geotechnical recommendations."

   If the *final soils letter* identifies any items of work remaining to be completed or that any portions of the project were not observed by the soils engineer, you will be required to complete the remaining items of work and may be required to perform destructive testing in order for your permit to obtain a final inspection.

Environmental Review Inital Study
ATTACHMENT F 3 of 3
APPLICATION 04-0483

SANTA C[illegible]Z COUNTY HEALTH SERVICES A[illegible]NCY
ENVIRONMENTAL HEALTH SERVICE
701 Ocean Street - Room 312, Santa Cruz, CA 95060 (831) 454-2022

#05-050
SR# 3539
PC 4201

SITE EVALUATION

☒ **PRELIMINARY LOT INSPECTION REPORT**
MLD # 04-0483 PROPOSED LOT ____ LOT SIZE 3 AC SITE LOCATION 338 Reynolds Boulder Creek
APN 087 321 02 WATER SUPPLY SLV Water OWNER'S WRITTEN PERMISSION ATTACHED YES __ NO __

03/11/05 9:52AM [illegible] 0008
[illegible] VALIDATION 00
CHECK $682.00

☒ **SITE EVALUATION**
☒ FULL ☒ SOIL ☐ GROUNDWATER ☒ PERCOLATION ☐ REPAIR ☐ ALTERNATIVE SYSTEM

☐ **OTHER CONSULTATION** ____________

REQUESTED BY: Robert A. Sibley (NAME) 17525 Hwy 9 Boulder Creek (ADDRESS) 338 2276 (PHONE)
OWNER: A.E. Sibley (NAME) 210 Ross St Santa Cruz (ADDRESS) 427 3686 (PHONE)

☐ Item/s checked below do not meet present sewage disposal requirements or require further testing:

- ☐ Soil tests indicate soils not suitable.
- ☐ Lot slope excessive, area has been graded; and/or unable to provide setback from cut bank
- ☐ Winter water table testing required.
- ☐ Tests indicate failure to provide required separation of leaching and seasonal high groundwater.
- ☐ Unable to provide a 100 foot separation between a septic system and a well, spring, stream, or waterway.
- ☐ Inadequate space for both the sewage disposal system and the required future expansion area.
- ☐ Septic area in floodplain.
- ☐ Other ____________

Environmental Review Initial Study
ATTACHMENT 8, 1 of 4
APPLICATION 04-0483

☒ Preliminary inspection of this lot indicates suitability for individual sewage disposal using conventional septic technology under standards currently in effect, subject to any limitations identified below.

☒ Water supply must be developed.

☐ Site conditions may be mitigated by alternative technology. Further testing and evaluation is needed.

Design Parameters

Percolation Rate 1-5 (6-30) 30-60 60-120 Groundwater Depth for Design Purposes ________

REMARKS: [illegible] 3-15-05

(T1) 0-1 Topsoil-[illegible]
1-4 [illegible] - w/ [illegible]
4-8 [illegible] clay - [illegible]
[illegible]
[illegible]

(T2) 0-3' [illegible]
3-6' [illegible]
6-9' [illegible] w/ [illegible]
9-12' Silty [illegible] w/ [illegible]

NOTE: Preliminary inspections and evaluations do not take into account all factors which are considered in the issuance of a sewage disposal permit. An application for sewage disposal will be subject to further evaluation based on the specific sewage disposal design; the possible presence of geologic hazards, biotic resources, or other site constraints; and, the provisions of the Sewage Disposal Ordinance in effect at the time of permit application.

[signature] 6/9/05 ENVIRONMENTAL HEALTH SPECIALIST DATE [signature] SUPERVISOR 6/13/05 DATE

PHD-72 (REV. 12/01)

ALLARD'S SEPTIC SERVICE
P.O. BOX 928
BOULDER CREEK, CA 95006
(831) 338-7040
(831) 338-7414 FAX

SEPTIC TANK PUMPING AND INSPECTION REPORT

#14474

Date of Order	Ordered By
11/03/04	ROBERT

APN:	Cust.#	Driver	TK#	Order Taken By
087-021-02	D0020/5341	RG	F87	MARA

Name:
SIBLEY, ALFRED & ELENA #1
Job Address:
338 REYNOLDS DR.
BOULDER CREEK
Bill To:

Phone# 338-2276
WK/FAX#
Phone/Fax#
Escrow#

Redwood
Concrete
Fiberglass
Plastic
Other:

Inspection Date 11/12/04 8 AM
Gallons Pumped 1500

Date last Pumped: UNKNOWN Tank Capacity: 1500
Property Use? Comercial: Home:X Other: Occupied? Yes:X No:
Condition of Tank:

	Good	Fair	Poor	Repairs Recommend	Repairs Completed	Reason For Pumping/Inspect.
Septic ells/tees	X					Maint
Tank top and/or lids	X					Haul Away
Sides/bottom of tank	X					Sale/System
Baffles	X					Other PROP. DIV.

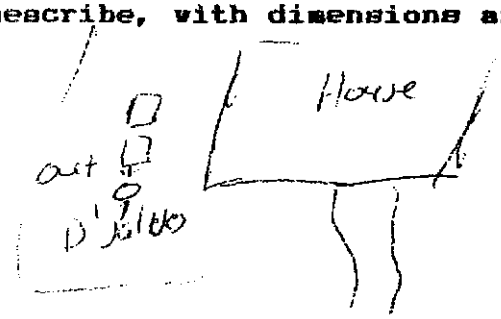
Operational Level: High ___ Low ___ Normal X Leaching System:

Present or past high level in tank?	YES ___	NO X
Liquid flowback while pumping?	YES ___	NO X
Signs of Surfacing Effluent?	YES ___	NO X
Separate Greywater Discharge?	YES ___	NO X

Other System Components/Notes: _____

System Location-Sketch or describe, with dimensions and direction of north

Environmental Review Inital Study
ATTACHMENT 3, 2 of 4
APPLICATION 04-0483



pd 0202

PR 7

Disposal Site: SCCWTP

There is a 2% charge per month on all Invoices over 30 days (24% per annum)

I hereby acknowledge completion of work: _____

COST PER LOAD	$ 375	00
LABOR 1/hr	60	00
VISUAL		
OTHER Locater	100	00
TOTAL AMOUNT	535	00

COD:XX Bill(Net10): C/C: ESCROW: THANK YOU

WE ARE NOT RESPONSIBLE FOR DAMAGES TO DRIVEWAYS, UNDERGROUND UTILITIES, FLOWERS, SHRUBS OR TREES. THIS REPORT IS VALID AT TIME OF INSPECTION ONLY!

ALLARD'S SEPTIC SERVICE
P.O. BOX 828
BOULDER CREEK, CA 95006
(831) 338-7040
(831) 338-7414 FAX

SEPTIC TANK PUMPING AND INSPECTION REPORT

#14473

Date of Order	Ordered By
11/03/04	ROBERT

APN:	Cust.#	Driver	TK#	Order Taken By
087-321-02	C5140/2752	RG	F87	MARA

Name:
SIBLEY, ROBERT

Job Address:
17525 HWY 9
BOULDER CREEK

Bill To:

Phone#
338-2276

WK/FAX#

Phone/Fax#

Escrow#

Redwood
Concrete XX
Fiberglass
Plastic
Other:

Inspection Date
11/12/04 8 AM

Gallons Pumped
1500

Date last Pumped: 08/18/2000 Tank Capacity: 1500
Property Use? Comercial: Home:X Other: Occupied? Yes:X No:
Condition of Tank:

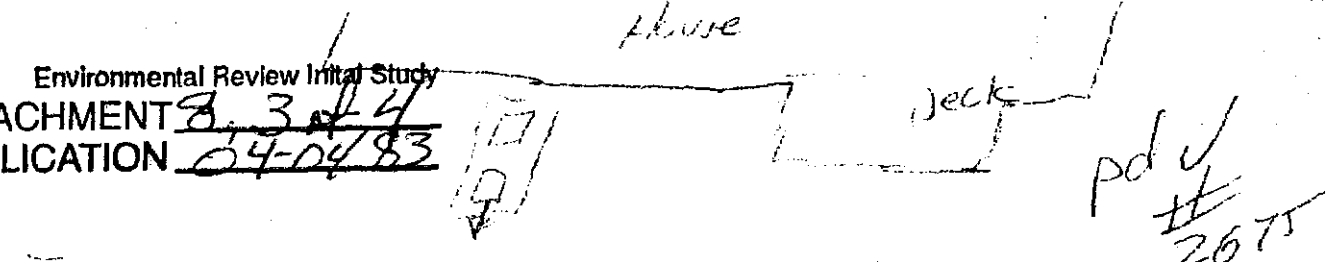
	Good	Fair	Poor	Repairs Recommend	Repairs Completed	Reason For Pumping/Inspect.
Septic ells/tees	X					Maint
Tank top and/or lids	X					Haul Away
Sides/bottom of tank	X					Sale/System
Baffles	X					Other PROP. DIV.

Operational Level: High ___ Low ___ Normal X Leaching System:

Present or past high level in tank?	YES ___	NO X
Liquid flowback while pumping?	YES ___	NO X
Signs of Surfacing Effluent?	YES ___	NO X
Separate Greywater Discharge?	YES ___	NO X

Other System Components/Notes: System operating correctly
2nd Visit

System Location-Sketch or describe, with dimensions and direction of north



Environmental Review Initial Study
ATTACHMENT 8.3 of 4
APPLICATION 04-0483

pd 11/12/04 #2675

PH 7

Disposal Site: SCCWTP

There is a 2% charge per month on all Invoices over 30 days (24% per annum)

I hereby acknowledge completion of work:

COST PER LOAD	$ 375	00
LABOR		
VISUAL		
OTHER		
TOTAL AMOUNT	375	00

COD:XX Bill(Net10): C/C: ESCROW: THANK YOU

WE ARE NOT RESPONSIBLE FOR DAMAGES TO DRIVEWAYS, UNDERGROUND UTILITIES, FLOWERS, SHRUBS OR TREES. THIS REPORT IS VALID AT TIME OF INSPECTION ONLY!

ALLARD'S SEPTIC SERVICE
P.O. BOX 820
BOULDER CREEK, CA 95006
(831) 338-7040
(831) 338-7414 FAX

SEPTIC TANK PUMPING AND INSPECTION REPORT
#14539

Date of Order	Ordered By
11/03/04	ROBERT

****

APN: 087-321-02 | Cust.# D0021/5343 | Driver RG | TK# F87 | Order Taken By MARA

Name:
SIBLEY, ALFRED & ELENA #2

Job Address:
338 REYNOLDS DRIVE
BOULDER CREEK

Bill To:

| Phone# 338-2276
| WK/FAX# 234-1934
| Phone/Fax#
| Escrow#

| Redwood
| ~~Concrete~~
| Fiberglass XX
| ~~Plastic~~
| Other:

| Inspection Date
| 12/21/04 9 AM
| Gallons Pumped
| 1000

****

Date last Pumped: UNKNOWN Tank Capacity: 1000
Property Use? Comercial: Home:X Other: | Occupied? Yes:X No:
Condition of Tank:

	Good	Fair	Poor	Repairs Recommend	Repairs Completed	Reason For Pumping/Inspect	
Septic ells/tees	X					Maint	XX
Tank top and/or lids	X					Haul Away	
Sides/bottom of tank	X					Sale/System	
Baffles	X					Other	

Operational Level: High ___ Low ___ Normal X Leaching System:
Present or past high level in tank? YES ___ NO X
Liquid flowback while pumping? YES ___ NO X
Signs of Surfacing Effluent? YES ___ NO X
Separate Greywater Discharge? YES ___ NO N/A
Other System Components/Notes: ____________________

System Location-Sketch or describe, with dimensions and direction of north

Environmental Review Initial Study
ATTACHMENT 8, 4 of 4
APPLICATION 04-0483

BLDG 18' Kourney
12'
Asphalt
N
pol # 2682

PH 7 Disposal Site: SCCWTP

****

There is a 2% charge per month on all invoices over 30 days (24% per annum)

COST PER LOAD	$ 375	00
LABOR Cover	50	00
VISUAL		
OTHER		
TOTAL AMOUNT	~~375~~ 425	00

I hereby acknowledge completion of work:

COD:XX Bill(Net10): C/C: ESCROW: THANK YOU

WE ARE NOT RESPONSIBLE FOR DAMAGES TO DRIVEWAYS, UNDERGROUND UTILITIES, FLOWERS, SHRUBS OR TREES. THIS REPORT IS VALID AT TIME OF INSPECTION ONLY!

October 3rd, 2007
Mr. Joe Hanna, County Geologist 454-3175
Santa Cruz County Planning Department
701 Ocean Street - Santa Cruz, CA 95060

Re: Clearance below Sibley Bridge -- at Projected 1% (100-year) Flood Level
17525 Highway 9 - Boulder Creek, CA APN 087-321-02

Mr. Hanna-

The clearance between the underside of the Sibley Bridge and the expected level of a projected 100-year flood is, in my opinion, greater than one foot as required. This is based on FEMA data and the surveyed cross-sections near the bridge -- evaluated by several different methods.

FEMA Riverbed and Floodwater Profile-
(See Attachments 3 and 4)
The Sibley Bridge is located at or very near FEMA Cross-section <CX>.
Flood clearance is considered with bridge assumed to be at <CX>.
(The assumption that the bridge is located farther downstream yields essentially the same result.)

Attachment 4)-- "FEMA Floodway Data - San Lorenzo River at 130,517' from Rivermouth" lists the "Regulatory Base Flood Level" as 579.9'.

Attachment 3) "FEMA Flood Profile Page 56P" shows the streambed elevation at <CX> to be 570'. That is, during a 100-Year Flood the stream would be (579.9' - 570') ≈10' deep at <CX>.

By direct measurement, the center of the Sibley Bridge is ≈19.5' above the streambed. The bridge truss is 2.5' thick -- yielding a streambed clearance of 17'.

Thus, with the bridge located at <CX>, clearance between the projected 100-Year flood level and the bottom of the bridge is 7'.

(The river obviously flattens out at the curve just beyond the bridge.
As a check: a point on the floodway profile 300' downstream of <CX> shows the flood level there as 577.8', and the streambed elevation as 567.2'.
The resulting 10.6' flood depth yields -- bridge bottom clearance ≈6.4'.)

The flood level clearance has also been checked in other ways such as:

Table 10 lists the cross-section area and velocity at flood stage.
447 SqFt x 11.2 FPS = 5,000 CF/sec. There are no streams entering the river nearby so it is assumed that the flood quantity passing under a section at the bridge is the same as at <CX>.

Environmental Review Initial Study
ATTACHMENT 9, 1 of 3
APPLICATION 04-0483

The Topo map (Attachment 1) shows the locations of several sections where the cross-section area versus depth has been calculated using the <CX> streamflow -- assuming the worst case that <CX> is 140' upstream of bridge.

These sections are used to calculate stream velocities to permit design of the size and type of streambank cladding necessary to protect the abutments during a 100-Year flood.

(The sections shown were derived from the Curt Dunbar survey. The relative heights are consistent with one another although there is some question of the absolute elevations -- depending on the reference elevation used in FEMA study.)

{Section C3D} is through the NE abutment - downstream on the east bank. This is the narrowest section in the bridge vicinity. The clearances (based on 5,000 CFS streamflow) are consistent with the profile information.

In addition, the streambed clearance at the nearest bridges (at Tiehl Crossing - downstream and Felton Grove - upstream) is approximately the same as at the Sibley Bridge. (Also, although certainly not conclusive, the appearance of the floodway around all of the bridges suggests that all floods for very considerable periods of time have remained within the streambanks.)

The aerial photo map used by the County shows the projected 100-Year flood level to be 580' -- which is in agreement with the data listed for Section <CX> in Table 10 (i.e. "Regulatory Level- 579.9'). However, the contour elevations for the surrounding land shown on County maps is inconsistent with this number. Therefore we have relied on the FEMA profile and Table 10 data.

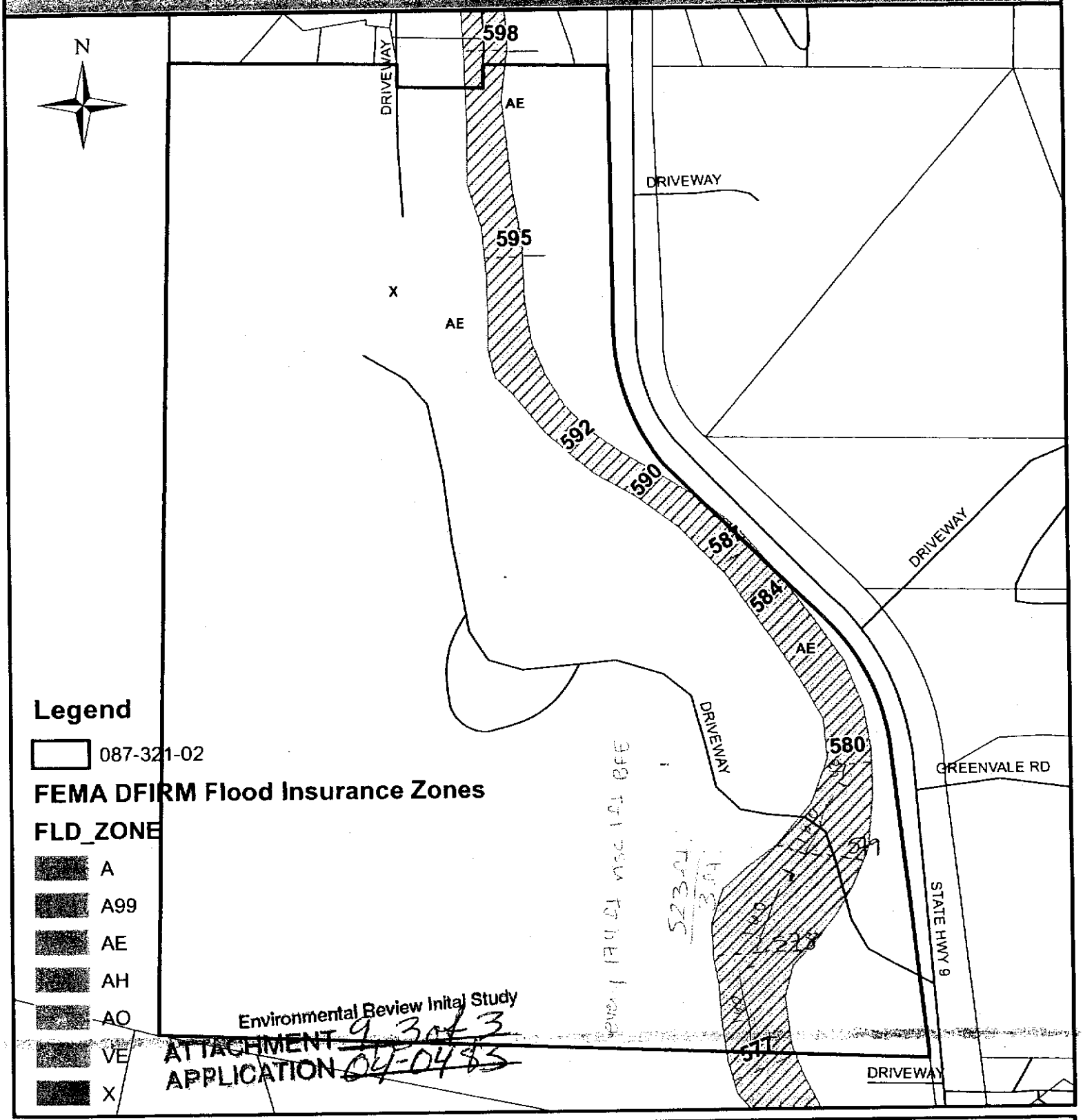
Please call if more information is needed.

Sincerely,

Attachments:

1. Topographic Map -- Bridge showing Section Locations - per Curt Dunbar-
2. Sections shown on full sheet:
   - Section A - ≈25' Upstream from NW corner of West Abutment
   - Section B - At NW Corner of West Abutment
   - Section C - At NE Corner of East Abutment
   - Section D - ≈25' Downstream from NE Corner of East Abutment
   - Section E - ≈50' Downstream from NE Corner of East Abutment
3. FIRM Flood Profile from Tiehl Road to Section <DA>
4. FIRM Table 10 - Flood Characteristics at Section <CX>
5. Sheet One of Abutment Protection -- Reduced to 8.5x11

2006 FEMA Map



Environmental Review Inital Study
ATTACHMENT 9 3 of 3
APPLICATION 04-0493

Figure #

0 80 160 320 480 640 Feet

- 105 -

Map created by JLD
June 2007

Project Planner: Alice Daly
Application No.: 04-0483
APN: 087-321-02

Date: September 17, 2008
Time: 11:42:56
Page: 1

Environmental Planning Completeness Comments

========= REVIEW ON OCTOBER 27, 2004 BY JESSICA L DEGRASSI =========
The bridge must be elevated at minimum 1-foot above the 100-year flood of Boulder Creek. The 100-year flood elevation must be determined by a Hydrologic Report prepared by a licensed engineer. This report must be submitted for review.

A soils report will be required for all development sites. Additional reports may be required during the review of the soils report, such as a geologic report. Please submit two copies of the completed soils report. Included are a list of soils engineers and requirements for soils reports.

Please show all development sites on site plan. ========= UPDATED ON FEBRUARY 22, 2005 BY JESSICA L DEGRASSI =========
The requirement for the hydrologic report will not be required for this project, as the 100-year flood elevation has allready been studied at the project site. The 100-year elevation is approximately 579 feet above mean sea level. Applicant will be provding a survey from Dunbar and Craig showing this elevation on the surveyed map. Will wait for submittal of map to clarify the elevation of the bridge. ========= UPDATED ON APRIL 13, 2005 BY KEVIN D CRAWFORD =========
04/13/05 - The Geotechnical Feasibility Study by Dees & Associates does not satisfy the requirement for a soils report. A soils report was requested for the existing structures to be recognized (bridge and barn conversion) as well as for any proposed structures, roadways or other facilities. The report must include sample borings and soils testing results, and make specific design recommendations, or, for the existing structures, evaluations of their foundation stability and/or structural integrity. The report will be reviewed by the County Geologist, who may require additional studies after his site review. ========= UPDATED ON MAY 27, 2005 BY JOSEPH L HANNA =========
I have been asked to clarify to current outstanding issues on the project. The geotechnical engineer with the assistance of an engineering geologist must address, in addition to the other issues raised by Kevin Crawford, the site stability of each proposed building site as well as the access roadway to each site. In addition the bridge comply with all FEMA requirements. ========= UPDATED ON MAY 11, 2006 BY JOSEPH L HANNA =========
The geology report by Jeff Nolan dated 2-27-06 address only the building site on the southern end of the parcel. Consquently, my comments will be directed to the "barn parcel."

1. A younger landslide constrains the access roadway to the building site, and the septic system is located within this same landslide. County Code requires that both the access roadway and the septic system be located away from areas of instability. The engineering geologist or geotechnical engineering must anaylze this landslide using engineering mechanics to demonstrate that this landslide is stable.

2. The cut slope below and south of the barn is steep and should also be analzyed for with engineering mechanics to determine if it stable.

3. A building site may exist on the Highway 9 side of the parcel. This building site wouldn't require the use of the bridge to access a building site and would therefore

be the better location. I believe that the highway 9 side of the parcel should be evaluated for a building site as part of this application.

4. The parcels for this map need geology. Please request this additional information. ========= UPDATED ON SEPTEMBER 5, 2007 BY JESSICA L DEGRASSI =========

Received new tentative parcel map completed by Curt Dunbar dated July 2007. The reference to county benchmark #86 is noted on plan but is not shown where this benchmark exists. Please revise plans.

Also, the revised elevation of the bridge abutments is now noted to be at 589.9 feet. Is this at mean sea level. Is the county benchmark based on the same datum that FEMA used for the 100-year flood elevation, NGVD 1929?

Based on the elevations presented in the cross section of Curt Dunbar's su rvey sheet, the 100-year flood elevation would be lower than the existing flowline of the channel bottom. Please clarify. ========= UPDATED ON JANUARY 16, 2008 BY JOSEPH L HANNA =========
A new building site is now proposed.... Comments on the new building site are as follows.

1. The engineering geologist must review and approve the septic drain field areas and state that these proposed fields are located away from area of instability. See Code Chapter 16.10 and General Plan Section 6.2.7.

2. Eliminate any portion of the building or development envelopes that are greater than 30 %, or contain landsliding. Please also eliminate any portion of the septic system drain fields that are located in areas of grading, or located in areas landsliding.

3. The geotechnical engineer indicates that additional analysis is required of steep slopes below the proposed building / development envelopes. These slopes must be analyzed before the approval of the building envelope.

4. The resourse planner must agree to the limits of the riparian corriodr. ========= UPDATED ON JANUARY 16, 2008 BY JESSICA L DEGRASSI =========
Comments from previous routing still apply.

Please submit information about the Reference Mark (RM) 86 as noted on the survey sheet 2. This reference is noted as County benchmark number 86. I checked with the County Surveyor'f office, and they do not have any record of benchmark 86 in this area. Please clarify.

As stated in previous comments, the elevations presented on the cross section of Curt Dunbar's survey sheet 2, the 100-year flood elevation of 579 would be located below the existing flowline of the river. Please clarify.

New sheets were submitted, prepared by Jack Schultz dated 12/20/07. Sheet C3 of the plan set shows the bridge elevation at 584.5 feet, whereas sheet C4 shows the elevation at 576.3 feet. Please clarify.

If the current bridge does not meet FEMA standards, at least above the 100-year flood elevation of 579 feet, the bridge cannot be utilized to provide access to the proposed building site. This would entail development restricted to the HWY 9 side of the parcel, without a river crossing.

New plans prepared by Jack Schultz show the placement of rip-rap within the river channel in order to stabilize the abutments of the bridge. These improvements must be analyzed by the soils engineer and by the civil engineer for the effect on the base flood elevation. The placement of fill is not allowed in floodway/floodplain unless it can be demonstrated that the fill will not have cumulative adverse impacts on river hydrology. A full hydrologic report must be submitted to demonstrate this requirement can be met. The soils engineer must prepare an adendum to the geotechnical (soils) report which addresses the current state of the bridge abutments and the need for the additional stabilization measures. ========= UPDATED ON APRIL 28, 2008 BY JOSEPH L HANNA =========
The project meets my comments from 1/2008. Joe Hanna

Environmental Planning Miscellaneous Comments

========= REVIEW ON OCTOBER 27, 2004 BY JESSICA L DEGRASSI =========
Grading plans will be required for all access driveways and building sites, see minimum standards for grading plan intake. The grading plan must be completed by an licensed engineer or architect.

An erosion/sediment control plan must be submitted with the grading plans, and must show how sediment will be controlled onsite, specifically for any work proposed in close proximity to any drainage courses. This plan must include details of erosion/sediment control devices.

Review letters will be required for the building permit from the technical engineers.

A revegetation plan will be required for any disturbance within the riparian corridor. The riparian exception permit must include these conditions. ========= UPDATED ON APRIL 13, 2005 BY KEVIN D CRAWFORD =========
04/13/05 - While the project description states "to recognize a barn and a bridge", the Dees Feasibility Study describes "two SFD's and a guest house" are located on the site, and the plan provided show several structures on the site. The project description must be better defined to clearly indicate the location and nature of each structure that must be recognized. Any other proposed improvements must also be clearly defined. Are any roadway improvements or grading proposed with this project? ========= UPDATED ON MAY 11, 2006 BY JOSEPH L HANNA =========
A complete grading plans are required for all of the grading related to the bridge and the access roadways. ========= UPDATED ON JANUARY 16, 2008 BY JOSEPH L HANNA =========

Before the approval of the a building permit on this property a engineer geology and geotechnical engineering report investigations must be completed for either the legalization of the existing bridge, or alternatively a new bridge. The bridge must comply with FEMA regulation and Department of Public standards for bridges. No grading (including placing of riprap) is allowed in the flood plane, and the project civil engineer, engineering geologist, and geotechnical engineer must conclude that

the abutment are stable. ========= UPDATED ON JANUARY 29, 2008 BY JESSICA L DEGRASSI =========

Prior to issuance of any building permit, a streambed alteration agreement from the State Dept of Fish and Game will be required. ========= UPDATED ON APRIL 28, 2008 BY JOSEPH L HANNA =========
A development and building envelopes shall be recorded on the final map; the development envelope should include the septic system drain field and the building envelope, and the building envelope shall include all proposedstructures related to the home. We recognize the the bridge will be outsideof the building envelope.

Review and approval letters are required from the engineering geologist andgeotechnical engineer with the submittal of the building permit to either replace or augment the bridge.

Housing Completeness Comments

========= REVIEW ON OCTOBER 8, 2004 BY =========
This project requires payment of a $10,000 in-lieu fee in accordance with County Code, Section 17.10.031. ========= UPDATED ON OCTOBER 13, 2004 BY TOM POHLE =========
========= UPDATED ON OCTOBER 18, 2004 BY TOM POHLE =========
NO COMMENT
========= UPDATED ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT
========= UPDATED ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT

comments submitted by separate memo to planner ========= UPDATED ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT
========= UPDATED ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT

Housing Miscellaneous Comments

========= REVIEW ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT
========= UPDATED ON NOVEMBER 1, 2004 BY TOM POHLE =========
NO COMMENT

comments submitted by separate memo to planner

Dpw Drainage Completeness Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON OCTOBER 20, 2004 BY ALYSON B TOM ========= The tentative map provided dated November 2003 is not complete with regards to drainage for discretionary approval. The application was reviewed for completeness of discretionary development and is subject to compliance with the County policies listed below.

General Plan policies: 5.5.12 Drainage Design in Water Supply Watersheds 7.23.1 New Development 7.23.2 Minimizing Impervious Surfaces 7.23.5 Control Surface Runoff

1.Please provide a complete plan that shows all improvements and site disturbance associated with the proposed land division. All improvements (including paved areas) should be labeled as either existing and permitted, existing and not permitted, or proposed. Improvements to be shown include all grading (provide existing and proposed contours), impervious areas (roads, driveways, roofs, etc.) and drainage facilities.

2.At a minimum, building envelope, access and a narrative drainage plan should be provided for each proposed lot.

3.All proposed drainage facilities should be designed to adequately handle upstream flows (from both on site and off site) without causing any downstream impacts (including flood, erosion or water quality impacts) and as required in the County Design Criteria. Sizing and design details may be required at this stage if there are potential off site impacts and will be required prior to final map recordation.

4.Describe what measures are proposed to limit the amount of, and mitigate for the proposed impervious areas and areas of site disturbance.

5.Approval of as-built facilities will be based on current criteria. Please provide additional details for the as-built bridge and demonstrate that the bridge meets the minimum hydrology requirements of the current County Design Criteria (facility conveyance of 10-year storm and safe overflow conveyance of 100-year storm; the bridge should not impact water surface elevations upstream or downstream of the bridge and should be located outside of the 100-year floodplain).

6.Please provide a complete drainage plan that describes how runoff from all proposed site disturbance will be handled so that existing drainage patterns remain and so that the project will not result in any off-site impacts. The proposed project is located in a water supply watershed zone. Accordingly, all additional runoff due to the project shall be retained on-site and allowed to percolate into the ground so that the post project runoff rate leaving the site does not exceed pre project levels. The feasibility of any proposed retention facilities/plan should be justified by site specific data (soils information or percolation data, etc.) and/or by a professional based on local information. This data should be provided prior to discretionary approval of a retention facility/plan. Detailed design of a retention facility/plan may be completed prior to final map recordation. Safe overflow that maintains existing drainage patterns should be included in the retention design.

All submittals for this project should be made through the planning department.

Because this application is incomplete in addressing County development policies, resulting revisions and additions will necessitate further review comment and possibly different or additional requirements. The applicant is subject to meeting all future review requirements as they pertain to the applicant's changes to the proposed plans.

For questions regarding this review Public Works storm water management staff is

available from 8-12 Monday through Friday.
========= UPDATED ON APRIL 18, 2005 BY ALYSON B TOM ========= Application with revised tentative map has been received. Previous comments have not been addressed. Please address previous comments dated10/20/04.
========= UPDATED ON MAY 29, 2007 BY ALYSON B TOM ========= Application with civil plans dated 5/2/07 has been received. Previous comments have not been fully addressed. Please address the following:

1) Comment No. 1 from 10/20/04 is outstanding. All impervious areas on the project site should be labelled as either existing and permitted, existing and not permitted, or proposed. Mitigations will be required for all proposed and not permitted impervious areas. Please provide proposed contour information that is legible. The proposed contours shown are not discernable from the existing contour lines.

2) Comment No. 2 from 10/20/04 is outstanding. Provide at least a narrative drainage plan for each proposed lot that describes how all proposed runoff shall be handled. This would include runoff from existing and future buildings, paved areas etc.

3) Comment No. 3 from 10/20/04 is outstanding. Has the proposed driveway design adequately considered upstream flows. The contours provided suggest that there may be the need for several drainage crossings along the proposed driveway.

4) Previous comment No. 6 has not been fully addressed. How will the expanded bridge drain without causing any erosion impacts?

5) Provide a review letter from the project geotechnical engineer approving of the drainage plan that calls for outsloping the proposed driveway to a gravel trench with overflow to existing and proposed slopes.
========= UPDATED ON JANUARY 11, 2008 BY LOUISE B DION =========
Application is deemed acceptable for discretionary permit stage. Previous comments will be addressed during building permit application.

Dpw Drainage Miscellaneous Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON OCTOBER 20, 2004 BY ALYSON B TOM ========= Prior to final map recordation:

1.Additional site drainage details may be required prior to final map recordation.

2.All common drainage facilities will require drainage easements. Recorded maintenance agreements will be required for all common drainage facilitiesand for retention, detention and water quality facilities.

3.Submit a final approval letter from the project geotechnical engineer referring to the final drainage plan (including date) and stating that the plan should not cause any erosion or stability problems on site or downstream from the site.

4.Zone 8 fees will be assessed on the net increase in impervious area due to this

project, including the increase due to the approval of as-built facilities.

5.Construction activity resulting in a land disturbance of one acre or more, or less than one acre but part of a larger common plan of development or sale must obtain the Construction Activities Storm Water General NPDES Permit from the State Water Resources Control Board. Construction activity includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. For more information see:
http://www.swrcb.ca.gov/stormwtr/constfaq.html
========= UPDATED ON JANUARY 11, 2008 BY LOUISE B DION =========
All applicable miscellaneous comments shall be addressed during building permit application stage.

Dpw Driveway/Encroachment Completeness Comments

========= REVIEW ON OCTOBER 6, 2004 BY DEBBIE F LOCATELLI =========
No comment, project involves a subdivision or MLD.

Dpw Driveway/Encroachment Miscellaneous Comments

========= REVIEW ON OCTOBER 6, 2004 BY DEBBIE F LOCATELLI =========
No comment.

Dpw Road Engineering Completeness Comments

========= REVIEW ON OCTOBER 27, 2004 BY GREG J MARTIN =========
The proposed Minor Land Division is in a heavily forested area with steep terrain adjacent to a creek. The existing access roads to the property proposed for development are extremely narrow winding roads with steep grades in some places. A one-lane bridge crosses over the creek. The roads are significantly below County Standards with respect to horizontal alignment, vertical alignment, width, condition, and sight distance. The Public Works Department does not recommend approval of the proposed project as this will increase traffic on these substandard roads.

The plans are recommended to include an existing site plan, proposed site plan, typical sections, and profiles. The plans should identify existing buildings, show building envelopes, and at least one possible driveway for each building envelope. Profiles and typical sections are recommended to be provided for the access road and driveways. The access from the proposed Minor Land Division to the State Highway should be shown in plan view. Sight distance should be shown in plan view. The plan view should show the right-of-way, edge of road, and road material. Any failed sections of road along Reynolds Drive should be shown and repaired.

If you have any questions please contact Greg Martin at 831-454-2811. ========= UPDATED ON OCTOBER 28, 2004 BY GREG J MARTIN =========
========= UPDATED ON APRIL 28, 2005 BY GREG J MARTIN =========
Previous comments not addressed. ========= UPDATED ON MAY 29, 2007 BY GREG J MARTIN =========
NO COMMENT
========= UPDATED ON JANUARY 8, 2008 BY GREG J MARTIN =========

No comment.

Dpw Road Engineering Miscellaneous Comments

========= REVIEW ON OCTOBER 27, 2004 BY GREG J MARTIN =========
========= UPDATED ON OCTOBER 28, 2004 BY GREG J MARTIN =========
========= UPDATED ON APRIL 28, 2005 BY GREG J MARTIN =========
========= UPDATED ON MAY 29, 2007 BY GREG J MARTIN =========
========= UPDATED ON JANUARY 8, 2008 BY GREG J MARTIN =========

Environmental Health Completeness Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= UPDATED ON JANUARY 17, 2008 BY JIM G SAFRANEK =========
The septic evaluation was approved in 2007 by B Blease of EHS. This MLD is now approved by EHS

Environmental Health Miscellaneous Comments

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON OCTOBER 19, 2004 BY JIM G SAFRANEK =========
NO COMMENT
========= UPDATED ON APRIL 21, 2005 BY JIM G SAFRANEK =========
========= UPDATED ON APRIL 27, 2005 BY JIM G SAFRANEK ========= No Comment.
========= UPDATED ON MAY 25, 2007 BY JIM G SAFRANEK =========

Boulder Creek Fire Protecttion Dist Completeness C

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON OCTOBER 7, 2004 BY COLLEEN L BAXTER ========= DEPARTMENT NAME:CDF/BOULDER CREEK FIRE Add the appropriate NOTES and DETAILS showing this information on your plans and RESUBMIT, with an annotated copy of this letter: Submit a "plan review response sheet" when corrected sets are submitted for back check. All changes to drawings will require "clouding of the change". NOTE on the plans that these plans are in compliance with California Building and Fire Codes (2001) and District Amendment. The job copies of the building and fire systems plans and permits must be onsite during inspections. NOTE on the plans the OCCUPANCY CLASSIFICATION, BUILDING CONSTRUCTION TYPE/FIRE RATING and SPRINKERED or NONSPRINKERED as determined by the building offical and outlined in Part IV of the California Building Code, e.g. R-3, Type V-N, Sprinklered. information can be obtained from the water company. All bridges, culverts and crossings shall be certified by a registered engineer. Minimum capacity of 25 tons. Cal-Trans H-20 loading standard. The access road shall be in place to the following standards prior to any framing construction, or construction will be stopped: - The access road surface shall be "all weather", a minimum 6" of compacted aggregate base rock, Class 2 or equivalent, certified by a licensed engineer to 95% compaction and shall be maintained. - ALL WEATHER SURFACE: shall be minimum of 6" of compacted Class II base rock for grades up to and including 5%, oil and screened for grades up to and including 15% and as-

phaltic concrete for grades exceeding 15%, but in no case exceeding 20%. The maximum grade of the access road shall not exceed 20%, with grades greater than 15% not permitted for distances of more than 200 feet at a time. The access road shall have a vertical clearance of 14 feet for its entire width and length, including turnouts. A turn-around area which meets the requirements of the fire department shall be provided for access roads and driveways in excess of 150 feet in length. Drainage details for the road or driveway shall conform to current engineering practices, including erosion control measures. All private access roads, driveways, turn-around and bridges are the responsibility of the owner(s) of record and shall be maintained to ensure the fire department safe and expedient passage at all times. SHOW on the plans, DETAILS of compliance with the driveway requirements. The driveway shall be 12 feet minimum width and maximum twenty percent slope. The driveway shall be in place to the following standards prior to any framing construction, or construction will be stopped:
- The driveway surface shall be "all weather", a minimum 6" of compacted aggregate base rock, Class 2 or equivalent certified by a licensed engineer to 95% compaction and shall be maintained. - ALL WEATHER SURFACE: shall be a minimum of 6" of compacted Class II base rock for grades up to and including 5%, oil and screened for grades up to and including 15% and asphaltic concrete for grades exceeding 15%, but in no case exceeding 20%. - The maximum grade of the driveway shall not exceed 20%, with grades of 15% not permitted for distances of more than 200 feet at a time. - The driveway shall have an overhead clearance of 14 feet vertical distance for its entire width. - A turn-around area which meets the requirements of the fire department shall be provided for access roads and driveways in excess of 150 feet in length. - Drainage details for the road or driveway shall conform to current engineering practices, including erosion control measures. - All private access roads, driveways, turn-arounds and bridges are the responsibility of the owner(s) of record and shall be maintained to ensure the fire department safe and expedient passage at all times. - The driveway shall be thereafter maintained to these standards at all times. All Fire Department building requirements and fees will be addressed in the Building Permit phase. Plan check is based upon plans submitted to this office. Any changes or alterations shall be re-submitted for review prior to construction. 72 hour minimum notice is required prior to any inspection and/or test. Note: As a condition of submittal of these plans, the submitter, designer and installer certify that these plans and details comply with the applicable Specifications, Standards, Codes and Ordinances, agree that they are solely responsible for compliance with applicable Specifications, Standards, Codes and Ordinances, and further agree to correct any deficiencies noted by this review, subsequent review, inspection or other source, and, to hold harmless and without prejudice, the reviewing agency.
========= UPDATED ON MAY 20, 2005 BY COLLEEN L BAXTER =========
THE 12' MINIMUM UNOBSTRUCTED WIDTH, WITH AN UNOBSTRUCTED VERTICAL CLEARANCEOF 15' IS TO BE MAINTAINED AT ALL TIMES. IF A GATE IS TO BE INSTALLED ON THE ROADWAY, IT SHALL BE EQUIPPED WITH THE FIRE DISTRICTS KEY LOCK SYSTEM. THE DEAD END ROADWAY ON PARCEL 2 MUST BE EQUIPPED WITH A FIRE DEPARTMENT TURNAROUND. A HAMMERHEAD IS ACCEPTABLE WITH DIMENSIONS OF 35' DEEP AND 16' IN WIDTH FOR EACH ARM OR BULB WITH A 35 FOOT INSIDE RADIUS. NOTE ON THE PLANS THAT A 30 FOOT CLEARANCE WILL BE MAINTAINED WITH NONCOMBUSTIBLE VEGETATION AROUND ALL STRUCTURES. ========= UPDATED ON MAY 30, 2007 BY RON GRIESINGER =========
DEPARTMENT NAME: Boulder Creec Fire
All previous comments to remain. Plans shall be submitted for the proposed bridge repair A leter from the e ngineer of record shall be submited to the fire department

indicating the current load rating in compliance with hs-20 loading standards. The existing bridge shall be re-certifed every five years.

Boulder Creek Fire Protecttion Dist Miscellaneous

LATEST COMMENTS HAVE **NOT YET** BEEN SENT TO PLANNER FOR THIS AGENCY

========= REVIEW ON OCTOBER 7, 2004 BY COLLEEN L BAXTER =========
========= UPDATED ON MAY 20, 2005 BY COLLEEN L BAXTER =========

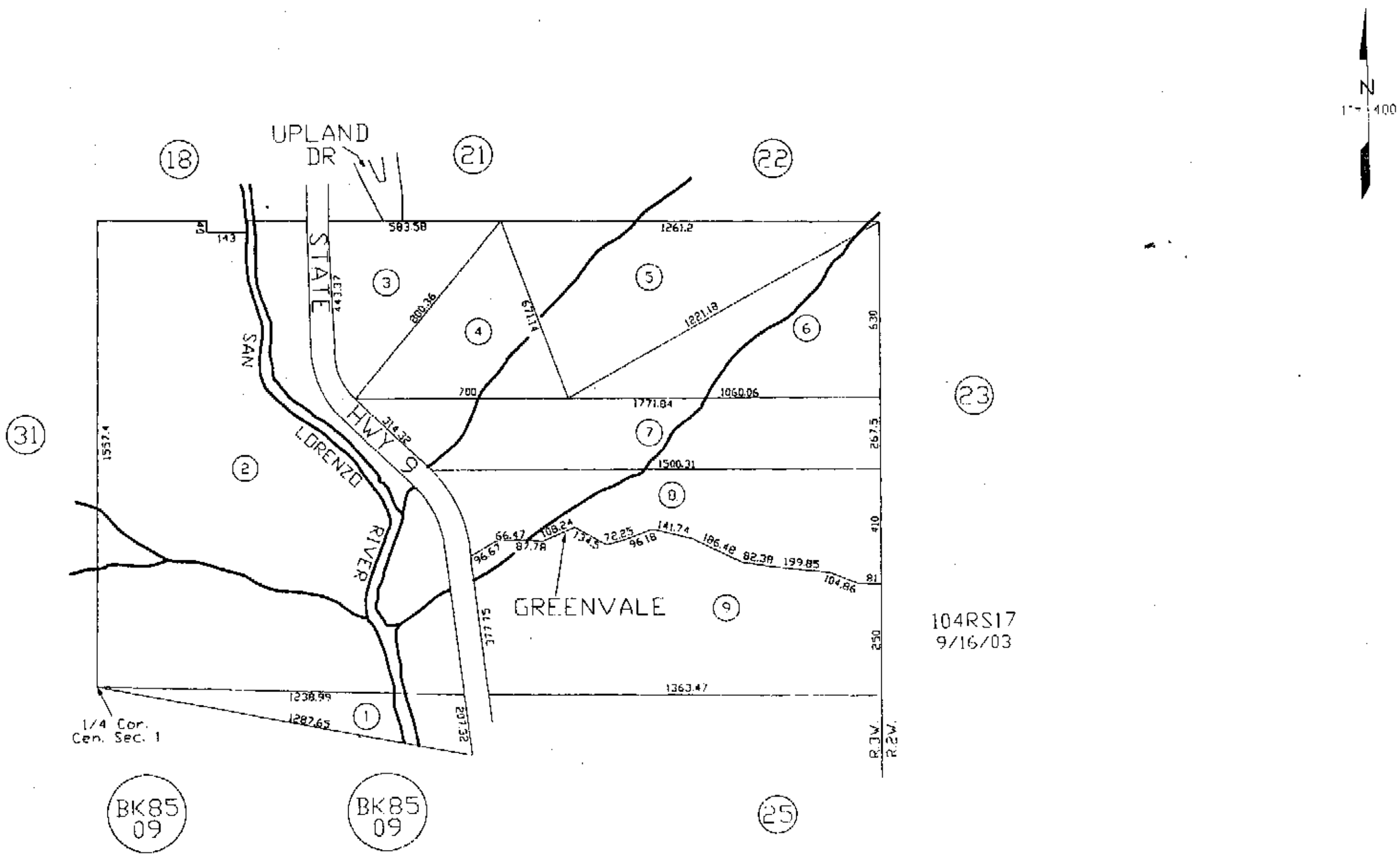
Environmental Review Inital Study
ATTACHMENT 10 10 of 10
APPLICATION 04-0483

FOR TAX PURPOSES ONLY

POR. SEC. S. 1/2 36, T.8S., &
N. 1/2 SEC 1, T.9S., R.3W., M.D.B. & M.

Tax Area Code
90-103

87-32



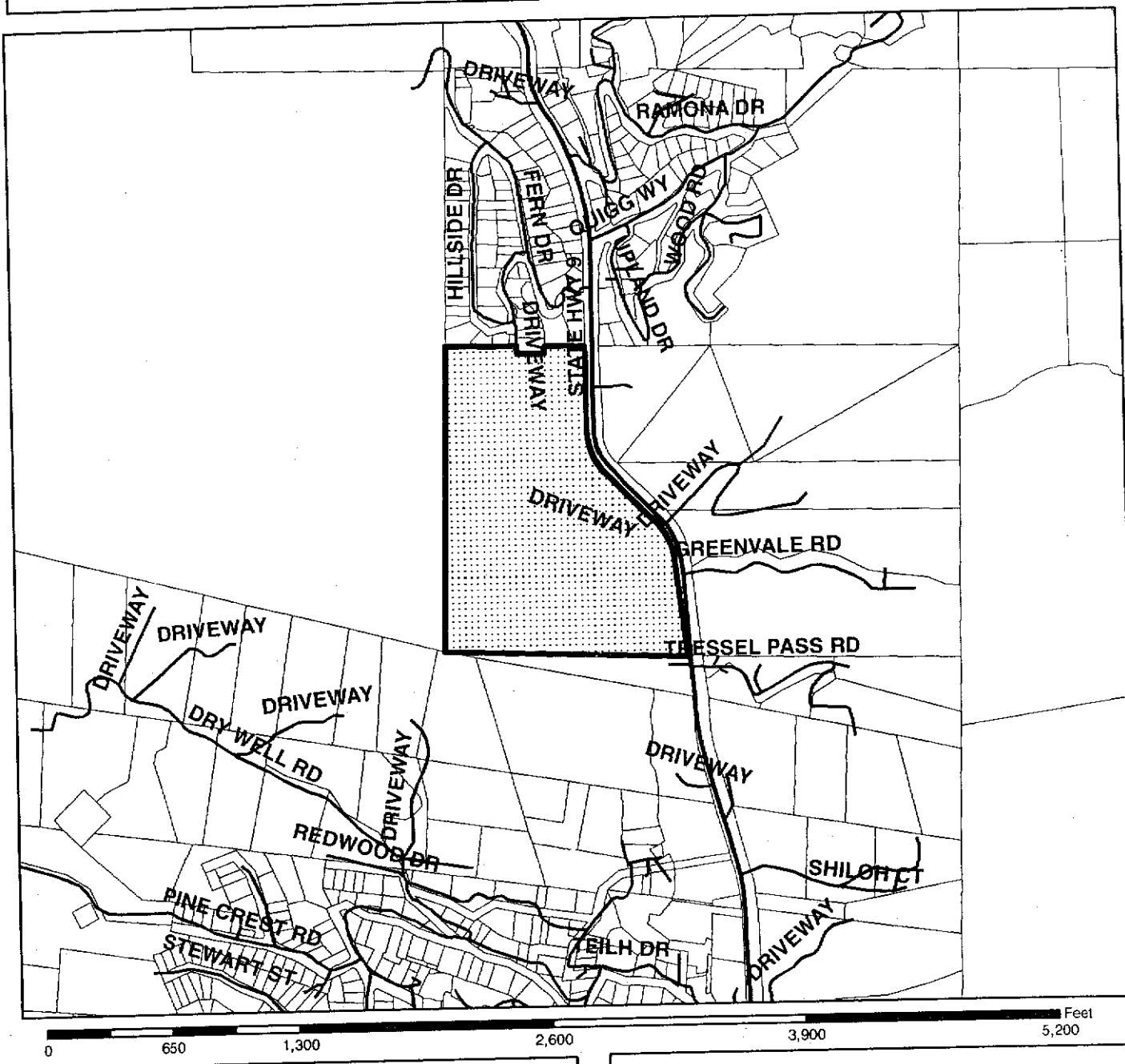
Electronically drawn 11/24/93 CB
Rev 5/25/98 KSA (CA)
Rev 8/30/01 mvn (changed page refs)
Rev 10/14/03 CB (104RS17)

Note - Assessor's Parcel & Block Numbers Shown in Circles.

Assessor's Map No. 87-32
County of Santa Cruz, Calif.
Nov. 1993

EXHIBIT E

Location Map



LEGEND

- APN: 087-321-02
- Assessors Parcels
- Streets
- State Highways

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W E
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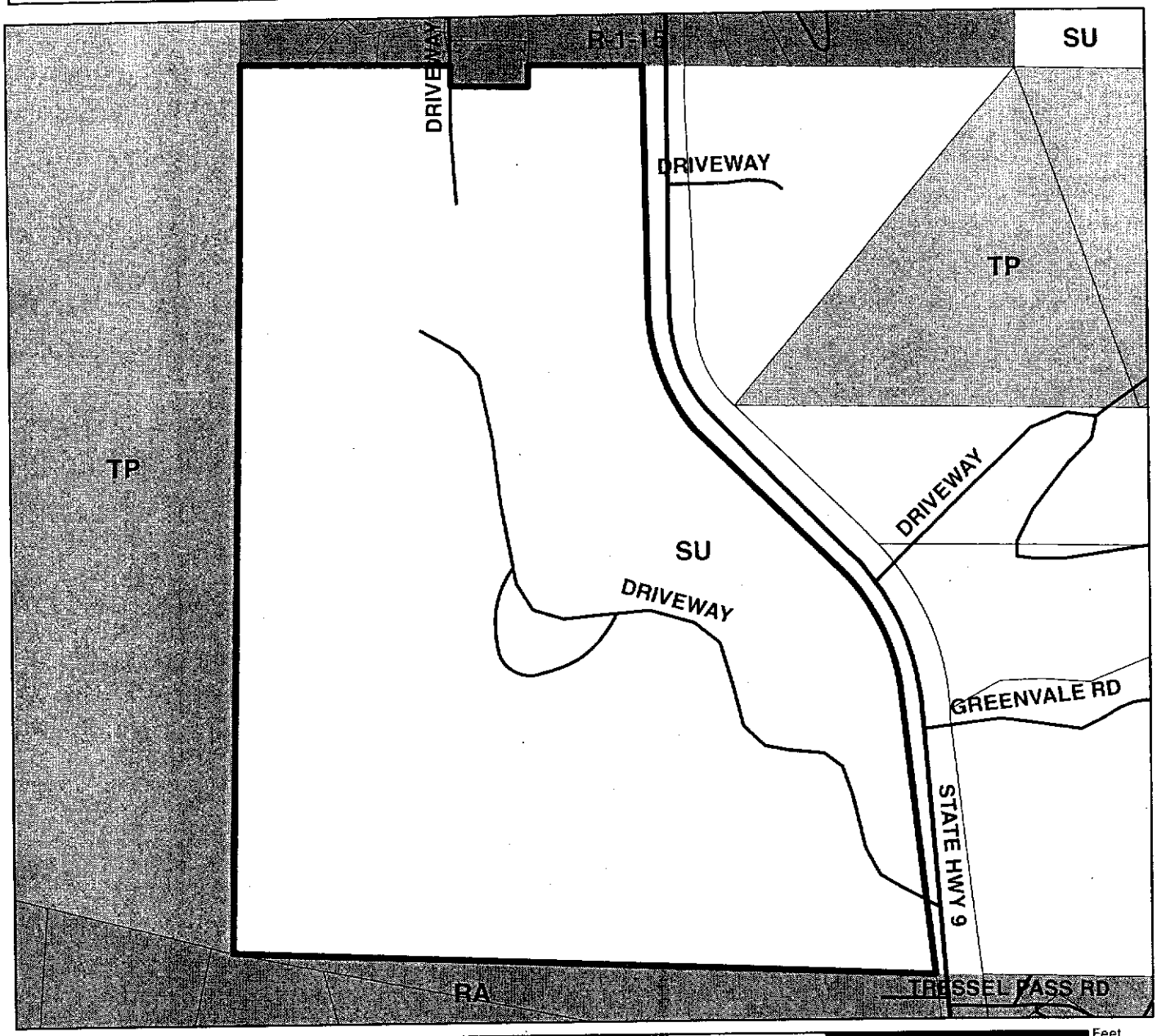
Map Created by
County of Santa Cruz
Planning Department
September 2008

EXHIBIT F

Zoning Map



0 230 460 920 1,380 1,840 Feet

LEGEND

- APN: 087-321-02
- Assessors Parcels
- Streets
- State Highways

STREAMTYPE

- PERENNIAL
- SPECIAL USE
- TIMBER PRODUCTION
- AGRICULTURE RESIDENTIAL
- RESIDENTIAL-SINGLE FAMILY

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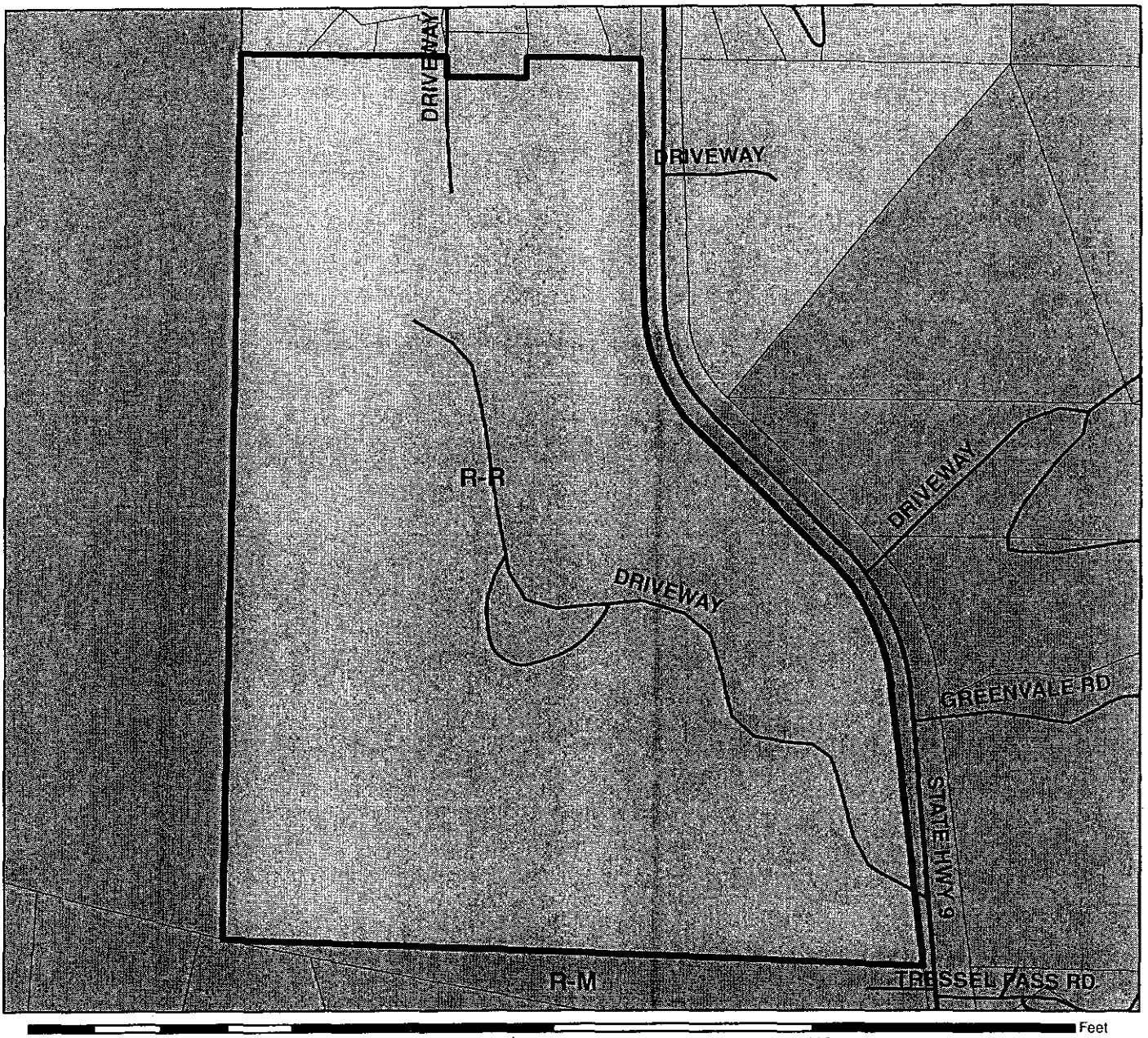
Map Created by
County of Santa Cruz
Planning Department
September 2008

EXHIBIT F

General Plan Designation Map



0 230 460 920 1,380 1,840 Feet

LEGEND

- APN: 087-321-02
- Assessors Parcels
- Streets
- State Highways

STREAMTYPE

- PERENNIAL
- Residential-Rural
- Residential-Mountain

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Map Created by
County of Santa Cruz
Planning Department
September 2008

EXHIBIT F